CITY OF NORTH OAKS

Regular City Council Meeting
Thursday, April 11, 2024
7:00 PM, Community Meeting Room, 100 Village Center Drive

MEETING AGENDA

Remote Access - *City Council members will participate in person in Council Chambers (Community Room, 100 Village Center Drive, Suite 150, North Oaks, MN) during the meeting. Members of the public are welcome to attend. Any person wishing to monitor the meeting electronically from a remote location may do so by calling the following Zoom meeting videoconference number: 1-312-626-6799, Webinar ID: 827 4700 1236 or by joining the meeting via the following link: https://us02web.zoom.us/j/82747001236.*

1. **Call to Order**

2. **Roll Call**

3. **Pledge of Allegiance**

4. **Citizen Comments** - *Members of the public are invited to make comments to the Council during the public comments section. Up to four minutes shall be allowed for each speaker. No action will be taken by the Council on items raised during the public comment period unless the item appears as an agenda item for action.*

5. **Approval of Agenda**

6. **Consent Agenda** - *These are items that are considered routine and can be acted upon with one vote.*

Approval of Licenses:

Arborists: Balsam Tree and Shrub; B4K Tree Industries; Central Minnesota Tree Service; Expert Tree; Primo Tree Experts LLC; Renstrom Tree Service; Rivard Tree Service; Vital Tree Service, LLC;

Mechanical: Air America Heating & Cooling, Inc.; B & D Plumbing, Heating & A/C; Don's Mechanical; Heating & Cooling Two; Little Igloo Heating & Air Condition, Inc.; Metro Gas Installers; Titan Heating & Cooling Inc.

Approval of meeting minutes of Special City Meeting 2.8.2024 and Regular City Council Meeting 2.8.2024

2.8.2024 Special City Council Minutes - draft.pdf

2.8.2024 City Council Minutes - draft.pdf

Approve resolution accepting donation

Approve resolution for CUP for building height in excess of 35 feet for property located at 1 Sherwood Trail
2024-04-11 CC Packet_1 Sherwood Trail.pdf

Approve resolution for CUP for building height in excess of 35 feet for property located at 2 Sherwood Trail
2024-04-11 CC packet_2 Sherwood Trail.pdf

Approve resolution for CUP for Garage Size in Excess of 1,500 Square Feet and Building Addition at 70 West Pleasant Lake Road
2024-04-11 CC Packet_70 W Pleasant.pdf

Resolution approving septic variance at 4 Dove Lane
2024-04-11 CC packet_4 dove lane.pdf

Resolution approving septic variance at 6 Badger Lane
2024-04-11 CC packet_6 Badger lane.pdf

Accept 2023 Audited Financials

7. Petitions, Requests & Communications - *Deputy Matt Lassegard Report*

8. Unfinished Business

Consider Ordinance amending City Code Title XV, Chapter 151, Regarding Solar Energy Systems
2024-04-11 CC Packet_solar ordinance.pdf

9. New Business

Consider Ordinance amending City Code, Title XV, Chapter 151, Regarding Building Height and Setbacks in the RSL - Residential Single-Family Low Density District
2024-04-11 CC Packet_buiding height ordinance.pdf

Consider resolution supporting retention of City zoning authority
NO Resolution re Local Zoning Control 4.05.2024.pdf

CC Memo re Zoning Preemption Ordinance.pdf

HF4010 4.02.2024.pdf

House Committee Advances Amended Multifamily Housing Development Bill - League of Minnesota Cities.pdf

10. Council Member Reports

11. City Administrator Reports

12. City Attorney Reports

13. Miscellaneous

2

City Forester Report

February in Review.pdf

March in Review.pdf

14. Adjournment - *The next meeting of the City Council is*

North Oaks City Council
Special Meeting Minutes
North Oaks City Council Chambers
February 8, 2024

1. CALL TO ORDER

Mayor Wolter called the meeting to order at 5:00 p.m.

2. ROLL CALL

Present: Mayor Krista Wolter, Councilor Sara Shah, Tom Watson, John Shuman (remote), Joined at 5:15 p.m. Mark Azman (running late)
Staff Present: Administrator Kevin Kress

A quorum was declared present.

3. Discussion Item(s)

3a. Discussion on Ramsey County Sheriff's Office (RCSO) Contract

- Mayor Wolter introduced the topic for the meeting, seeing where we are at and open discussion. Would like to hear how the community service officer worked.
- Councilor Watson reviewed a PowerPoint presentation on the contract. Ramsey County Sherriff Agreement expires 2024. They are 3-year agreements therefore the next review would be 2027. He notes it has been similar contract format for 25 years.
- Shah mentioned that Falcon Heights renegotiated and has different terms while rate went up. They got a separate 1-year contract with rate increase.
- Watson stated the objectives are:
  - Sustain a safe secure private community
  - Deter non-residents from entering community
  - Secure a law enforcement presence as a deterrent
  - Expected that criminal activity will be low or zero
  - Maintain an understanding of security options
- Having a North Oaks Community Service Officer (CSO) went into effect in 2001, the idea was to have a seen presence 40 hours a week. During first ½ dozen years the individuals were college students doing undergrad law enforcement degrees at River Falls. Worked well with variable schedules.
- He feels we are currently okay, but could strengthen the objectives.
- Historical overview calls for service (not crimes under investigation): 28% medical, 6% Assist Fire, 10% alarm calls, 18% traffic. During 2023, Waverly Gardens has been 22% of our calls for service. Others have been adjudicated (refer to the chart).
- Budget / Costs: The Ramsey County Sherriff 2024 budget was $1,025,140 (increase of $103,140)
- Services – Patrol allocation is 3.34 FTE. Issues around crime prevention, animal control, traffic, etc. North Oaks Deputy extra cost is 1.00 FTE. Original budget in 2021 was $838,796, in 2024 it will be $1,025,140.

- Variables how cost allocation work: He feels the calls for service handled by North Oaks Deputy should not be included in the 7 City cost allocation. Need to confirm if that is the case.
- Budget Components:
  - Patrol for North Oaks should be 3.34 FTE + 1.00 FTE
  - Incidents requiring investigation on 3-year avenue = 3.7%; we are charged 5.2%
    - We don't have as many incidents requiring investigation as other cities
  - Crime Prevention – North Oaks = 6.2%. What is the measure for us? North Oaks allocated $17,244 for 2024. Is there anything else we can be doing in this area?
  - Would like to see as much focus on Traffic as Crime prevention.
  - Property & Evidence – We are charged it, but there is not much evidence to support based on our crime.
- Conclusions:
  - Important to review the allocation of each "service unit" with consideration of new "demand factors" such as: 1) new senior multi-unit senior housing, 2) allocation based on severity of calls for service; (felonies, gross misdemeanors, misdemeanors, traffic, gun violence, DWIs).
  - Actions:
    - Can RCSO provide accountability of hours and service in North Oaks
    - Is it correct cost allocation to account for North Oaks Deputy – are we paying for incidents twice? (coming out of the general contract hours and again from assigned Deputy).
    - Consider separate agreement for North Oaks Deputy (RCSO has just made a separate contract for Falcon Heights, so those resources may still get dispatched from our cities to theirs).
    - Request a RCSO meeting to negotiate 2024 budget
    - Review the demand at Waverly compared to the rest of community; 42% calls for service:
      - Re-visit costs to City compared; benefit to cost; main bldg. $62,000. Director of Presbyterian Homes states they may need more public safety during early and day hours, than evenings than rest of community requires. Waverly pays $62,000 in taxes to the City. Should City review needs with Dan Erickson at Waverly.
- Councilor would like confirmation if Police is required at all medical calls. Who responds - just 1 squad, and fire department?
- Watson thought that NOHOA could hire private security at anytime they want. They can take pictures, and call for on patrol deputy to address more serious issues. RCSO still needs reason to stop someone for trespassing.
- It was thought that when Bob retired as CSO, unable to find a replacement. Council decided to go with regular patrol with more authority. RCSO was not fond of idea of using private security instead of their contracted Deputies. Private Community Service officer was known to the Community and regular patrol. Shah noted that Council has to determine if the value was there for the money.
- Current contract is 40 hours per week for Deputy Lassegard as part of $156,000 line item.

- Shah noted that even if we didn't have an individual CSO, that they are legally obligated to respond. Kress stated if there was not a 6 City agreement, then funds for support would be folded into Ramsey County taxes.
- If a City drops out of the contract, other Cities would be charged more or reduction in their staff. If North Oaks keeps their 1.0 Deputy, and kept their 1.0 CSO – the cost of funds coming out of the pool might be less as they are deterring some calls or addressing minor items on own.
- On Friday / Saturday nights there are 3 cities that require a majority of the calls: Little Canada, Shoreview and Vadnais Heights. Since May 1, 2022, reports reflect: Arden Hills has 12.3% of calls, Little Canada 23.6, North Oaks 5.9%, Shoreview 30.7%, Vadnais Heights 21.1%, White Bear Township 6.5%.
- Wolter noted a resident from the Waverly area was concerned that only looking at cameras at the 6 entrances. Those in the Waverly area are older and would feel more secure having the License Plate Reader cameras in place.
- North Oaks pays 8.95% of the overall contract, but fields 6% of the overall calls. It seems that Shoreview gets 30% of calls, but a lesser portion of the contract costs.
- Administrator Kress looking into how Bear Path handles their security, a similar size private community.
- We get a good presence from our CSO at community events, but perhaps we just need to press for police presence. Speed reduction carts are placed around on occasion, and there is currently a RCSO camera at Spring Farm area.
- Bear Path has Security, gates, and license plate readers for 300 homes and comes from Homeowners Association dues.
- Mayor Wolter noted that the CSO Bob, as well as Deputy Lassegard take Security seriously.
- Watson noted that we could perhaps use the Ramsey County Sherriff's office CSO program. They are on same radio frequency as licensed Deputy and could be working on the same day. Deputy Matt is $156,000. There are job openings through Ramsey County listed for CSO is $44,000 – 65,000. They would also need patrol car and benefits so perhaps $100,000.
- Shah noted that it might be good to separate the Ramsey County Sherriff's contract, however Sherriff's office may not be open to that.
- Watson would like to take some of the items and arrange a time to visit with RCSO Undersheriff Jeff Ramacher,and just make sure all the areas still fit for our community. Perhaps include Sherriff Fletcher and County Commissioner in the discussion if need be.
- Could also reach out to New Brighton for CSO function if need cost options.
- Investigations and having access to Sherriff resources is important resource – it's the daily costs and resources that we should discuss to ensure value.
- Moving forward: would like to set up a workshop with Ramsey County Sherriff's office to have a conversation, and see if any flexibility on arrangements. Watson prefers an initial visit with just a few members of Council. Then invite to a conversation with the whole Council. Also look at Crime Prevention piece for possible new ideas.
- Azman inquired what the current arrangement is like for Chippewa Middle School and why there are not more calls for service. Council was unsure if CSO program is back in place.

- Administrator Kress to inquire with Dan Erickson about Waverly needs, and if calls for service are different for Condo's. How do other cities handle multi-unit buildings?

- Next steps include Watson and Shuman to set meeting with Ramsey County Sherriff's office to discuss general topics:
  - What / if any is the impact of having multi-unit condo building on needs and costs
  - Kress to talk with Dan Erickson at Waverly about the drafted MSU agreement
  - Determine status of CSO response at Schools and incident tracking
  - What services get for Crime prevention
  - Traffic Patrol is 4.7% of charge, what services get / do we need more of.
  - How are incidents logged when Deputy Matt responds? Is there a double charge for the contract pool hours and also his CSO hours?

4. ADJOURNMENT

MOTION by Watson, seconded by Shah to adjourn the meeting 6:30 p.m. Motion carried unanimously by roll call.

_____ _____

Kevin Kress, City Administrator Krista Wolter, Mayor

Date approved_____

North Oaks City Council
Meeting Minutes
North Oaks City Council Chambers
February 8, 2024

1. CALL TO ORDER

Mayor Wolter called the meeting to order at 7:00 p.m.

2. ROLL CALL

Present: Mayor Krista Wolter. Council Members Mark Azman, John Shuman, Sara Shah, Tom Watson
Staff Present: Administrator Kevin Kress, City Attorney Bridget Nason, City Planner Mike Nielsen
Others Present: Videographer Kenny Ronnan
A quorum was declared present.

3. PLEDGE OF ALLEGIANCE

Mayor Wolter led the Council in the Pledge of Allegiance.

4. CITIZEN COMMENTS

Rick Kingston, 5 Island Road, wanted to bring up a few items. He thanked Council for taking on the Master Infrastructure Study Project which is a vital part of the community going forward. He can't imagine our community not having a process in place that identifies our infrastructure vulnerabilities 5-10 + years down the road. He feels like it is vital and what the public Council should be doing for the Community.

He also wanted to speak on the topic of privacy which has come up at every recent meeting and communication. He questioned how we define privacy? The 1st bullet of the recent concerned citizen petition states the LPR project infringes on their privacy rights: they want to come and go to and from home through City entrances without monitoring or being recorded. Kingston feels we haven't enforced our privacy rights since the gates came down years ago. Our Sheriff can't use public funds to enforce our privacy rules. Every day Instacart, Amazon, service workers are coming and going and the Sheriff can't pull every car over to determine their purpose in the City just because of their license plate. It's his understanding there has only been 1 formal trespassing charge in the past year, which was someone inside a home during a graduation party in Charley Lake area.

Kingston noted CNBC just reported that Amazon announced they are putting cameras and artificial intelligence in all of their Amazon delivery vehicles. They are doing this because their trucks are being attacked by criminals which are boxing in their trucks, stealing packages and putting their drivers at risk. Amazon has thoroughly evaluated the role of cameras and know they provide immediate response by law enforcement, aid in the prosecution of perpetrators and prevent attacks on their trucks when they know have been caught in act. This has proven to help track and catch criminals. He questions if residents concerned with LPR cameras are fine with Amazon and private dash cams filming license plates to prevent crime, but not the City in an effort to prevent crime. License plates are public records and Amazon and others filming license

plates can get name and address, so it's not actually private. For these reasons, Kingston is in full support of moving forward with the license plate reader program and feels City should move forward

5. APPROVAL OF AGENDA

Administrator Kress asked Council to add item 9d White Bear Township Memorandum of Understanding (MOU) to new business right after 9c.

MOTION by Shah, seconded by Watson, to approve the Agenda as revised.
Motion carried unanimously by roll call vote.

6. CONSENT AGENDA

6. Consent Agenda - *These are items that are considered routine and can be acted upon with one vote.*

- **6a. Approval of Licenses:**
  - **Arborist: 1-2 Tree Lawn and Landscape; A Tree Service, Inc.; Cameron Tree Services, Inc.; Central Minnesota Tree Service; Hugo's Tree Care, Inc.; Morgan's Tree Service; Northland Landscape & Construction; Precision Landscape & Tree; Rainbow Tree Care; Twin City Tree Authority; Vineland Tree Care**
  - **Mechanical: DJ's Home Service, LLC; Home Energy Center; Leaf Home Enhancements dba Tundraland; MN All Seasons Comforts LLC;**
- **6b. Approval of City Council Minutes from: Special meeting on 1.11.2024, Regular City Council Meeting on 1.11.2024, and Special City Council Meeting on 1.16.2024**
- **6c. Approval of City Financials - EFTs: 805E - 810E, Check #'s: 15206- 15240**

MOTION by Azman, seconded by Shuman, to approve the Consent Agenda as presented.
Motion carried unanimously by roll call vote.

7. PETITIONS, REQUESTS & COMMUNICATIONS

a. Deputy Matt Lassegard Report

Deputy Lassegard presented a summary of his monthly report which includes:

- 163 Calls for service. Spring Farm Sheriff's camera is still in place, and contractors also had a trail camera that took a picture, called police and caught the thief up there. Shuman noted information captured from both cameras will also help prosecute this person who had troubles in other cities.
- Believes they have suspect for driving incidents in local West Recreation center fields. Student will write letter, how it affects others and work on site with Mel's to repair fields.
- Housing watch program is going well and have twice as many on the list this year.
- Safety and Security – there have been numerous accidents involving elderly and driving. He asks residents to be alert to elder family members who: having trouble walking, hearing things outside of vehicle, or have unexplained dings and dents on their car. These are signs may be a good time to talk to them about not driving anymore for safety of all. There is a form to submit through the Minnesota DMV if feel there is a dangerous medical issue and it will trigger driving evaluation.
- Reminder to call 911 for any immediate issues.

- Fraud alert - Take precautions when selling cars to private parties. Make sure everything has been officially transferred out of your name after the sale, to ensure you are not liable if vehicle is involved in future incidents.

8. UNFINISHED BUSINESS

8a. Presentations on Solar energy Systems

Colin Buechel at All Energy Solar presented on Solar Energy. Key points include: 1) Types of solar arrays 2) examples of each type 3) rationale for choosing each array type, and 4) examples of ground arrays and screening.

- Types:
  - Rooftop includes Flush-mounted, tilt-up and flat roof ballasted.
  - Ground system types include: Four post-stationary (most common system), mono-post, pole mount, single or dual axis with manual or automatic trackers.
  - The type of system chosen is based on:
    - Access to direct sunlight
    - How are roof planes are oriented
    - Will roof require structural support
    - Difficulty of installation on steep or slate roofs, etc.
    - Cost – upfront cost for grounds arrays are higher with more complicated racking system and footings with longer installation and trenching. Rooftop has lower upfront cost, but may have future maintenance cost when roof shingles need replacement, and well as potential pest concerns such as squirrels between solar panels and rooftop chewing of wires. Structural upgrades may also be required to support panels.
- Most ground mounted are a 4-row panel system. Ground screws allow to adjust the height if the ground is sloped.
- Screening: Occasionally screening is required on ground mounted, but vast majority the jurisdictions do not have screening requirement written into code or local ordinances. From 2021-2023, they installed 165 solar system and only 1 required screening. There is only 1 that required a CUP. Examples of screening includes minimum of three, six-foot-tall evergreen trees to fill visual gaps between the solar array and the street right of way.

Brian Ross, VP of Renewable Energy at the Great Plains Institute, introduced himself.

- They are a non-profit based out of Minneapolis educating and helping communities navigate the clean energy future. They can help community's administrator the federal SolSmart program and become certified as Solar ready, as well as integrate into policy and procedures ways to incorporate green energy into community's own unique environment. They created the model solar ordinance and continue to evolve it over time to adapt to new technologies, and economics.

- Councilor Shuman asked how many of the 165-ground mounted solar are in rural areas vs. smaller lot residential areas. Mr. Buechel noted that required screening were on smaller lots. In the Metro area the vast majority are rooftop.

8b. Discussion and possible action on Aging in Place Grant

- Nicholas Ouellette, City Planner from Landform, introduced the Aging in Place Grant Survey Report and asked Council if there are any further changes they would like to see documented in the Plan. The grant funds awarded to the City were for creation of the Aging in Place Plan only, not for implementation of the plan. The plan identifies an action plan, and City would need to work with NOHOA to determine what items from the action plan can be put in place to help serve senior residents at a reasonable cost or with creative resources.

- Council was asked to take a final look at the Aging in Place Grant Plan and give feedback for any further changes to Administrator Kress.

9. NEW BUSINESS

9a. Discussion and possible action on cell phone tower survey

- Kress stated NOHOA was looking to put on the City website a survey on how residents feel about cell phone network service coverage in our Community – what works and what is spotty coverage. It was noted the Survey form should be tweaked to add where to send survey. It will be distributed on both NOHOA and City platforms. Kress will work with NOHOA to tweak and determine who will collect data. Councilors did not have any issues with this.

9b. Discussion and possible action on Planning Commission appointments, resolution appointing Planning Commission members, and resolution amending annual appointments

Kress noted there were 2 Planning Commission vacancies for the Planning Commission: a 1-year term and a 3-year term. The City received 3 applications, with 1 applicant dropping out.

MOTION by Azman, seconded by Shah, to approve Resolution 1507 appointing Joyce Yoshimura-Rank to a 1-year term, and David Loegering to a 3-year term on the Planning Commission. Motion carried unanimously.

Administrator Kress stated Resolution 1508 updates the names of the two newly appointed Planning Commissioners in the Master City list of appointments.

MOTION by Azman, seconded by Shuman, to approve Resolution 1508 amending the annual appointments. MOTION carried unanimously.

9c. Discussion and possible action on minute taking payment.

Administrator Kress noted that for the past 4 years the City has been outsourcing to Timesavers the taking of City Council Minutes, at an average rate of $250 per meeting. This was change from City staff taking minutes, to outsourcing to Timesavers, came after questions over detail in minute related to ongoing controversy with the new North Oaks Company developments. Kress suggested moving them back to City staff at a flat rate of $125 which is ½ the average cost of

Timesavers. Due to a full slate of normal work during the workday, transcription of meetings takes place after hours on non-work days. Paying staff $125 to take Council minutes would be a fair wage, while still saving the City money over Timesavers.

Watson suggested a flat rate plus hours if extensive. Shuman suggested stay with Timesavers if helpful for the morale of City staff. Some concerned if too little or too much money, but overall thought the proposal would all balance out as some are long meetings, while others are short meetings. Others deferred to City Administrator to do what best for staff, who confirmed staff is in favor of the proposal. The minutes are to be completed after normal business hours as to not take away from regular work.

MOTION by Watson, seconded by Shah, to pay City staff $125 to take minutes for City meetings. Motion carried unanimously.

9d. MOU Agreement with White Bear Township

Kress introduced the White Bear Township Memorandum of Understanding (MOU) document stating the new terms for utility maintenance support starting in 2025. Kress and Watson have been working on this with White Bear Township for past 6-8 months, and it has been sent to Council for review. They have worked with the White Bear Township Public Works Director and both City Attorneys to development agreement. Will need to install meter pits with magnetic flow meters on both sides to capture water flow data. Also, the City will need to find a new provider for maintenance of utilities such as lift stations and water lines, as well as taking on the water billing for the White Bear Township water (similar to how the City bills residents for use of Shoreview water). This does not impact future requests connecting newly built communities to White Bear Township, which will still have to apply through the Joint Power Agreement. This is just a change for ongoing maintenance support.

This agreement becomes effective in 2025 with no end date. The city would not see a reduction in amount billed by White Bear Township, but does resolve the cancellation notice from May 1, 2022. The agreement does not discuss water limits, that is part of the Joint Powers Agreement, and users would still be subject to any water restrictions like other White Bear Township water users.

MOTION by Watson, seconded by Wolter, to approve the White Bear Township MOU Agreement. Motion approved unanimously.

10. COUNCIL MEMBER REPORTS

- Nothing further from Councilor Watson.

- Councilor Shuman stated he had nothing from VLAWMO. He noted he would like to assemble as much information as possible to put on the City website, case studies from other clients with LPR, private data storage, community questions and answers, any legal opinions on the topic and give the community several weeks to interact and review information and

concerns. In the March or April Council meeting, he would like to see the Council LPR initiative on the agenda and make a 4 part motion: 1) Approval of the LRP Pilot initiative 2) data owned by City 3) authorizing City to sign contract 4) authorizing Ramsey County Sherriff office to be the only authorized end user party to access the information.

- Mayor Wolter stated Master Infrastructure plan meetings continue every two weeks with City Engineer and Sambatek. She reminds residents the MIP is about long-range planning for the City. She has seen there have been prices put out there by residents, however there has been NO pricing on any of this information, it is strictly gathering of information and discussion on needs. There will be interactive website and moving forward just looking ahead to what needs our City has in the long-term future.

- Councilor Shah shared that at the January Fire Board meeting, the Chief provided a summary of all calls from all contract cities with response times. Shah asked that Waverly Garden figures in their next meeting. Each City was asked to go back and investigate bond options for funding. Kress noted that either 1 City can take a lead with other cities paying in, or can take out multiple bonds. They will also look at other funding options.

- Azman noted he is in between meetings, nothing of significance to report.

11. CITY ADMINISTRATOR REPORTS

Administrator Kress deferred to City Engineer to provide update on County Road J project.

Engineer Nielson stated that Bolton-Menk was selected as the Engineer for the County J Road interchange reconstruction project. They are currently setting up a schedule for this project, and Cities are reviewing an intersection control evaluation. Nielsen will stay up to date and bring future project updates back to the Council.

12. CITY ATTORNEY REPORTS

None.

13. MISCELLANEOUS

13a. January 2024 Forestry Report

City Forester January report is included in the packet.

14. ADJOURNMENT

MOTION by Azman, seconded by Shah, to adjourn the meeting at 8:19 p.m. Motion carried unanimously by roll call.

_____ _____

Kevin Kress, City Administrator Krista Wolter, Mayor

Date approved_____

CITY OF NorthOaks
Building on a tradition of innovation

PLANNING REPORT

TO: North Oaks City Council

FROM: Kendra Lindahl, City Planner
Kevin Kress, City Administrator
Bridget McCauley Nason, City Attorney
Michael Nielson, City Engineer

DATE: April 5, 2024

RE: Conditional Use Permit for Building Height in Excess of 35 feet at 1 Sherwood Trail

Date Application Submitted	December 26, 2023
Date Application Determined Complete:	January 4, 2024
Planning Commission Meeting Date:	February 29, 2024
City Council Meeting Date:	April 11, 2024
120-day Review Date:	April 24, 2024

REQUEST

Mark Englund of Hanson Builders has requested approval of a conditional use permit to allow the construction of a new home at 1 Sherwood Trail to be 40 feet and 7 inches in height, greater than 35 feet in height permitted in the City Code. The applicant's narrative is attached, as well as building elevations, a survey and a site plan for the proposed structure.

PLANNING COMMISSION MEETING

The Planning Commission held a public hearing at their February 29th meeting. The Planning Commission asked questions about the tree removal that took place on the lot. Administrator Kress noted that the subdivision had a master grading plan approved, the majority of removed trees were diseased and the City does not have a tree preservation ordinance. Tree preservation is generally a NOHOA issue.

The Chair asked the applicant to provide more information about the tree removal and any restoration required by NOHOA. The Commission indicated support for the request but recommended adding a condition the Council evaluate the tree removal and replacement as part of the conditional use request.

The Commission voted 6-1 to recommend approval of the conditional use permit with the additional condition regarding trees.

Following the Planning Commission meeting, the applicant provided a copy of the NOHOA memo regarding tree removal and replacement for the lots at 1, 2, 8 and 12 Sherwood.

BACKGROUND

The site is currently undeveloped. The property is in the East Preserve development.

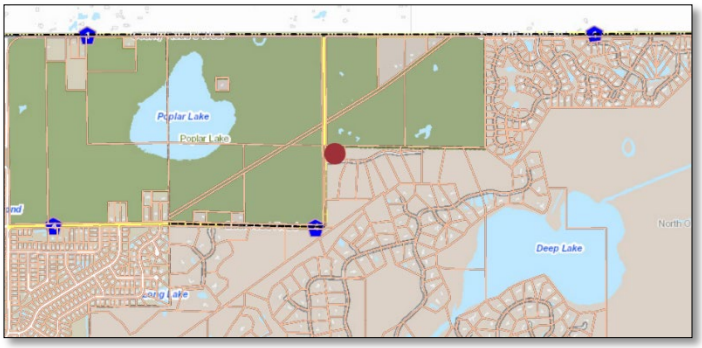


Figure 1 - Subject Parcel

Zoning and Land Use

The property is guided Low Density residential and is zoned Residential Single Family – Low Density (RSL). Homes greater than 35 feet in height are subject to the conditional use permit (CUP) standards and process in Section 151.050(D.7) (conditional uses), Section 151.076 (CUP review criteria) and Section 151.079 (CUP procedure) of the Zoning Code.

The 1.96-acre property is located at the northeast corner of Sherwood Trail and Sherwood Road (County Road 4).

PLANNING ANALYSIS

Setbacks

The proposed single-family home exceeds the 30-foot minimum setback requirements at all property lines and street easements. The front elevation is set back 60.7 feet from the roadway easement and the side and rear elevations are setback more than 100 feet from the adjacent property lines.

Height

The applicant is requesting a CUP to allow the eastside elevation of the proposed home to exceed 35 feet in height. Elevations provided by the applicant show the proposed home to be 40 feet and 7 inches in height along the eastern-side facade. The front, western-side and rear facades of the home are 35 feet in height. Building height is defined as the vertical distance from grade as defined herein to the top ridge of the highest roof surface in Section 151.005 of the Zoning Code.

Size

The footprint of the house is 3,208 square feet. A FAR worksheet has not been provided with the application. Plans must be in compliance with the maximum 12% FAR requirement at the time of review by the Building Official.

Building Height CUP

To allow a conditional use permit for a home greater than 35 feet in height, Section 151.05(D.7) of the Zoning Code requires that the following criteria be considered:

1. *The front elevation of the building does not exceed 35 feet in height at any point;*

   The proposed front elevation does not exceed 35 feet at any point.

2. *The building height at any other elevation does not exceed 45 feet;*

   The environmental and topographical conditions of the lot prior to building the single-family home are naturally suited to the design of a building with an egress or walkout level along the eastern-side facade.

3. *The environmental and topographical conditions of the lot prior to building development are naturally suited to the design of a building with an egress or walkout level;*

   Based on review of the plans, topography of the site and Ramsey County GIS, the proposed home and walkout level appear conducive to the site's natural layout. Prior to construction, the City will review all erosion control measures to ensure that the construction project does not adversely affect the surrounding environment. The City Engineer will make periodic site visits during construction to ensure all erosion control measures are fully complied with.

4. *Buildings shall be limited to a basement and 2 full stories. Finished areas within the roof structure will be considered a full story;*

   The proposed home is two full stories with a basement.

5. *Any time the side or rear elevations of a building exceeds 35 feet in height within 50 feet of adjacent lot lines, the building line shall be setback an additional 2 feet from the adjacent setback line for each foot in height above 35 feet; and*

   The proposed western-side and rear elevations are a maximum of 35 feet tall. The eastern-side elevation is 40 feet and 7 inches in height and is setback approximately 123 feet from the east property line where a 40 foot side yard setback would be required due to the increased height.

6. *Section 151.083 is complied with.*

   The applicant has complied with the fees associated with Section 151.083.

In addition to the standards identified for the specific CUP request, the City must also review the conditional use permit request against the standards in Section 151.076 of the City Code. Staff has reviewed the request against those standards:

1. *Relationship of the proposed conditional use to the Comprehensive Plan;*

   The proposed use is consistent with the uses anticipated in the Comprehensive Plan and the permitted uses in the single family zoning district.

2. *The nature of the land and adjacent land or building where the use is to be located;*

   The use is consistent with the surrounding land uses.

3. *Whether the use will in any way depreciate the area in which it is proposed;*

   The proposed single-family should not negatively impact adjacent property values.

4. *The effect upon traffic into and from the land and on adjoining roads, streets, and highways;*

   The proposed use will not create a traffic impact.

5. *Whether the use would disrupt the reasonable use and enjoyment of other land in the neighborhood;*

The proposed single-family home use will not cause a negative impact to the use and enjoyment of other land in the neighborhood.

6. *Whether adequate utilities, roads, streets, and other facilities exist or will be available in the near future;*

   There are adequate utilities, roads, streets, and other facilities available to the property.

7. *Whether the proposed conditional use conforms to all of the provisions of this chapter;*

   The proposed request is compliant with the City's zoning code.

8. *The effect up natural drainage patterns onto and from the site;*

   Finished grading will work with existing drainage patterns.

7. *Whether the proposed use will be detrimental to or endanger the public health, safety, comfort, convenience or general welfare of the neighborhood or the city;*

   The use as proposed will not be detrimental to or endanger the public health, safety, comfort, convenience or general welfare of the neighborhood or the city;

9. *Whether the proposed use would create additional requirements at public cost for public facilities and services and whether or not the use will be detrimental to the economic welfare of the neighborhood or city; and*

   As proposed, the use will not create additional requirements at public cost for public facilities and services and will not be detrimental to the economic welfare of the neighborhood or city.

10. *Whether the proposed use is environmentally sound and will not involve uses, activities, processes, materials, equipment, and conditions of operation that will be detrimental to any persons, land, or the general welfare because of excessive production of traffic, noise, smoke, fumes, wastes, toxins, glare, or orders.*

    Beyond initial construction activity, and based on erosion control requirements, the proposed residential use and grading activity will not be detrimental to the environment or surrounding area.

Attached for reference:

Exhibit A: Site Survey dated December 26, 2023

Exhibit B: Applicant Narrative dated December 26, 2023

Exhibit C: Building elevations dated December 26, 2023

Exhibit D: Email from NOHOA dated March 5, 2024

STAFF RECOMMENDATION

Based on the preceding review, Staff and Planning Commission recommend approval of the request for a Conditional Use Permit to allow construction of a single family home exceeding 35 feet in height at 1 Sherwood Trail, subject to the following conditions:

1. The home shall be constructed in accordance with the plans sets received on December 26, 2023.

2. The conditions of Title 151.027(D)2 (land reclamation) shall be satisfied before the issuance of a building permit. The building plan application shall contain an erosion and sediment control plan.

3. Tree disturbance should be strategically completed and remaining trees abutting construction disturbance areas shall have tree protection barriers installed at the dripline.

4. Erosion control shall be in place prior to the beginning of construction.
    a. Erosion control measures such as silt fence must be installed downstream of all proposed grading, in order to ensure proper containment of sedimentation on site. Extra care shall be taken to maintain all existing erosion control measures to ensure sedimentation due to grading activities is not tracked off site.
    b. Applicant shall ensure that grading and filling work does not result in the deposit of additional stormwater runoff onto adjacent properties.

5. Plans shall be approved by the Building Official prior to the commencement of construction.
    a. Plans must be in compliance with the maximum 12% FAR requirement at the time of review by the Building Official. If plans exceed the 12% FAR requirement, the applicant shall:
        i. Revise plans to comply with the 12% FAR requirement; or
        ii. Request a variance from the 12% FAR requirement.

6. All lighting on the single-family home shall be downcast and shielded in accordance with Section 151.031 of the City Code.

7. Any outstanding fees shall be paid prior to the issuance of a building permit.

8. The applicant shall comply with all applicable local, state and watershed district rules and regulations.

9. The Council shall evaluate the tree removal and replacement plan approved by NOHOA and outlined in the March 5, 2024 email and make it part of the record.

ACTION

Move to recommend approval of the resolution approving a Conditional Use Permit for Building Height in Excess of 35 feet at 1 Sherwood Trail, as recommended by the Planning Commission.

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA
RESOLUTION NO. _____

RESOLUTION APPROVING A CONDITIONAL USE PERMIT FOR BUILDING HEIGHT IN EXCESS OF 35 FEET AT 1 SHERWOOD TRAIL

WHEREAS, an application for a Conditional Use Permit has been submitted by Mark Englund of Hanson Builders for the real property located at 1 Sherwood Trail, North Oaks, Ramsey, County, Minnesota, and legally described on the attached **EXHIBIT A** (the "Property"); and

WHEREAS, a Conditional Use Permit is required for a home in excess of 35 feet in height; and

WHEREAS, the request has been reviewed against the relevant requirements of North Oaks Zoning Ordinance Sections 151.050 and 151.076, regarding the criteria for issuance of a Conditional Use Permit, and meets the minimum standards, is consistent with the Comprehensive Plan, is in conformance with the Zoning Ordinance, and does not have a negative impact on public health, safety, or welfare; and

WHEREAS, a public hearing concerning the Conditional Use Permit was held before the North Oaks Planning Commission in accordance with Minnesota Statutes, Section 462.357, subd. 3, on February 29, 2024 at which hearing the Planning Commission voted to recommend approval of the Conditional Use Permit application, subject to certain conditions.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTH OAKS, that a Conditional Use Permit to exceed a 35 foot building height, is approved for the Property subject to the following conditions:

1. The home shall be constructed in accordance with the plans sets received by the City on December 26, 2023 and shall have a maximum height as shown on the plans of 40 feet, 7 inches.

2. The conditions of Title 151.027(D)2 (land reclamation) shall be satisfied before the issuance of a building permit. The building permit application shall contain an erosion and sediment control plan.

3. Tree disturbance should be strategically completed and remaining trees abutting construction disturbance areas shall have tree protection barriers installed at the dripline.

4. Erosion control shall be in place prior to the beginning of construction.
    a. Erosion control measures such as silt fence must be installed downstream of all proposed grading, in order to ensure proper

containment of sedimentation on site. Extra care shall be taken to maintain all existing erosion control measures to ensure sedimentation due to grading activities is not tracked off site.

b. Applicant shall ensure that grading and filling work does not result in the deposit of additional stormwater runoff onto adjacent properties.

5. Plans shall be approved by the Building Official prior to the commencement of construction.
    a. Plans must be in compliance with the maximum 12% FAR requirement at the time of review by the Building Official. If plans exceed the 12% FAR requirement, the applicant shall:
        i. Revise plans to comply with the 12% FAR requirement; or
        ii. Request a variance from the 12% FAR requirement.

6. All lighting on the single-family home shall be downcast and shielded in accordance with Section 151.031 of the City Code.

7. Any outstanding fees shall be paid prior to the issuance of a building permit.

8. The applicant shall comply with all applicable local, state and watershed district rules and regulations.

9. The Council shall evaluate the tree removal and replacement plan approved by NOHOA and outlined in the March 5, 2024 email and make it part of the record.

BE IT FURTHER RESOLVED that the City Clerk, Deputy City Clerk, or City Attorney are hereby authorized and directed to record a certified copy of this Resolution with the Ramsey County Registrar of Titles.

Adopted by the City Council of the City of North Oaks this 11th day of April, 2024.

By: _____
Krista Wolter
Its: Mayor

Attested:

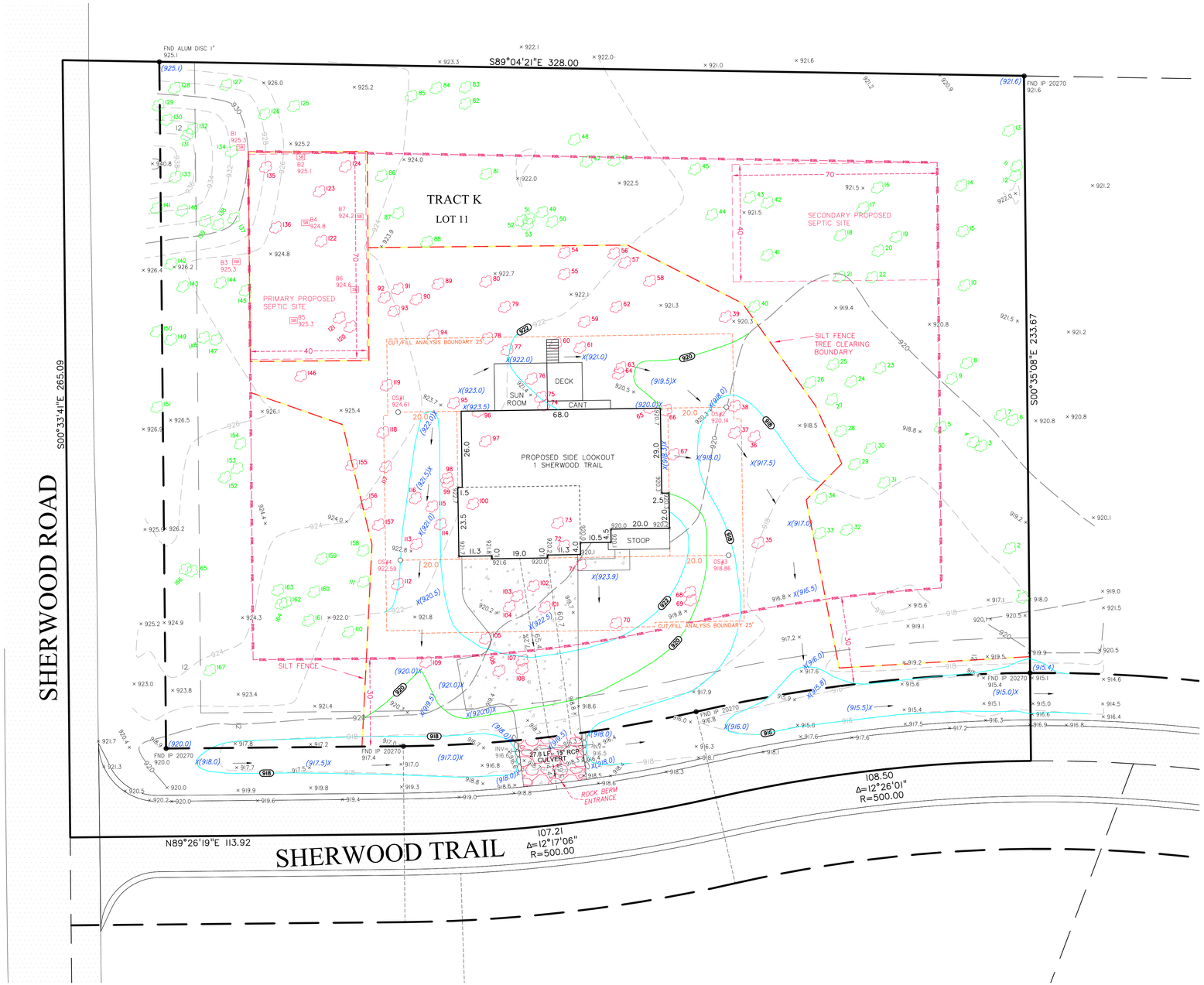
By: _____
Kevin Kress
Its: City Administrator

EXHIBIT A
LEGAL DESCRIPTION OF PROPERTY

Real property located in Ramsey County, Minnesota legally described as follows:

Tract K, Registered Land Survey No. 634, Ramsey County, Minnesota.

PIN: 063022130015



DESCRIPTION OF PROPERTY SURVEYED

Tract K, REGISTERED LAND SURVEY NO. 634, according to the recorded plat thereof, Ramsey County, Minnesota.

GENERAL NOTES

1) **Site Address**: 1 Sherwood Trail, North Oaks, Minnesota 55127

2) **Flood Zone Information**: This property appears to lie in Zone X (Areas outside the 1-percent annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.) per Flood Insurance Rate Map, Community Panel No. 27123C0030G, effective date of June 4th, 2010.

3) **Parcel Area Information**:
Gross Area: 83,071 s.f. ~ 1.91 acres
Roadway Easement Area: 17,631 s.f. ~ 0.40 acres
Lot Area To Roadway Easement: 65,440 s.f. ~ 1.50 acres

4) **Principal Structure Setbacks** - Front: 30 feet from roadway easement
Side: 30 feet
Rear: 30 feet

Please note that the general restrictions for the subject property may have been amended through a city process. We could be unaware of such amendments if they are not in a recorded document provided to us. We recommend that a zoning letter be obtained from the Zoning Administrator for the current restrictions for this site.

5) **Utilities**: We have shown the location of utilities to the best of our ability based on observed evidence together with evidence from the following sources: plans obtained from utility companies, plans provided by client, markings by utility companies and other appropriate sources. We have used this information to develop a view of the underground utilities for this site. However, lacking excavation, the exact location of underground features cannot be accurately, completely and reliably depicted. Where additional or more detailed information is required, the client is advised that excavation may be necessary. Also, please note that seasonal conditions may inhibit our ability to visibly observe all the utilities located on the subject property.

Tract K, #1 Sherwood Trail

An easement, for purposes of a roadway for ingress and egress, over the southerly 30.00 feet thereof and being adjacent to Tract J, REGISTERED LAND SURVEY NO. 634.
An easement for utility purposes over the northerly 12.00 feet of the southerly 42.00 feet and over the east 12.00 feet of the west 45 feet thereof.
Subject to Sherwood Road (County State Aid Highway 4) on the west.

Proposed Elevations - LO

Proposed Garage Floor Elevation	= 924.2
Proposed Top of Foundation Elevation	= 924.5
Proposed Lookout Elevation	= 919.0
Proposed Basement Floor Elevation	= 915.8

Hardcover

Lot Area	= 83,071	S.F.
House Area	= 3,208	S.F.
Driveway Area	= 2,477	S.F.
Front Walk Area	= 86	S.F.
Roadway Area	= 6,440	S.F.
Stoop Area	= 237	S.F.
Deck Area	= 227	S.F.
Total Area	= 12,675	S.F.

Coverage = 15.3%

Grading Quantities (CY)	
Fill	-26.48
Cut	0
House Footing	0
Garage Footing	0
Porch Footing	0
Driveway	0
Egress Pit	0
Total Fill	-26.48
Total Cut	0
Total (+/-)	-26.48

NORTH

Bearings are based on the Hennepin County Coordinate System (NAD 83 - 1986 adj.)

20 10 0 10 20 40
SCALE IN FEET

SURVEY LEGEND

- CAST IRON MONUMENT
- IRON PIPE MONUMENT SET
- IRON PIPE MONUMENT FOUND
- DRILL HOLE FOUND
- CHISELED "X" MONUMENT SET
- CHISELED "X" MONUMENT FOUND
- REBAR MONUMENT FOUND
- PK NAIL MONUMENT SET
- PK NAIL MONUMENT FOUND
- PK NAIL W/ ALUMINUM DISC
- SURVEY CONTROL POINT
- A/C UNIT
- CABLE TV PEDESTAL
- ELECTRIC TRANSFORMER
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC OUTLET
- YARD LIGHT
- LIGHT POLE
- FIBER OPTIC MANHOLE
- FIRE DEPT. HOOK UP
- FLAG POLE
- FUEL PUMP
- FUEL TANK
- PROPANE TANK
- GAS METER
- GAS VALVE
- GAS MANHOLE
- GENERATOR
- GUARD POST
- HAND HOLE
- MAIL BOX
- PIEZOMETER
- POWER POLE
- GUY WIRE
- ROOF DRAIN
- LIFT STATION
- SANITARY MANHOLE
- SANITARY CLEANOUT
- STORM MANHOLE
- STORM DRAIN
- CATCH BASIN
- FLARED END SECTION
- TREE CONIFEROUS
- TREE DECIDUOUS
- TREE CONIFEROUS REMOVED
- TREE DECIDUOUS REMOVED
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- UTILITY MANHOLE
- UTILITY PEDESTAL
- UTILITY VAULT
- WATERMAIN MANHOLE
- WATER METER
- WATER SPIGOT
- WELL
- MONITORING WELL
- CURB STOP
- GATE VALVE
- HYDRANT
- IRRIGATION VALVE
- POST INDICATOR VALVE
- SIGN
- SOIL BORING
- WOE WALKOUT ELEVATION
- FFE FIRST FLOOR ELEVATION
- GFE GARAGE FLOOR ELEVATION
- TOF TOP OF FOUNDATION ELEV.
- LOE LOWEST OPENING ELEV.
- CONCRETE
- BITUMINOUS
- BUILDING SETBACK LINE
- CABLE TV
- CONCRETE CURB
- CONTOUR EXISTING
- CONTOUR PROPOSED
- GUARD RAIL
- DRAIN TILE
- ELECTRIC UNDERGROUND
- FENCE
- FIBER OPTIC UNDERGROUND
- GAS UNDERGROUND
- OVERHEAD UTILITY
- TREE LINE
- SANITARY SEWER
- STORM SEWER
- TELEPHONE UNDERGROUND
- RETAINING WALL
- UTILITY UNDERGROUND
- WATERMAIN
- TRAFFIC SIGNAL
- RAILROAD TRACKS
- RAILROAD SIGNAL
- RAILROAD SWITCH
- SATELLITE DISH
- WETLAND BUFFER SIGN

FIELD CREW	NO.	BY	DATE	REVISION
AK	1	ML	10/18/2023	HOUSE STAKED IN FIELD
DRAWN	2	ML	10/25/2023	HOUSE PLANS - PROPOSED ELEVATIONS
ML	3	ML	10/30/2023	DECK - RETWALL - EGRESS
CHECKED	4	ML	11/13/2023	SILT FENCE
DLS	5	ML	11/22/2023	REMOVE TREES IN SEPTIC AREA
DATE	6	ML	11/30/2023	TREES TO BE REMOVED
10/10/2023	9	ML	12/22/2023	PROPOSED ELEVATIONS

I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Dated this 18th day of October, 2023.

Daniel L. Schmidt

Daniel L. Schmidt, PLS Minnesota License No. 26147
schmidt@sathre.com

SATHRE-BERGQUIST, INC.
14000 25TH AVENUE NORTH, SUITE 120
PLYMOUTH MN 55447 (952) 476-6000
WWW.SATHRE.COM

TWP:30-RGE:20-SEC.06
Ramsey County

NORTH OAKS, MINNESOTA

CERTIFICATE OF SURVEY

PREPARED FOR:

HANSON BUILDERS

FILE NO. 3279-1512

1 / 2

Proposed Conditional Use Permit

For Height Variance for Partial Lookout Basement Foundation

1 Sherwood Trail, East Preserve Subdivision, North Oaks, MN

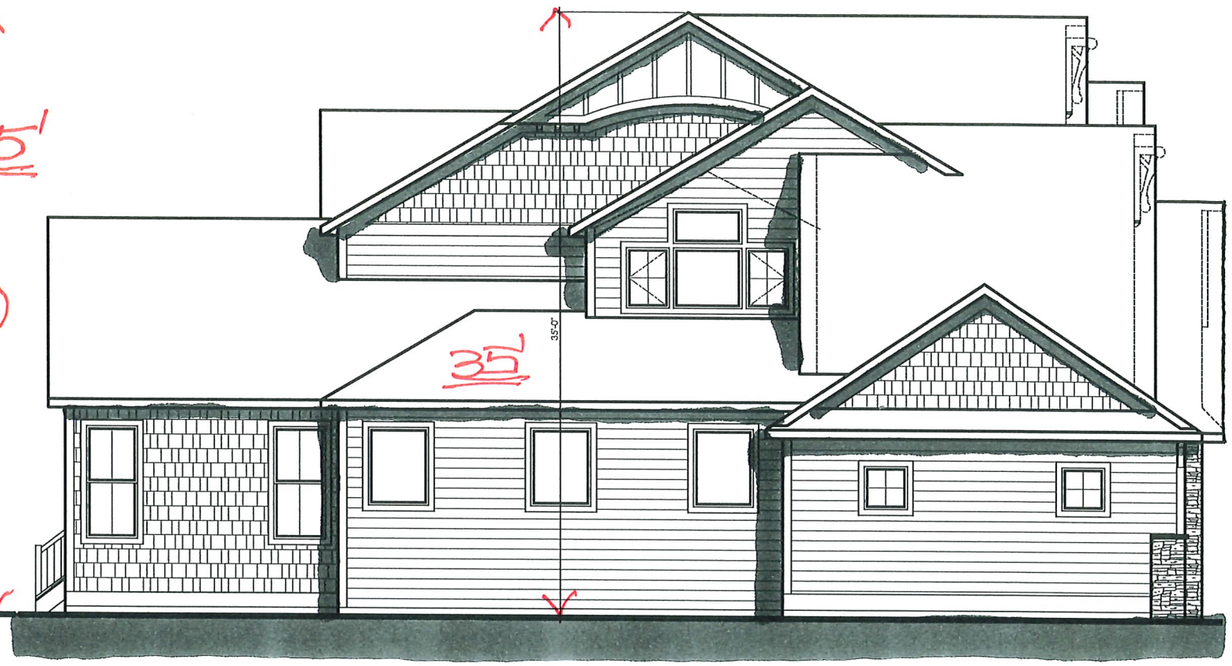
Our purpose in applying for a Conditional Use Permit for our proposed home at 1 Sherwood Trail in East Preserve, North Oaks is to request a height variance to make the basement a partial lookout at the east wall where the natural grade drops about 5.5 feet from the garage elevation to proposed lookout elevation.

We would like to add windows to the lower floor on the east side of the home to take advantage of the natural grade drop and thereby allow light and views of the woods rather than bring in additional fill to turn it into a full basement foundation. The resulting exposed building height would remain 35-feet in the front, left and rear elevations and about 40.5-feet on the right lookout side elevation from grade to ridge.

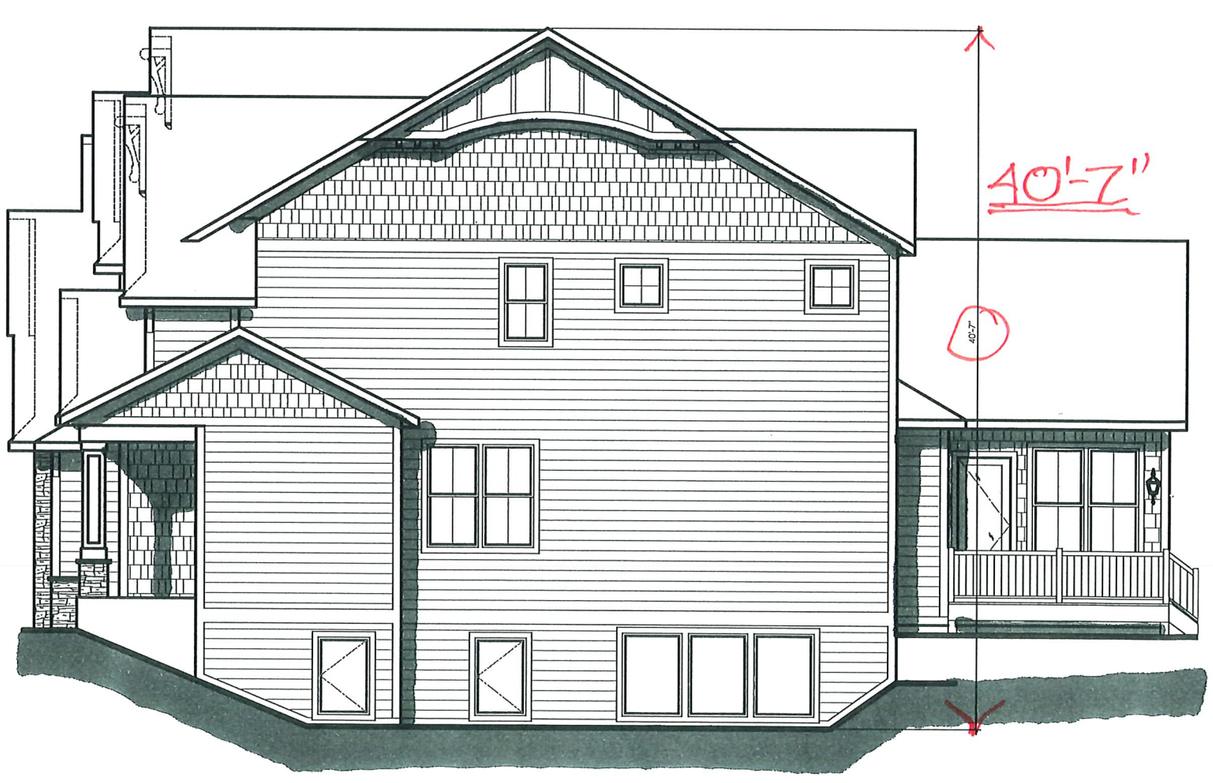
Our engineer, Sathre Bergquist, who did the overall engineering for the East Preserve subdivision, has calculated the Grading Quantities involved with this project to be +/- 26.48 Cubic Yards of fill.

Thank you for your consideration of this requested height variance of 5.5 feet.

Hanson Builders, Inc.



1 SHERWOOD TRAIL



Sherwood. We followed your suggested format of addressing code section 151.078 pertaining to variances and provided as much supporting information and visuals as we thought necessary to address the practical difficulties of building on this lot.

Take a look and let us know if you have any questions or suggestions before compiling this packet for the next planning commission meeting

Thanks for your help so far

SCOTT HOCKERT
VP of Production

HANSON
BUILDERS

952.452.4793 | hansonbuilders.com

13432 Hanson Blvd NW, Andover, MN 55304

From: Scott Hockert <Scott@hansonbuilders.com>
Date: Tuesday, March 5, 2024 at 2:25 PM
To: Kendra Lindahl, AICP <KLindahl@landform.net>
Cc: Kevin Kress (kkress@northoaksmn.gov) <KKress@northoaksmn.gov>
Subject: Re: 8 Sherwood

Below is the email communication from Bill Long pertaining to the tree agreement. I'll follow up with the revised narrative

Good Afternoon Everyone,

I want to update you on the plan that NOHOA has agreed to with Hanson Builders in the Sherwood Trail area.

1. NOHOA and Hanson Builders have agreed that Hanson will plant a total of twenty trees, each of a minimum 2.5 inch diameter at breast height, on the five lots that Hanson acquired from the North Oaks Company on Sherwood Trail in North Oaks.
2. Tentatively, these trees will be planted on Sherwood lots 1,2, 8 and 12. Taking a closer look at the topography of the area and where the most ash trees were lost, we think planting along the west side of lots 1 and 2 along Sherwood Road will improve screening for the entire area. Planting trees on the south sides of lots 8 and 12 will ensure some screening of the homes on Red Maple Lane. Since lot 4 basically backs up to a wetland, we didn't feel the need to screen that area.
3. Hanson to consult with Steve Nicholson, a certified forester, of TreeBiz LLC on species selection and exact locations of the plantings to optimize their benefit. The locations, but not the total number of trees to be planted, may be modified based on Mr. Nicholson's input.
4. Neighbors on Sherwood Trail and Red Maple Lane are encouraged to collaborate with Hanson in

planting additional trees at the neighbors' expense on their own properties to help mitigate the loss of so many ash trees in the area to Emerald Ash Borer.

5. NOHOA (Bill Long and Julia Hupperts,) can assist in coordinating a walkthrough of the area with Hanson, TreeBiz and neighbors in the area as the tree plan is finalized.

Also, though this wasn't part of the agreement, NOHOA is trying to find a way to get better pricing on trees to be planted in this area. With such a large number going in to a single neighborhood, we may be able to get a discount. Please let me know if you have any questions or concerns. I will keep you posted as to next steps and timing.

Bill

Bill Long
NOHOA Secretary
BODLong@nohoa.org
651-276-4392

SCOTT HOCKERT
VP of Production

HANSON
BUILDERS

952.452.4793 | hansonbuilders.com

13432 Hanson Blvd NW, Andover, MN 55304

From: Kendra Lindahl, AICP <KLindahl@landform.net>
Date: Tuesday, March 5, 2024 at 1:43 PM
To: Scott Hockert <Scott@hansonbuilders.com>
Cc: Kevin Kress (kkress@northoaksmn.gov) <KKress@northoaksmn.gov>
Subject: RE: 8 Sherwood

Scott,

Yes, please share whatever information you have about the tree removal and restoration agreement. It may help head off further discussion at the Council.

If you can get your narrative in by the end of the week, that would be great.

We are only going to have 3 council members at the 3/14 meeting, so we will push all of the planning items to the April 11th Council meeting.

CITY OF
NorthOaks
Building on a tradition of innovation

PLANNING REPORT

TO: North Oaks City Council

FROM: Kendra Lindahl, City Planner
Kevin Kress, City Administrator
Bridget McCauley Nason, City Attorney
Michael Nielson, City Engineer

DATE: April 5, 2024

RE: Conditional Use Permit for Building Height in Excess of 35 feet at 2 Sherwood Trail

Date Application Submitted	January 25, 2024
Date Application Determined Complete:	February 2, 2024
Planning Commission Meeting Date:	February 29, 2024
60-day Review Date:	March 25, 2024
City Council Meeting Date:	April 11, 2024
120-day Review Date:	May 24, 2024

REQUEST

Mark Englund of Hanson Builders has requested approval of a conditional use permit to allow the construction of a new home at 2 Sherwood Trail to be 39.63 feet in height where 35 feet is the maximum height permitted in the City Code. The applicant's narrative is attached, as well as building elevations, a survey and a site plan for the proposed structure.

PLANNING COMMISSION MEETING

The Planning Commission held a public hearing on February 29, 2024. There was no one present to speak on this item. The Planning Commission voted 7-0 to recommend approval.

BACKGROUND

The site is currently undeveloped. The property is in the East Preserve development.

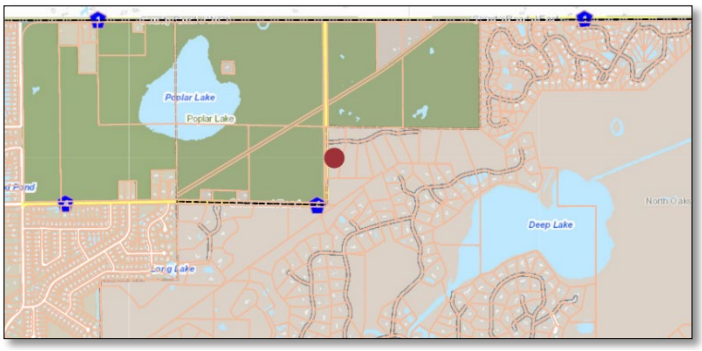


Figure 1 - Subject Parcel

Zoning and Land Use

The property is guided Low Density residential and is zoned Residential Single Family – Low Density (RSL). Homes greater than 35 feet in height are subject to the conditional use permit (CUP) standards and process in Section 151.050(D.7) (conditional uses), Section 151.076 (CUP review criteria) and Section 151.079 (CUP procedure) of the Zoning Code.

The 3.75-acre property is located at the southeast corner of Sherwood Trail and Sherwood Road (County Road 4).

PLANNING ANALYSIS

Setbacks

The proposed single-family home exceeds the 30-foot minimum setback requirements at all property lines and street easements. The front elevation is setback 33.5 feet from the roadway easement and the side and rear elevations are setback more than 80 feet from the adjacent property lines.

Height

The applicant is requesting a CUP to allow the southern (rear) elevation of the proposed home to exceed 35 feet in height. Elevations provided by the applicant show the proposed home to be 39.63 feet in height along the rear facade. The front and side facades of the home are 34.8 feet in height. Building height is defined in Section 151.005 of the Zoning Code as the vertical distance from grade to the top ridge of the highest roof surface.

Size

The footprint of the house is 2,808 square feet. A FAR worksheet has not been provided with the application. Plans must be in compliance with the maximum 12% FAR requirement at the time of review by the Building Official.

Building Height CUP

To allow a conditional use permit for a home greater than 35 feet in height, Section 151.05(D.7) of the Zoning Code requires that the following criteria be considered:

1. *The front elevation of the building does not exceed 35 feet in height at any point;*

   The proposed front elevation does not exceed 35 feet at any point.

2. *The building height at any other elevation does not exceed 45 feet;*

   The building height at the rear and side elevations does not exceed 45 feet.

3. *The environmental and topographical conditions of the lot prior to building development are naturally suited to the design of a building with an egress or walkout level;*

   Based on review of the plans, topography of the site and Ramsey County GIS, the proposed home and lookout level appear conducive to the site's natural layout. Prior to construction, the City will review all erosion control measures to ensure that the construction project does not adversely affect the surrounding environment. The City Engineer will make periodic site visits during construction to ensure all erosion control measures are fully complied with.

4. *Buildings shall be limited to a basement and 2 full stories. Finished areas within the roof structure will be considered a full story;*

   The proposed home is two full stories with a basement.

5. *Any time the side or rear elevations of a building exceeds 35 feet in height within 50 feet of adjacent lot lines, the building line shall be setback an additional 2 feet from the adjacent setback line for each foot in height above 35 feet; and*

   The proposed front and side elevations are a maximum of 35 feet tall. The rear elevation is 39.63 in height and is setback more than 100 feet from the south and east property line where a 40 foot side yard setback would be required due to the increased height.

6. *Section 151.083 is complied with.*

The applicant has complied with the fees associated with Section 151.083.

In addition to the standards identified for the specific CUP request, the City must also review the conditional use permit request against the standards in Section 151.076 of the City Code. Staff has reviewed the request against those standards:

1. *Relationship of the proposed conditional use to the Comprehensive Plan;*

   The proposed use is consistent with the uses anticipated in the Comprehensive Plan and the permitted uses in the single family zoning district.

2. *The nature of the land and adjacent land or building where the use is to be located;*

   The use is consistent with the surrounding land uses.

3. *Whether the use will in any way depreciate the area in which it is proposed;*

   The proposed single-family should not negatively impact adjacent property values.

4. *The effect upon traffic into and from the land and on adjoining roads, streets, and highways;*

   The proposed use will not create a traffic impact.

5. *Whether the use would disrupt the reasonable use and enjoyment of other land in the neighborhood;*

   The proposed single-family home use will not cause a negative impact to the use and enjoyment of other land in the neighborhood.

6. *Whether adequate utilities, roads, streets, and other facilities exist or will be available in the near future;*

   There are adequate utilities, roads, streets, and other facilities available to the property.

7. *Whether the proposed conditional use conforms to all of the provisions of this chapter;*

   The proposed request is compliant with the City's zoning code.

8. *The effect up natural drainage patterns onto and from the site;*

Finished grading will work with existing drainage patterns.

7. *Whether the proposed use will be detrimental to or endanger the public health, safety, comfort, convenience or general welfare of the neighborhood or the city;*

   The use as proposed will not be detrimental to or endanger the public health, safety, comfort, convenience or general welfare of the neighborhood or the city;

9. *Whether the proposed use would create additional requirements at public cost for public facilities and services and whether or not the use will be detrimental to the economic welfare of the neighborhood or city; and*

   As proposed, the use will not create additional requirements at public cost for public facilities and services and will not be detrimental to the economic welfare of the neighborhood or city.

10. *Whether the proposed use is environmentally sound and will not involve uses, activities, processes, materials, equipment, and conditions of operation that will be detrimental to any persons, land, or the general welfare because of excessive production of traffic, noise, smoke, fumes, wastes, toxins, glare, or orders.*

    Beyond initial construction activity, and based on erosion control requirements, the proposed residential use and grading activity will not be detrimental to the environment or surrounding area.

Attached for reference:

Exhibit A:	Location Map
Exhibit B:	Site Survey dated January 25, 2024
Exhibit C:	Applicant Narrative dated January 25, 2024
Exhibit D:	Building elevations dated January 25, 2024
Exhibit E:	Email from NOHOA dated March 5, 2024

STAFF RECOMMENDATION

Based on the preceding review, Staff recommends approval of the request for a Conditional Use Permit to allow construction of a single family home exceeding 35 feet in height at 2 Sherwood Trail, subject to the following conditions:

1. The home shall be constructed in accordance with the plans sets received on January 25, 2024 and the building height shall not exceed 39.63 feet.

2. The conditions of Title 151.027(D)2 (land reclamation) shall be satisfied before the issuance of a building permit. The building plan application shall contain an erosion and sediment control plan.

3. Tree disturbance should be strategically completed and remaining trees abutting construction disturbance areas shall have tree protection barriers installed at the dripline.

4. Erosion control shall be in place prior to the beginning of construction.
    a. Erosion control measures such as silt fence must be installed downstream of all proposed grading, in order to ensure proper containment of sedimentation on site. Extra care shall be taken to maintain all existing erosion control measures to ensure sedimentation due to grading activities is not tracked off site.
    b. Applicant shall ensure that grading and filling work does not result in the deposit of additional stormwater runoff onto adjacent properties.

5. Plans shall be approved by the Building Official prior to the commencement of construction.
    a. Plans must be in compliance with the maximum 12% FAR requirement at the time of review by the Building Official. If plans exceed the 12% FAR requirement, the applicant shall:
        i. Revise plans to comply with the 12% FAR requirement; or
        ii. Request a variance from the 12% FAR requirement before a building permit may be issued.

6. All lighting on the single-family home shall be downcast and shielded in accordance with Section 151.031 of the City Code.

7. Any outstanding fees shall be paid prior to the issuance of a building permit.

8. The applicant shall comply with all applicable local, state and watershed district rules and regulations.

ACTION

Move to adopt the resolution approving a Conditional Use Permit for Building Height in Excess of 35 feet at 2 Sherwood Trail, as recommended by the Planning Commission.

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA
RESOLUTION NO. _____

RESOLUTION APPROVING A CONDITIONAL USE PERMIT FOR BUILDING HEIGHT IN EXCESS OF 35 FEET AT 2 SHERWOOD TRAIL

WHEREAS, an application for a Conditional Use Permit has been submitted by Mark Englund of Hanson Builders for the real property located at 2 Sherwood Trail, North Oaks, Ramsey, County, Minnesota, and legally described on the attached **EXHIBIT A** (the "Property"); and

WHEREAS, a Conditional Use Permit is required for a home in excess of 35 feet in height; and

WHEREAS, the request has been reviewed against the relevant requirements of North Oaks Zoning Ordinance Sections 151.050 and 151.076, regarding the criteria for issuance of a Conditional Use Permit, and meets the minimum standards, is consistent with the Comprehensive Plan, is in conformance with the Zoning Ordinance, and does not have a negative impact on public health, safety, or welfare; and

WHEREAS, a public hearing concerning the Conditional Use Permit was held before the North Oaks Planning Commission in accordance with Minnesota Statutes, Section 462.357, subd. 3, on February 29, 2024 at which hearing the Planning Commission voted to recommend approval of the Conditional Use Permit application, subject to certain conditions.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTH OAKS, that a Conditional Use Permit to exceed a 35-foot building height, is approved for the Property subject to the following conditions:

1. The home shall be constructed in accordance with the plans sets received on January 25, 2024 and shall have a maximum height as shown on the plans of 39.63 feet.

2. The conditions of Title 151.027(D)2 (land reclamation) shall be satisfied before the issuance of a building permit. The building permit application shall contain an erosion and sediment control plan.

3. Tree disturbance should be strategically completed and remaining trees abutting construction disturbance areas shall have tree protection barriers installed at the dripline.

4. Erosion control shall be in place prior to the beginning of construction.

a. Erosion control measures such as silt fence must be installed downstream of all proposed grading, in order to ensure proper containment of sedimentation on site. Extra care shall be taken to maintain all existing erosion control measures to ensure sedimentation due to grading activities is not tracked off site.
b. Applicant shall ensure that grading and filling work does not result in the deposit of additional stormwater runoff onto adjacent properties.

5. Plans shall be approved by the Building Official prior to the commencement of construction.
    a. Plans must be in compliance with the maximum 12% FAR requirement at the time of review by the Building Official. If plans exceed the 12% FAR requirement, the applicant shall:
        i. Revise plans to comply with the 12% FAR requirement; or
        ii. Request a variance from the 12% FAR requirement before a building permit may be issued.

6. All lighting on the single-family home shall be downcast and shielded in accordance with Section 151.031 of the City Code.

7. Any outstanding fees shall be paid prior to the issuance of a building permit.

8. The applicant shall comply with all applicable local, state and watershed district rules and regulations.

BE IT FURTHER RESOLVED that the City Clerk, Deputy City Clerk, or City Attorney are hereby authorized and directed to record a certified copy of this Resolution with the Ramsey County Registrar of Titles.

Adopted by the City Council of the City of North Oaks this 11th day of April, 2024.

By: _____
Krista Wolter
Its: Mayor

Attested:

By: _____
Kevin Kress
Its: City Administrator

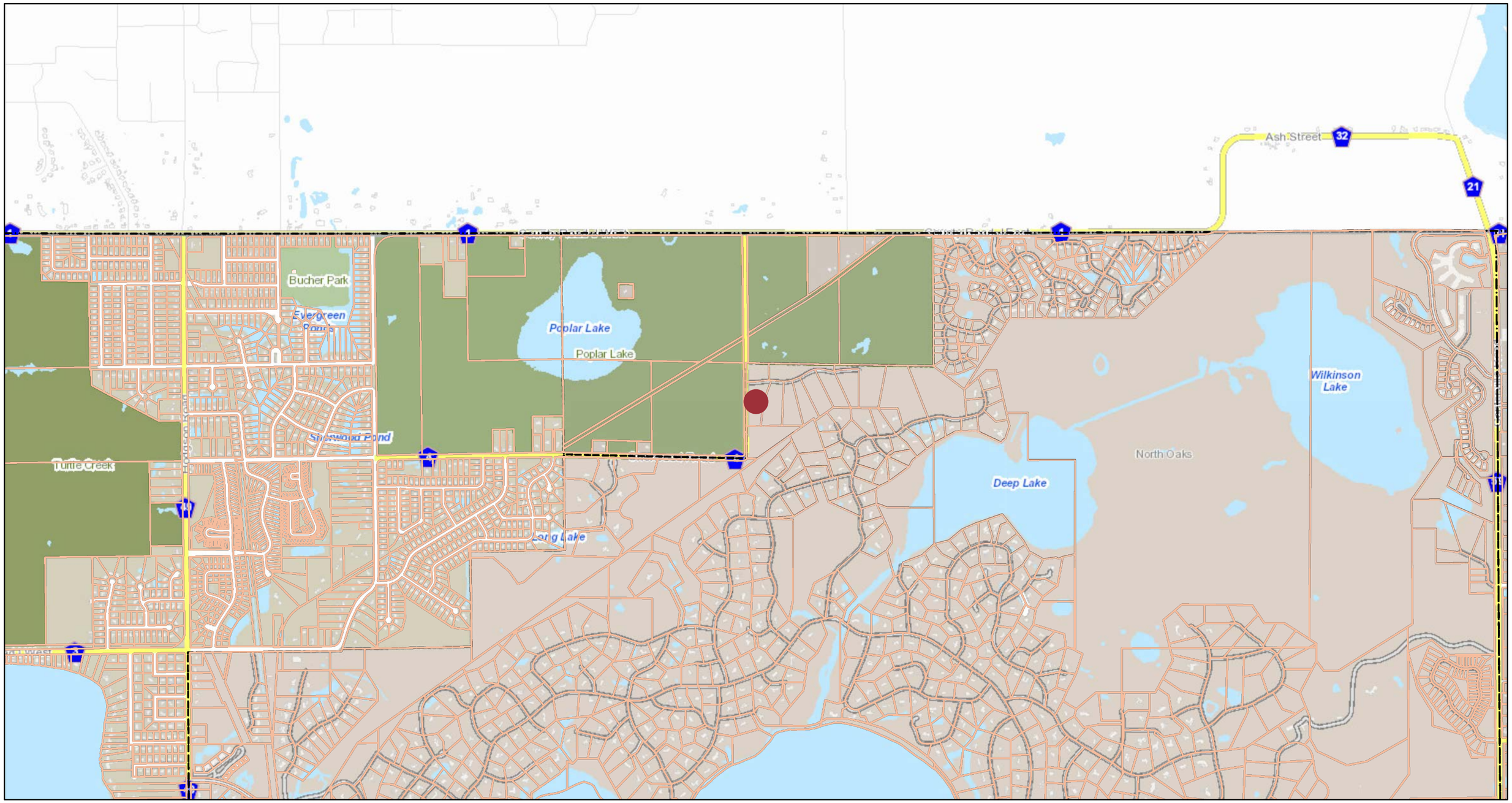
EXHIBIT A
LEGAL DESCRIPTION OF PROPERTY

Real property located in Ramsey County, Minnesota legally described as follows:

Tract J, Registered Land Survey No. 634, Ramsey County, Minnesota.

PIN: 063022130014

Map Ramsey



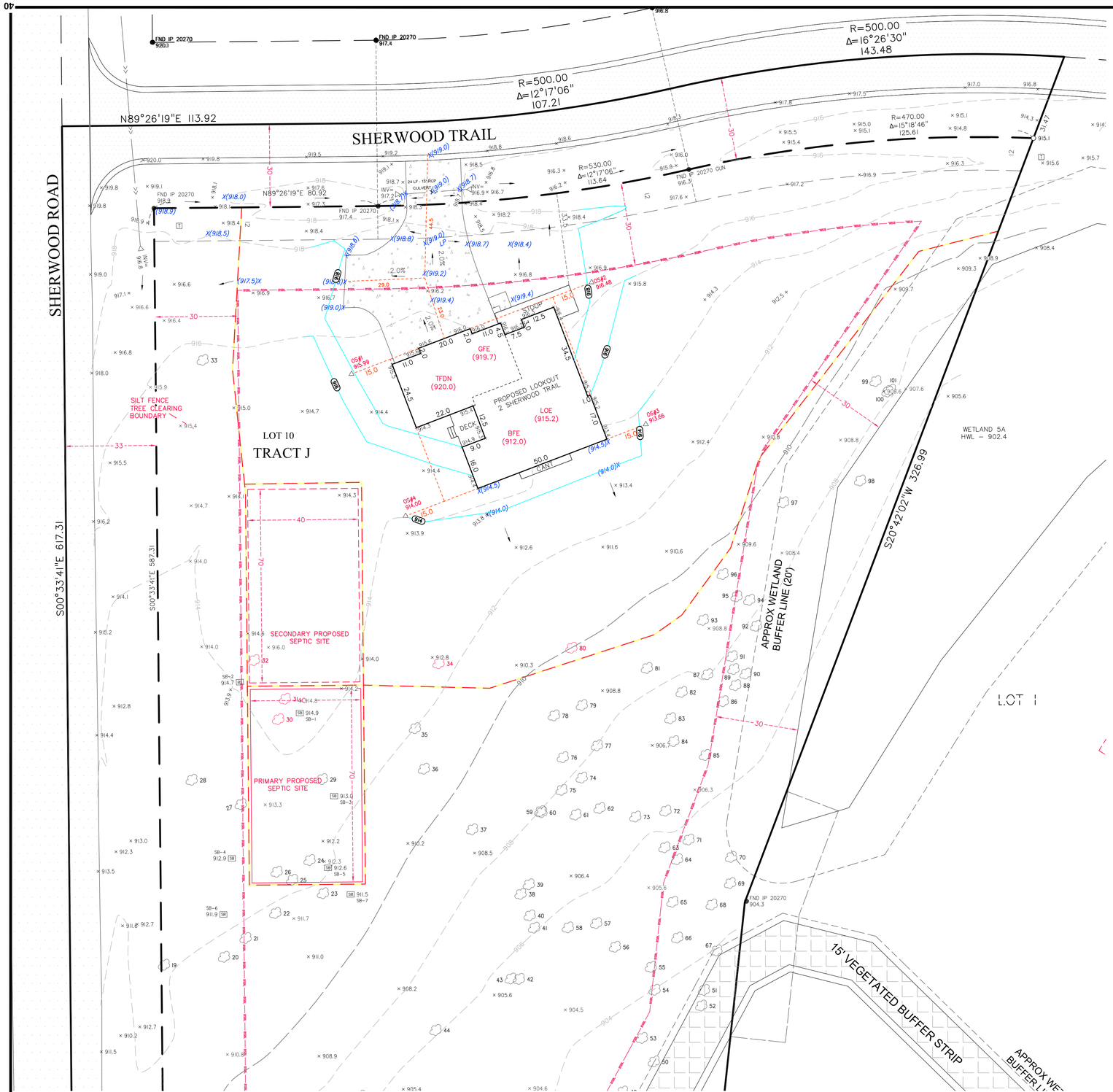
2/6/2024, 10:44:13 AM

1:16,000

0 0.2 0.4 0.8 mi

0 0.3 0.6 1.2 km

- Personal Property
- Tax Parcels
- Cities
- County Offices



DESCRIPTION OF PROPERTY SURVEYED

Tract J, REGISTERED LAND SURVEY NO. 634, according to the recorded plat thereof, Ramsey County, Minnesota.

GENERAL NOTES

1) **Site Address**: 2 Sherwood Trail, North Oaks, Minnesota 55127

2) **Flood Zone Information**: This property appears to lie in Zone X (Areas outside the 1-percent annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.) per Flood Insurance Rate Map, Community Panel No. 27123C0030G, effective date of June 4th, 2010.

3) **Parcel Area Information**:
Gross Area: 163,064 s.f. ~ 3.74 acres
Roadway Easement Area: 30,148 s.f. ~ 0.69 acres
Lot Area To Roadway Easement: 132,916 s.f. ~ 3.05 acres
Wetland Area: 30,150 s.f. ~ 0.69 acres

4) **Principal Structure Setbacks** - Front: 30 feet from roadway easement
Side: 30 feet
Rear: 30 feet

Please note that the general restrictions for the subject property may have been amended through a city process. We could be unaware of such amendments if they are not in a recorded document provided to us. We recommend that a zoning letter be obtained from the Zoning Administrator for the current restrictions for this site.

5) **Utilities**: We have shown the location of utilities to the best of our ability based on observed evidence together with evidence from the following sources: plans obtained from utility companies, plans provided by client, markings by utility companies and other appropriate sources. We have used this information to develop a view of the underground utilities for this site. However, lacking excavation, the exact location of underground features cannot be accurately, completely and reliably depicted. Where additional or more detailed information is required, the client is advised that excavation may be necessary. Also, please note that seasonal conditions may inhibit our ability to visibly observe all the utilities located on the subject property.

Tract J, #2 Sherwood Trail

An easement, for purposes of a roadway for ingress and egress, over the northerly 30.00 feet thereof and being adjacent to Tracts K and L, REGISTERED LAND SURVEY NO. 634.
An easement for utility purposes over the southerly 12.00 feet of the northerly 42.00 feet and over the east 12.00 feet of the west 45 feet thereof. Subject to Sherwood Road (County State Aid Highway 4) on the west.

Proposed Elevations - LO

Proposed Garage Floor Elevation	= 919.7
Proposed Top of Foundation Elevation	= 920.0
Proposed Lookout Elevation	= 915.2
Proposed Basement Floor Elevation	= 912.0

Offset Irons

(elevations are to the top of pipe)

OS #1= 915.99 OS #2= 916.48
OS #4= 914.00 OS #3= 913.66

Hardcover

Lot Area To Roadway Easement	= 132,916 S.F.
Roadway Easement Area	= 30,148 S.F.
Gross Lot Area	= 163,064 S.F.
House Area	= 2,808 S.F.
Driveway Area	= 2,262 S.F.
Roadway Area	= 11,004 S.F.
Front Walk Area	= 35 S.F.
Stoop Area	= 215 S.F.
Deck Area	= 123 S.F.
Total Area	= 16,447 S.F.
Coverage =	10.1%

Tract J, TLS 634

AREA=3154 SF

FILL	38
CUT	3
	35

Amount of earth deposited, moved or removed in areas outside of the driveway and at a distance greater than 25' from the side of the building = 35 CUBIC YARDS OF DIRT

NORTH

20 10 0 10 20 40
SCALE IN FEET

SURVEY LEGEND

- CAST IRON MONUMENT
- IRON PIPE MONUMENT SET
- IRON PIPE MONUMENT FOUND
- DRILL HOLE FOUND
- CHISELED "X" MONUMENT SET
- CHISELED "X" MONUMENT FOUND
- REBAR MONUMENT FOUND
- PK NAIL MONUMENT SET
- PK NAIL MONUMENT FOUND
- PK NAIL W/ ALUMINUM DISC
- SURVEY CONTROL POINT
- A/C UNIT
- CABLE TV PEDESTAL
- ELECTRIC TRANSFORMER
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC OUTLET
- YARD LIGHT
- LIGHT POLE
- FIBER OPTIC MANHOLE
- FIRE DEPT. HOOK UP
- FLAG POLE
- FUEL PUMP
- FUEL TANK
- PROPANE TANK
- GAS METER
- GAS VALVE
- GAS MANHOLE
- GENERATOR
- GUARD POST
- HAND HOLE
- MAIL BOX
- PIEZOMETER
- POWER POLE
- GUY WIRE
- ROOF DRAIN
- LIFT STATION
- SANITARY MANHOLE
- SANITARY CLEANOUT
- STORM MANHOLE
- STORM DRAIN
- CATCH BASIN
- FLARED END SECTION
- TREE CONIFEROUS
- TREE DECIDUOUS
- TREE CONIFEROUS REMOVED
- TREE DECIDUOUS REMOVED
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- UTILITY MANHOLE
- UTILITY PEDESTAL
- UTILITY VAULT
- WATERMAIN MANHOLE
- WATER METER
- WATER SPIGOT
- WELL
- MONITORING WELL
- CURB STOP
- GATE VALVE
- HYDRANT
- IRRIGATION VALVE
- POST INDICATOR VALVE
- SIGN
- SOIL BORING
- WOE WALKOUT ELEVATION
- FFE FIRST FLOOR ELEVATION
- GFE GARAGE FLOOR ELEVATION
- TOF TOP OF FOUNDATION ELEV.
- LOE LOWEST OPENING ELEV.
- CONCRETE
- BITUMINOUS
- BUILDING SETBACK LINE
- CABLE TV
- CONCRETE CURB
- CONTOUR EXISTING
- CONTOUR PROPOSED
- GUARD RAIL
- DRAIN TILE
- ELECTRIC UNDERGROUND
- FENCE
- FIBER OPTIC UNDERGROUND
- GAS UNDERGROUND
- OVERHEAD UTILITY
- TREE LINE
- SANITARY SEWER
- STORM SEWER
- TELEPHONE UNDERGROUND
- RETAINING WALL
- UTILITY UNDERGROUND
- WATERMAIN
- TRAFFIC SIGNAL
- RAILROAD TRACKS
- RAILROAD SIGNAL
- RAILROAD SWITCH
- SATELLITE DISH
- WETLAND BUFFER SIGN

FIELD CREW	NO.	BY	DATE	REVISION
JD	1	BRV	12/28/2023	STAKED HOUSE IN FIELD
DRAWN				
BRV/ML				
CHECKED				
DLS				
DATE				
03/18/21				

I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Dated this 29th day of December, 2023.

Daniel L. Schmidt

Daniel L. Schmidt, PLS Minnesota License No. 26147
schmidt@sathre.com

SATHRE-BERGQUIST, INC.
150 SOUTH BROADWAY WAYZATA, MN. 55391 (952) 476-6000
WWW.SATHRE.COM

TWP:30-RGE.20-SEC.06
Ramsey County

NORTH OAKS, MINNESOTA

CERTIFICATE OF SURVEY

PREPARED FOR:

HANSON BUILDERS

FILE NO. 3279-1531

1/2

Proposed Conditional Use Permit

For Height Variance for Partial Lookout Basement Foundation

2 Sherwood Trail, East Preserve Subdivision, North Oaks, MN

Our purpose in applying for a Conditional Use Permit for our proposed home at 2 Sherwood Trail in East Preserve, North Oaks is to request a height variance to make the basement a partial lookout at the south rear wall where the natural grade drops 6 feet from the garage elevation to proposed lookout elevation.

We would like to add windows to the lower floor on the rear of the home to take advantage of the natural grade drop and thereby allow light and views of the woods rather than bring in additional fill to turn it into a full basement foundation. The resulting exposed building height would remain 35-feet in the front, left and rear elevations and about 41-feet on the rear lookout side elevation from grade to ridge.

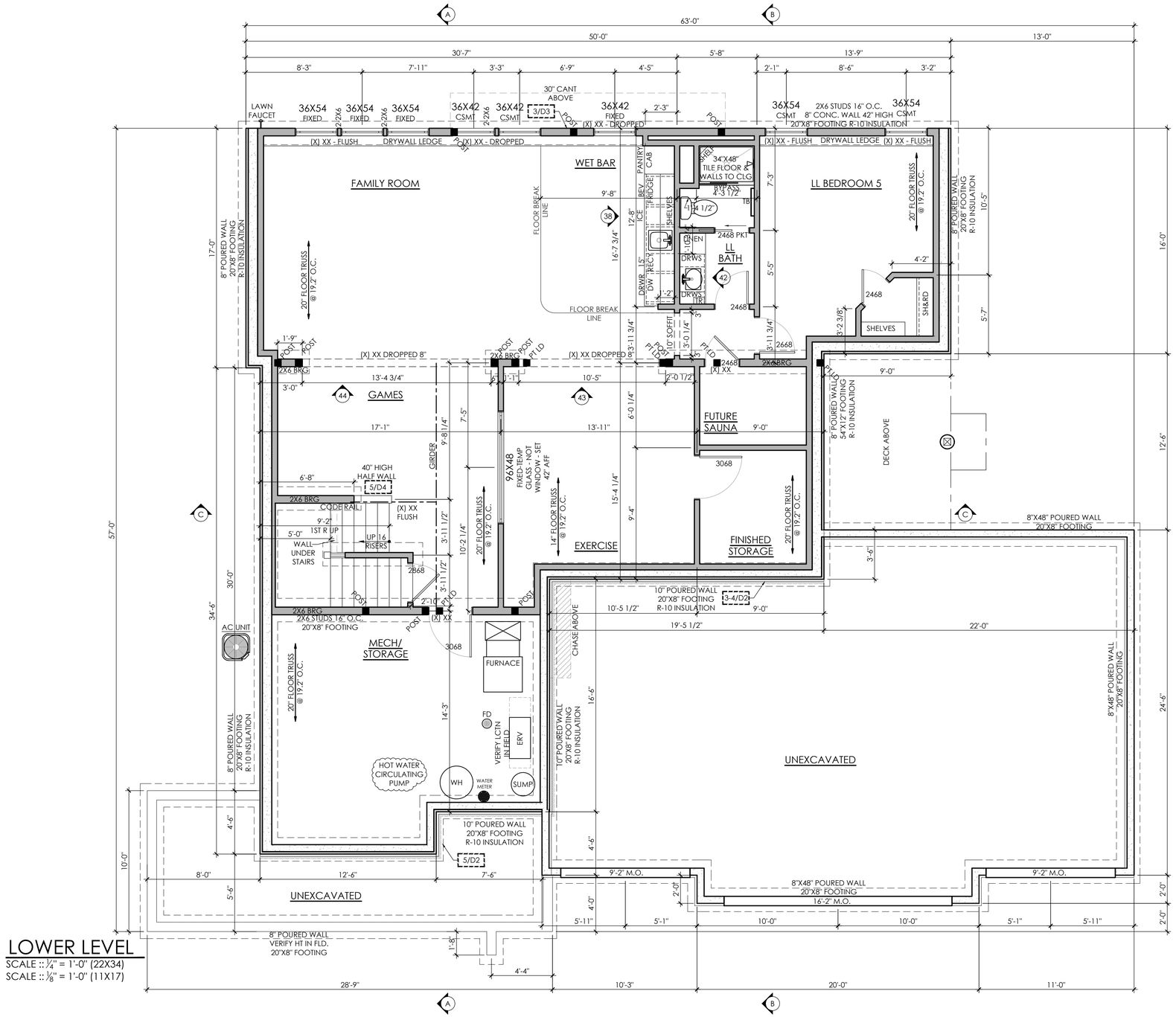
Our engineer, Sathre Bergquist, who did the overall engineering for the East Preserve subdivision, has calculated the Grading Quantities involved with this project to be +/- 35 Cubic Yards of net fill.

Thank you for your consideration of this requested height variance of 6 feet.

Hanson Builders, Inc.

LOWER FLOOR PLAN NOTES

1. 8'-2" CEILING HEIGHT UNO
2. 7'-0" WINDOW HEADER HEIGHT @ WALKOUT UNO
3. INTERIOR WALLS @ 24" OC EXCEPT AT BEARING WALLS
4. 2X6 BEARING WALLS UNO
5. ALL INT DOORS PLACED 4½" FROM CORNER FRAMING (4" FROM CORNER ON PLAN)



LOWER LEVEL

SCALE :: ¼" = 1'-0" (22X34)
SCALE :: ⅛" = 1'-0" (11X17)

HANSON BUILDERS

BUILDERS LICENCE #BC004568

13432 HANSON BLVD. NW
ANDOVER, MINNESOTA 55304
763-421-5435

SCHWIETERS-ELKIN RESIDENCE
2 SHERWOOD TRAIL
TRACT J
EAST PRESERVE
NORTH OAKS, MN

CUSTOM SUTTON
CUSTOM ELEVATION

JOB SETS	DATE	BY
MATCH CONTRACT	12/20/23	ZP
AMENDMENTS	XX/XX/XX	XX
FILE CHECK	XX/XX/XX	XX
PERMIT PLAN	XX/XX/XX	XX
FINAL PLAN	XX/XX/XX	XX

PLOT DATE: 1/31/2024

MASTER PLAN RELEASES

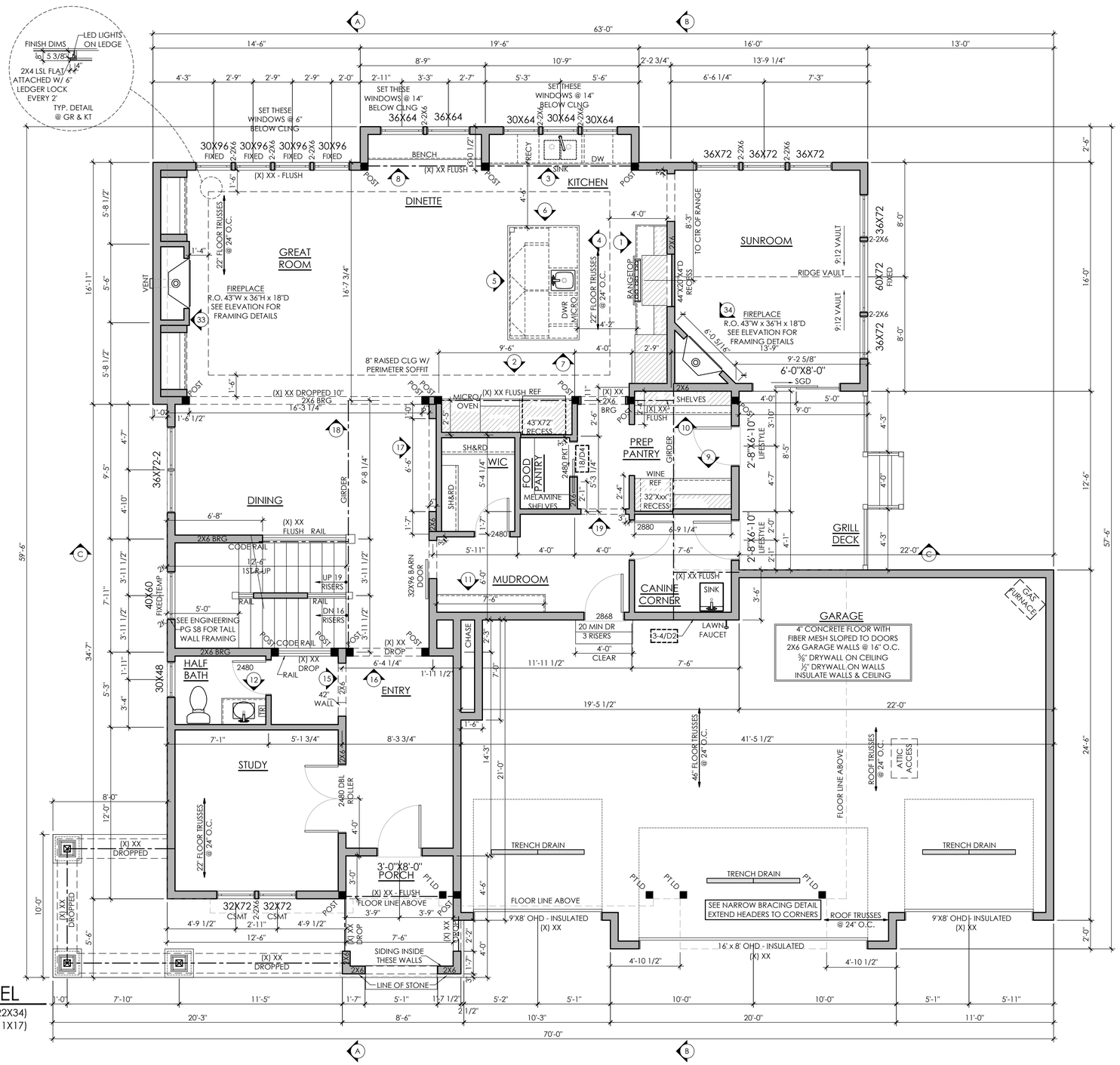
REVISIONS	DATE	BY

SHEET TITLE
LOWER FLOOR

SHEET NUMBER
A1

MAIN FLOOR PLAN NOTES

1. 10'-1 ⅛" CEILING HEIGHT UNO
2. 8'-7 ⅛" WINDOW HEADER HEIGHT UNO
3. 2X6 BEARING WALLS UNO
4. INTERIOR WALLS @ 24" OC EXCEPT AT BEARING & KITCHEN WALLS
5. 20 MINUTE FIRE DOOR @ GARAGE TO HOUSE
6. ALL INT DOORS PLACED 4½" FROM CORNER FRAMING (4" FROM CORNER ON PLAN)



MAIN LEVEL

SCALE :: ¼" = 1'-0" (22X34)
SCALE :: ⅛" = 1'-0" (11X17)

HANSON BUILDERS

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SCHWIETERS-ELKIN RESIDENCE

2 SHERWOOD TRAIL

TRACT J
EAST PRESERVE
NORTH OAKS, MN

CUSTOM SUTTON

CUSTOM ELEVATION

JOB SETS	DATE	BY
MATCH CONTRACT	12/20/23	ZP
AMENDMENTS	XX/XX/XX	XX
FILE CHECK	XX/XX/XX	XX
PERMIT PLAN	XX/XX/XX	XX
FINAL PLAN	XX/XX/XX	XX

PLOT DATE: 1/31/2024

MASTER PLAN RELEASES

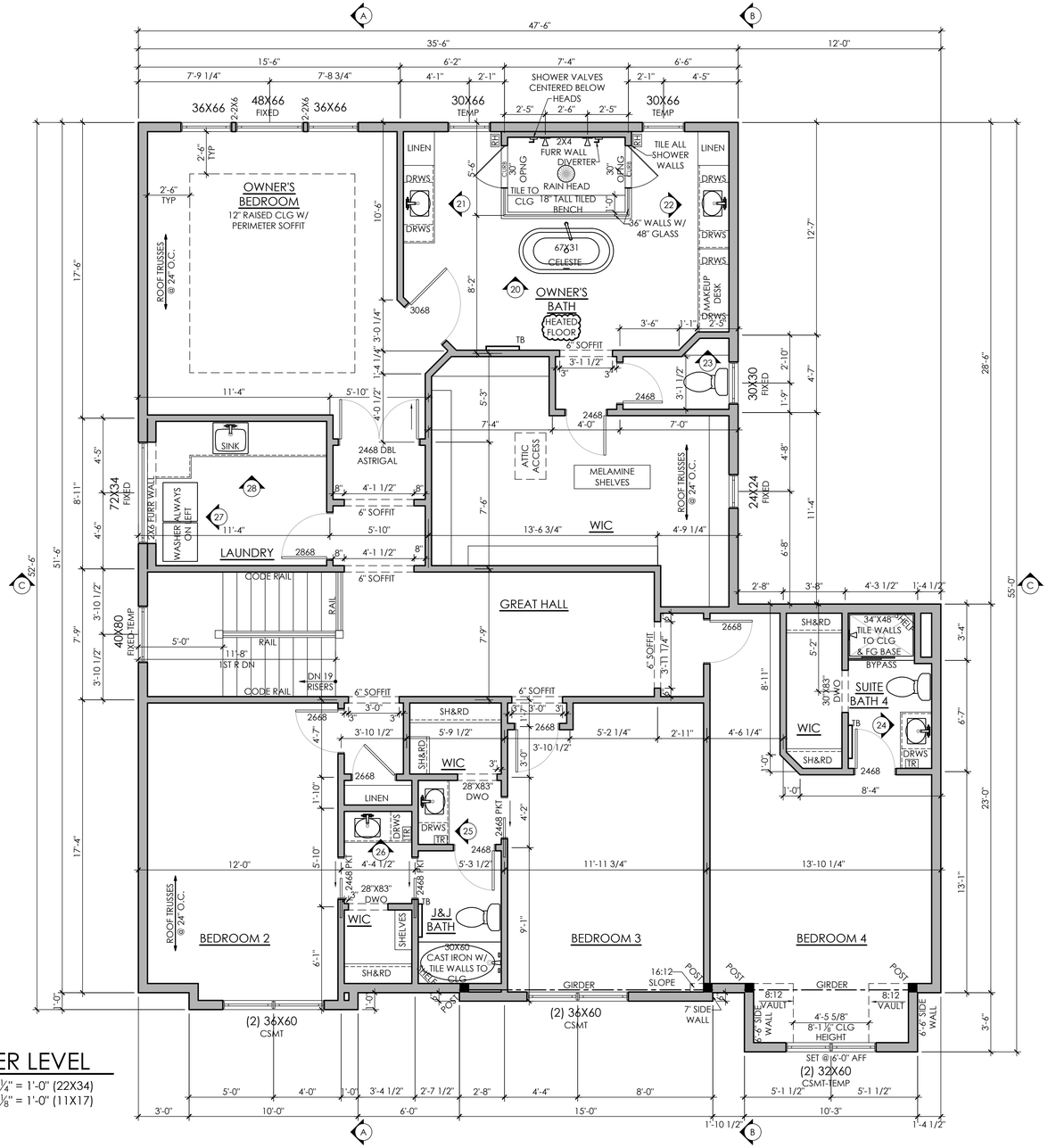
REVISIONS	DATE	BY

SHEET TITLE
MAIN FLOOR

SHEET NUMBER
A2

UPPER FLOOR PLAN NOTES

1. 8'-1 ⅛" CEILING HEIGHT UNO
2. 6'-11 ⅝" WINDOW HEADER HEIGHT UNO
3. INTERIOR WALLS @ 24" OC EXCEPT AT BEARING WALLS
4. ALL INT DOORS PLACED 4 ½" FROM CORNER FRAMING (4" FROM CORNER ON PLAN)



UPPER LEVEL

SCALE :: ¼" = 1'-0" (22X34)
SCALE :: ⅛" = 1'-0" (11X17)

HANSON BUILDERS

BUILDERS LICENCE #BC004568

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763-421-5435

SCHWIETERS-ELKIN RESIDENCE

2 SHERWOOD TRAIL

TRACT J
EAST PRESERVE
NORTH OAKS, MN

CUSTOM SUTTON

CUSTOM ELEVATION

JOB SETS	DATE	BY
MATCH CONTRACT	12/20/23	ZP
AMENDMENTS	XX/XX/XX	XX
FILE CHECK	XX/XX/XX	XX
PERMIT PLAN	XX/XX/XX	XX
FINAL PLAN	XX/XX/XX	XX

PLOT DATE: 1/31/2024

MASTER PLAN RELEASES

REVISIONS	DATE	BY

SHEET TITLE
UPPER FLOOR

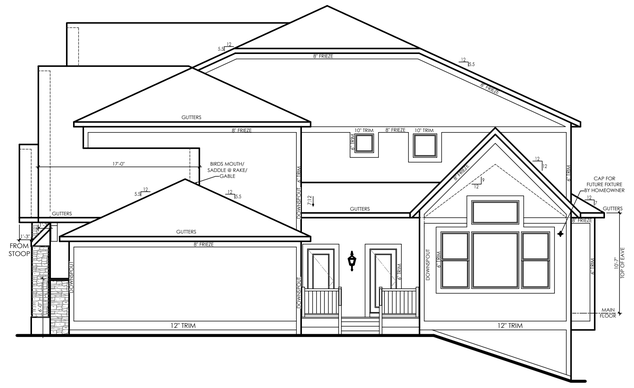
SHEET NUMBER
A3

SIDE ELEVATION

SCALE :: 1/4" = 1'-0" (22X34)
SCALE :: 1/8" = 1'-0" (11X17)

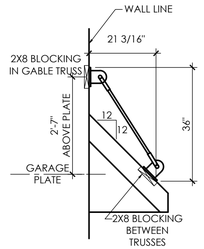
REAR ELEVATION

SCALE :: 1/4" = 1'-0" (22X34)
SCALE :: 1/8" = 1'-0" (11X17)



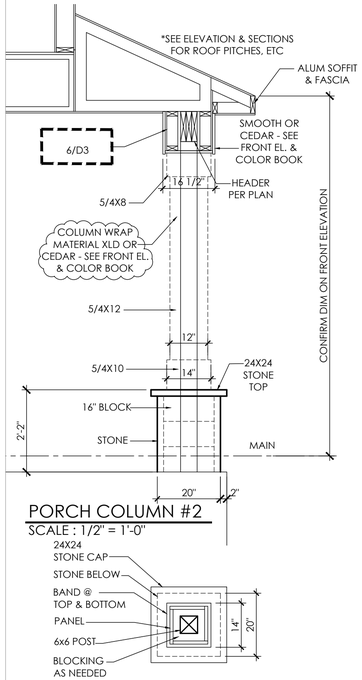
SIDE ELEVATION

SCALE :: 1/4" = 1'-0" (22X34)
SCALE :: 1/8" = 1'-0" (11X17)



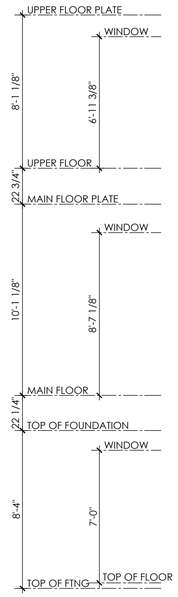
BILTFAB TIE-ROD

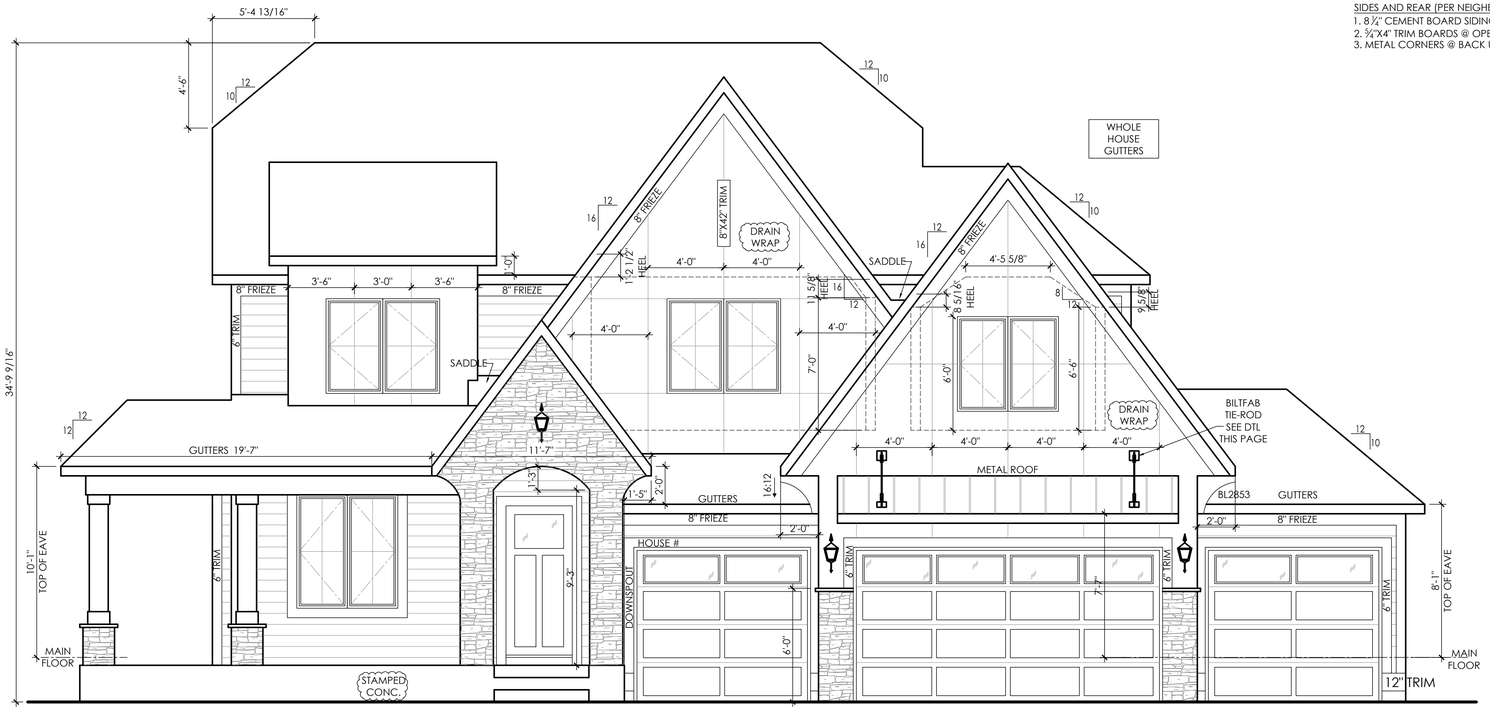
NOT STRUCTURAL



PORCH COLUMN #2

SCALE : 1/2" = 1'-0"





FRONT ELEVATION

SCALE :: 1/4" = 1'-0" (22X34)
SCALE :: 1/8" = 1'-0" (11X17)

ELEVATION NOTES

FRONT:
1. 8 1/4" CEMENT BOARD SIDING (7" REVEAL)
2. 5/4"X6" TRIM BOARDS @ OPENINGS U.N.O.
3. SEE DETAIL 10/D4 FOR CORNERS U.N.O.
4. NOTE: FILL IN OPENINGS OVER ALL BRACKETS
5. SHIP FRONT DOOR W/ NO BRICK MOULD
6. BOARD & BATTEN @ 24" OC SPACING U.N.O.

SIDES AND REAR (PER NEIGHBORHOOD):
1. 8 1/4" CEMENT BOARD SIDING (7" REVEAL)
2. 5/4"X4" TRIM BOARDS @ OPENINGS U.N.O.
3. METAL CORNERS @ BACK U.N.O.

HANSON BUILDERS

BUILDERS LICENCE #BC004568

13432 HANSON BLVD. NW
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763-421-5435

SCHWIETERS-ELKIN RESIDENCE
2 SHERWOOD TRAIL
TRACT J
EAST PRESERVE
NORTH OAKS, MN

CUSTOM SUTTON
CUSTOM ELEVATION

JOB SETS	DATE	BY
MATCH CONTRACT	12/20/23	ZP
AMENDMENTS	XX/XX/XX	XX
FILE CHECK	XX/XX/XX	XX
PERMIT PLAN	XX/XX/XX	XX
FINAL PLAN	XX/XX/XX	XX

PLOT DATE: 1/31/2024

MASTER PLAN RELEASES

REVISIONS	DATE	BY

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A4

Sherwood. We followed your suggested format of addressing code section 151.078 pertaining to variances and provided as much supporting information and visuals as we thought necessary to address the practical difficulties of building on this lot.

Take a look and let us know if you have any questions or suggestions before compiling this packet for the next planning commission meeting

Thanks for your help so far

SCOTT HOCKERT
VP of Production

HANSON
BUILDERS

952.452.4793 | hansonbuilders.com

13432 Hanson Blvd NW, Andover, MN 55304

From: Scott Hockert <Scott@hansonbuilders.com>
Date: Tuesday, March 5, 2024 at 2:25 PM
To: Kendra Lindahl, AICP <KLindahl@landform.net>
Cc: Kevin Kress (kkress@northoaksmn.gov) <KKress@northoaksmn.gov>
Subject: Re: 8 Sherwood

Below is the email communication from Bill Long pertaining to the tree agreement. I'll follow up with the revised narrative

Good Afternoon Everyone,

I want to update you on the plan that NOHOA has agreed to with Hanson Builders in the Sherwood Trail area.

1. NOHOA and Hanson Builders have agreed that Hanson will plant a total of twenty trees, each of a minimum 2.5 inch diameter at breast height, on the five lots that Hanson acquired from the North Oaks Company on Sherwood Trail in North Oaks.
2. Tentatively, these trees will be planted on Sherwood lots 1,2, 8 and 12. Taking a closer look at the topography of the area and where the most ash trees were lost, we think planting along the west side of lots 1 and 2 along Sherwood Road will improve screening for the entire area. Planting trees on the south sides of lots 8 and 12 will ensure some screening of the homes on Red Maple Lane. Since lot 4 basically backs up to a wetland, we didn't feel the need to screen that area.
3. Hanson to consult with Steve Nicholson, a certified forester, of TreeBiz LLC on species selection and exact locations of the plantings to optimize their benefit. The locations, but not the total number of trees to be planted, may be modified based on Mr. Nicholson's input.
4. Neighbors on Sherwood Trail and Red Maple Lane are encouraged to collaborate with Hanson in

planting additional trees at the neighbors' expense on their own properties to help mitigate the loss of so many ash trees in the area to Emerald Ash Borer.

5. NOHOA (Bill Long and Julia Hupperts,) can assist in coordinating a walkthrough of the area with Hanson, TreeBiz and neighbors in the area as the tree plan is finalized.

Also, though this wasn't part of the agreement, NOHOA is trying to find a way to get better pricing on trees to be planted in this area. With such a large number going in to a single neighborhood, we may be able to get a discount. Please let me know if you have any questions or concerns. I will keep you posted as to next steps and timing.

Bill

Bill Long
NOHOA Secretary
BODLong@nohoa.org
651-276-4392

SCOTT HOCKERT
VP of Production

HANSON
BUILDERS

952.452.4793 | hansonbuilders.com

13432 Hanson Blvd NW, Andover, MN 55304

From: Kendra Lindahl, AICP <KLindahl@landform.net>
Date: Tuesday, March 5, 2024 at 1:43 PM
To: Scott Hockert <Scott@hansonbuilders.com>
Cc: Kevin Kress (kkress@northoaksmn.gov) <KKress@northoaksmn.gov>
Subject: RE: 8 Sherwood

Scott,

Yes, please share whatever information you have about the tree removal and restoration agreement. It may help head off further discussion at the Council.

If you can get your narrative in by the end of the week, that would be great.

We are only going to have 3 council members at the 3/14 meeting, so we will push all of the planning items to the April 11th Council meeting.

CITY OF
NorthOaks
Building on a tradition of innovation

PLANNING REPORT

TO: North Oaks City Council

FROM: Kendra Lindahl, City Planner
Kevin Kress, City Administrator
Bridget McCauley Nason, City Attorney
Michael Nielson, City Engineer

DATE: April 11, 2024

RE: Conditional Use Permit for Garage Size in Excess of 1,500 Square Feet and Building Addition at 70 West Pleasant Lake Road

Date Application Submitted	January 16, 2024
Date Application Determined Complete:	January 22, 2024
Planning Commission Meeting Date:	February 29, 2024
60-day Review Date:	March 16, 2024
City Council Meeting Date:	April 11, 2024
120-day Review Date:	May 15, 2024

PLANNING COMMISSION REVIEW

The Planning Commission held a public hearing at their February 29th meeting. One person spoke at the public hearing in support of the request. The Planning Commission voted 7-0 to recommend approval of the request.

REQUEST

Mark and Anita Udager have applied for a Conditional Use Permit (CUP) to construct a detached accessory garage structure on the west side of their property. The owners are also in the process of adding a 306-square foot sunroom addition to the home; that addition requires only a building permit and does not require a CUP. The detached accessory structure has a partially exposed lower floor constructed into a hill on the property. The proposed detached accessory garage is designed to accommodate the storage of a 22-foot boat and trailer. The

total square footage of the proposed detached accessory garage structure is 1,296 square feet with 648 square feet on each floor. The existing attached garage on the site is 1,150 square feet, bringing the total garage space on the property to 2,446 square feet when 1,500 square feet is the maximum permitted by the code. The applicant's narrative is attached, as well as the building elevations of the proposed structure.

BACKGROUND

The applicants previously applied for a Conditional Use Permit (CUP) to exceed the maximum combined garage size of 1,500 square feet on the property located at 70 West Pleasant Lake Road North. The CUP was approved March 9, 2023, but the improvements were not initiated. The current request is a new CUP to accommodate a larger garage size.

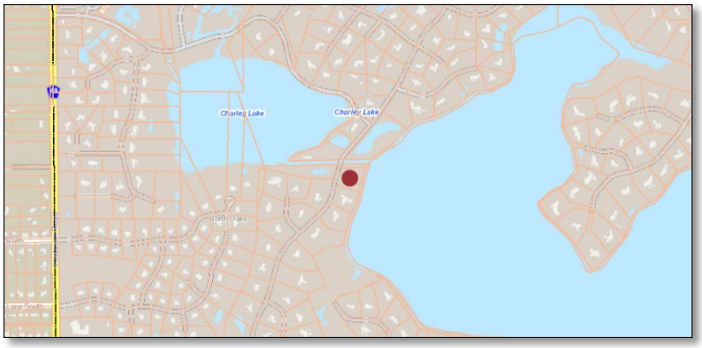


Figure 1 - Subject Parcel

Zoning and Land Use

The property is guided Low Density residential and is zoned Residential Single Family – Low Density (RSL). Private garages in this zoning district are not allowed to exceed 1,500 square feet without a CUP.

The 1.41-acre property is located along the northwest edge of Pleasant Lake. A site survey is attached to this report. The property is located entirely in the Shoreland Management Area.

PLANNING ANALYSIS

Shoreland

The property is separated from Pleasant Lake by a public trail and open space parcel. Pleasant Lake is categorized as a Recreational Development lake. All structures and septic systems must be a minimum of 75 feet from the ordinary high water level (OHWL) of the lake. Chapter 153 (Shoreland Management Area) defines a structure as "anything which is built, constructed, or erected, whether temporary or permanent, in or above ground."

The plans show the sunroom addition to the existing home is 103 feet from the OHWL and the existing home is 102 feet. The plans comply with the minimum setback requirements. The proposed detached accessory garage is located on the opposite side of the home from the OHWL.

A certificate of zoning compliance is required from the City Clerk prior to initiating any work in the shoreland management area.

Setbacks

The proposed detached accessory structure and sunroom addition exceed the 30-foot minimum setback requirements at all property lines and street easements.

Height

The detached accessory garage is 34 feet and 11.5 inches in height and unchanged from the previous CUP approval. The detached accessory garage does not exceed the height of the principal structure in compliance with the City Code.

Size

The garage is similar to the previously approved project except that the building dimensions have been expanded. *Total Floor Area* is defined as the area of all stories, as determined using exterior dimensions, including garages that are not part of the basement, clerestory area and cover porches and decks. The floor area provided on plans has not been updated to reflect the increase in building dimensions. The new detached garage size proposed by the applicant results in a total detached garage floor area of 1,296 square feet.

Garage CUP

A garage which exceeds 1,500 square feet may be permitted after securing a conditional use permit. The applicant is requesting approval for a 1,296 square foot detached garage. The garage addition will result in a combined garage square footage of 2,446 square feet.

The following specific CUP criteria must be met:

1. *The garage shall not exceed 3,000 square feet;*

   The plans comply. The garage addition will result in a combined garage square footage of 2,446.

2. *The garage shall be constructed in the same architectural style as the principal building or structure;*

   The garage will have the same exterior materials and design elements as the principal building.

3. *The floor area ratio shall not exceed 0.12;*

   The applicant has provided a FAR worksheet that shows a FAR of 11.76%. The FAR calculation must be submitted to the building official with the building permit to ensure compliance with the 12% FAR limit.

4. *No use of the garage shall be permitted other than for private residential noncommercial use;*

   The garage will be used by the residents of the home for typical residential uses. The applicant's narrative indicates that main level of the garage will primarily be used for storage of lawn and recreational equipment as well as boat and trailer storage.

In addition to the standards identified for the specific CUP request, the City must also review the garage request against the standards in Section 151.076 of the City Code. Staff has reviewed the request against those standards:

1. *Relationship of the proposed conditional use to the Comprehensive Plan;*

   The proposed use is consistent with the uses anticipated in the Comprehensive Plan and the permitted uses in the single family zoning district.

2. *The nature of the land and adjacent land or building where the use is to be located;*

   The use is consistent with the surrounding land uses. The attached garage will have the same exterior materials and design elements as the main portion of the home.

3. *Whether the use will in any way depreciate the area in which it is proposed;*

   The garage addition, which has been designed to blend in with the rest of the existing home, will not negatively impact adjacent property values.

4. *The effect upon traffic into and from the land and on adjoining roads, streets, and highways;*

   The proposed use will not create a traffic impact.

5. *Whether the use would disrupt the reasonable use and enjoyment of other land in the neighborhood;*

   The described use of the structure will not cause a negative impact to the use and enjoyment of other land in the neighborhood.

6. *Whether adequate utilities, roads, streets, and other facilities exist or will be available in the near future;*

   There are adequate utilities, roads, streets, and other facilities available to the property.

7. *Whether the proposed conditional use conforms to all of the provisions of this chapter;*

   The proposed request is compliant with the City's zoning code.

8. *The effect up natural drainage patterns onto and from the site;*

   Finished grading will work with existing drainage patterns. The City engineer has reviewed the plans and has recommended conditions to ensure that impacts to drainage patterns are mitigated.

9. *Whether the proposed use will be detrimental to or endanger the public health, safety, comfort, convenience or general welfare of the neighborhood or the city;*

   The use as proposed will not be detrimental to or endanger the public health, safety, comfort, convenience or general welfare of the neighborhood or the city;

10. *Whether the proposed use would create additional requirements at public cost for public facilities and services and whether or not the use will be detrimental to the economic welfare of the neighborhood or city; and*

    The proposed use will not create additional requirements at public cost for public facilities and services and will not be detrimental to the economic welfare of the neighborhood or city.

11. *Whether the proposed use is environmentally sound and will not involve uses, activities, processes, materials, equipment, and conditions of operation that will be detrimental to any persons, land, or the general welfare because of excessive production of traffic, noise, smoke, fumes, wastes, toxins, glare, or orders.*

Beyond initial construction activity, and based on erosion control requirements, the proposed residential use and grading activity will not be detrimental to the environment or surrounding area.

Attached for reference:

Exhibit A: Site Survey dated January 16, 2024

Exhibit B: Applicant Narrative dated January 12, 2024

Exhibit C: Building elevations and floor plans dated January 16, 2024

Exhibit D: FAR Calculation Spreadsheet received February 28, 2024

Exhibit E: Engineer Review Memo dated February 5, 2024

STAFF RECOMMENDATION

Based on the preceding review, Staff recommends approval of the request for a Conditional Use Permit to allow construction of 1,296 square foot detached garage at 70 West Pleasant Lake Road, subject to the following conditions:

1. The request to allow a total of 2,446 square feet of garage area is approved in accordance with the application submitted on December 15, 2023 and additional information received on January 3, 2024, except as amended by this approval.

2. The conditions of Title 151.027(D)2 (land reclamation) shall be satisfied before the issuance of a building permit. The building plan application shall contain an erosion and sediment control plan.

3. Tree disturbance should be strategically completed and remaining trees abutting construction disturbance areas shall have tree protection barriers installed at the dripline.

4. Erosion control shall be in place prior to the beginning of construction.
    a. Erosion control measures such as silt fence must be installed downstream of all proposed grading, in order to ensure proper containment of sedimentation on site. Extra care shall be taken to maintain all existing erosion control measures to ensure sedimentation due to grading activities is not tracked off site.
    b. Applicant shall ensure that grading and filling work does not result in the deposit of additional stormwater runoff onto adjacent properties.

5. Plans shall be approved by the Building Official prior to the commencement of construction.
    a. Plans must be in compliance with the maximum 12% FAR requirement at the time of review by the Building Official. If plans exceed the 12% FAR requirement, the applicant shall:
        i. Revise plans to comply with the 12% FAR requirement; or
        ii. Request a variance from the 12% FAR requirement.

6. All lighting on the accessory structure shall be downcast and shielded in accordance with Section 151.031 of the City Code.

7. Any outstanding fees shall be paid prior to the issuance of a building permit.

8. A certificate of zoning compliance is required from the City Clerk prior to initiating any work in the shoreland management area.

9. Applicant shall comply with all applicable local, state and watershed district rules and regulations.

ACTION

Move to adopt the resolution approving the conditional use permit to exceed the maximum garage size at 70 West Pleasant Lake Road, as recommended by the Planning Commission.

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA
RESOLUTION NO. ___

RESOLUTION APPROVING A CONDITIONAL USE PERMIT TO EXCEED THE MAXIMUM COMBINED GARAGE AREA FOR PROPERTY AT 70 WEST PLEASANT LAKE ROAD

WHEREAS, an application for a Conditional Use Permit has been submitted by Mark and Anita Udager, as Trustees of the Anita M. Udager Revocable Trust, the owners of the real property located at 70 West Pleasant Lake Road, North Oaks, Ramsey, County, Minnesota, and legally described on the attached **EXHIBIT A (the "Property")**, to allow for the construction of a detached garage on the Property; and

WHEREAS, the proposed new detached garage is 1,296 sq. ft. in area and the existing garage located on the Property is 1,150 sq. feet in area; and

WHEREAS, a Conditional Use Permit is required to exceed a combined total of 1,500 sq. ft. of garage (or accessory structure) area on any property; and

WHEREAS, the request has been reviewed against the relevant requirements of North Oaks Zoning Ordinance Sections 151.050 and 151.076, regarding the criteria for issuance of a Conditional Use Permit, and meets the minimum standards, is consistent with the City of North Oaks Comprehensive Plan, is in conformance with the Zoning Ordinance, and does not have a negative impact on public health, safety, or welfare; and

WHEREAS, a public hearing concerning the Conditional Use Permit was held before the North Oaks Planning Commission in accordance with Minnesota Statutes, Section 462.357, subd. 3, on February 28, 2024 at which hearing all interested parties had the opportunity to be heard, following which the Planning Commission voted to recommend approval of the Conditional Use Permit application, subject to certain conditions.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTH OAKS, that a Conditional Use Permit to allow for garage space in excess of 1,500 sq. ft., is approved for the Property subject to the following conditions:

Based on the preceding review, Staff recommends approval of the request for a Conditional Use Permit to allow construction of 1,296 square foot detached garage at 70 West Pleasant Lake Road, subject to the following conditions:

1. The request to allow a total of 2,446 square feet of garage area is approved in accordance with the application submitted on December 15, 2023 and additional information received on January 3, 2024, except as amended by this approval.

2. The conditions of Title 151.027(D)2 (land reclamation) shall be satisfied before the issuance of a building permit. The building plan application shall contain an erosion and sediment control plan.

3. Tree disturbance should be strategically completed and remaining trees abutting construction disturbance areas shall have tree protection barriers installed at the dripline.

4. Erosion control shall be in place prior to the beginning of construction.
    a. Erosion control measures such as silt fence must be installed downstream of all proposed grading, in order to ensure proper containment of sedimentation on site. Extra care shall be taken to maintain all existing erosion control measures to ensure sedimentation due to grading activities is not tracked off site.
    b. Applicant shall ensure that grading and filling work does not result in the deposit of additional stormwater runoff onto adjacent properties.

5. Plans shall be approved by the Building Official prior to the commencement of construction.
    a. Plans and all building constriction must be in compliance with the maximum 12% FAR requirement at the time of review by the Building Official. If plans exceed the 12% FAR requirement, the applicant shall:
        i. Revise plans to comply with the 12% FAR requirement; or
        ii. Request a variance from the 12% FAR requirement prior to beginning any work on the Property.

6. All lighting on the accessory structure shall be downcast and shielded in accordance with Section 151.031 of the City Code.

7. Any outstanding fees shall be paid prior to the issuance of a building permit.

8. A certificate of zoning compliance is required from the City Clerk prior to initiating any work in the shoreland management area.

9. Applicant shall comply with all applicable local, state and watershed district rules and regulations.

BE IT FURTHER RESOLVED that the City Clerk, Deputy City Clerk, or City Attorney are hereby authorized and directed to record a certified copy of this Resolution with the Ramsey County Registrar of Titles.

Adopted by the City Council of the City of North Oaks this 11th day of April 2024.

By: _____
Krista Wolter
Its: Mayor

Attested:

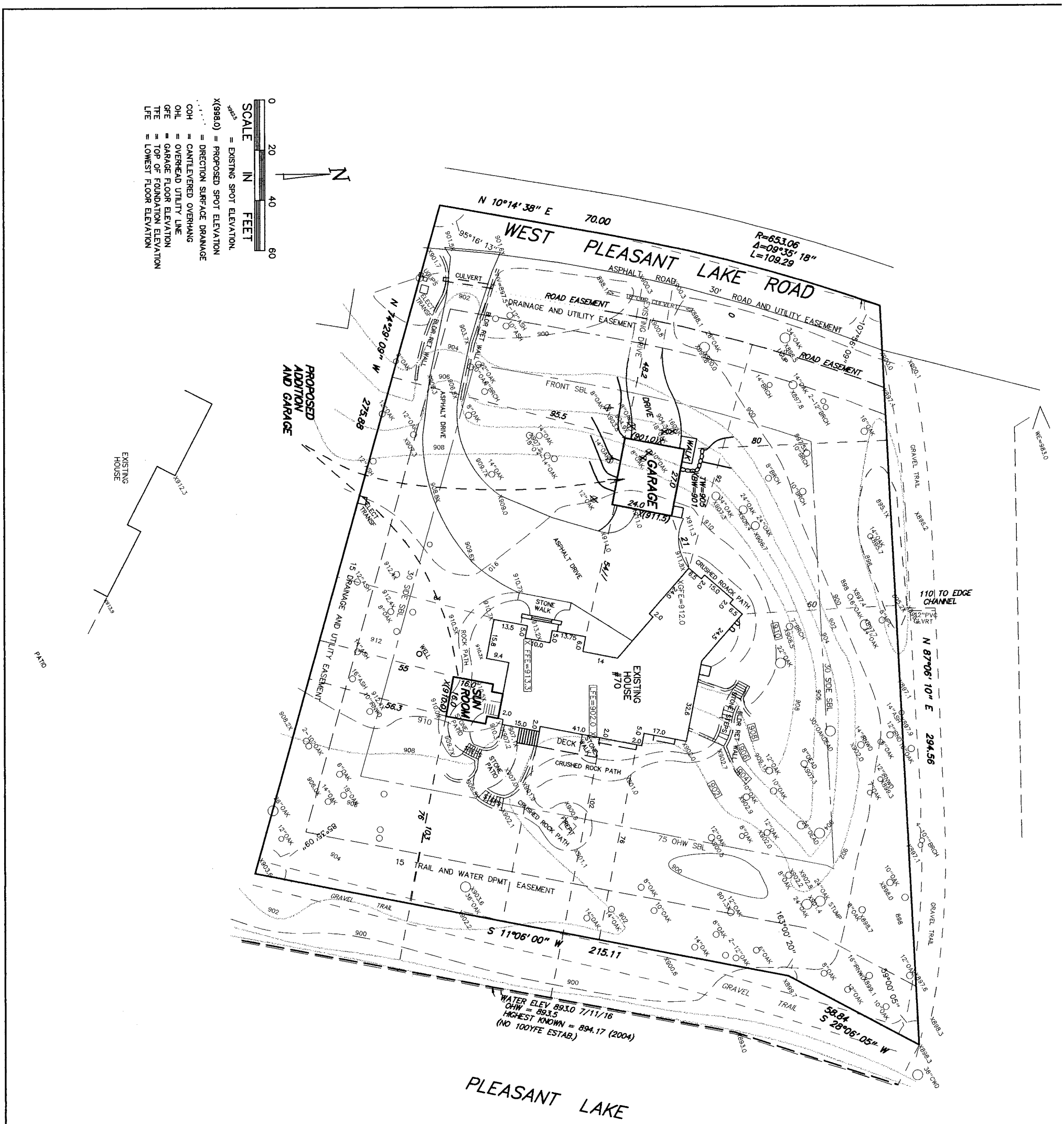
By: _____
Kevin Kress
Its: City Administrator

EXHIBIT A
LEGAL DESCRIPTION OF PROPERTY

Real property located in Ramsey County, Minnesota legally described as follows:

Tract P, Registered Land Survey No. 506, Ramsey County, Minnesota.

PID: 19-028-24-24-0130



SCALE IN FEET
0 20 40 60

N

X902.5 = EXISTING SPOT ELEVATION.
X(998.0) = PROPOSED SPOT ELEVATION
= DIRECTION SURFACE DRAINAGE
COH = CANTILEVERED OVERHANG
OHL = OVERHEAD UTILITY LINE
GFE = GARAGE FLOOR ELEVATION
TFE = TOP OF FOUNDATION ELEVATION
LFE = LOWEST FLOOR ELEVATION

HARDCOVER
EXISTING
HOUSE = 3720 SF 6.6%
DECK = 120 SF
FWALK = 125 SF
PATIOS = 530 SF
DRIVE = 4675 SF
TOTAL = 8665 SF /16.2% LOT AREA TO R/W

PROPOSED
GARAGE = 648 SF
SUNRM = 300 SF
DRIVES = 885 SF
WALKS = 75 SF
TOTAL = 1908 SF/3.4%

TOTAL EXISTING TO REMAIN AND PROPOSED = 10573 SF/18.9%
1/12/24

ELEVATIONS
GARAGE FLOOR = 912.0
MAINFLOOR = 913.3
TOP OF FOUNDATION = 912.8
LOWEST FLOOR= 902.0

LEGAL DESCRIPTION:
TRACT P, R.L.S. NO. 506,
RAMSEY COUNTY, MN.

ADDRESS
70 WEST PLEASANT LAKE ROAD
PID#19-028-24-24-0130

LOT AREA = 61476 SF/ 1.41 AC
- 5534 SF IN ROAD ESMT
= 55942 SF / 1.28 AC

SURVEY IS SUBJECT TO CHANGE PER TITLE OR EASEMENT INFORMATION

VERIFY ALL DIMENSIONS AND ELEVATIONS WITH PROPOSED PLANS

VERIFY ALL SETBACKS WITH CITY

1/12/24 REV PROP, HC
12/28/23 REV PROP, HC
10/5/22 REV PROP, HC
9/26/22 REV PROP, HC
9/13/22 PROPOSED CAR,SNRM
XXX 12/7/17 ASBUILT

PROJECT NO.	BOOK
DATE JULY 11, 2016	PAGE
REVISIONS 12/28/16 ADDRESS, GFE	

I HEREBY CERTIFY THAT THIS SURVEY WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

FRANK R. CARDARELLE REG. NO. 6508

BUILDING PERMIT SURVEY
ALEXANDER DESIGN
for UDAGER RESIDENCE
70 WEST PLEASANT RD

Land Surveyor
Frank R. Cardarelle
6440 FLYING CLOUD DRIVE
EDEN PRAIRIE,MN 55344
952-941-3031

CUP RESOLUTION #1478 DATED 03/09/2023
REV#1 - 01/12/2024

December 12, 2022

Subject: Written Explanation of Application for CUP @ North Oaks Residence 70 West Pleasant Lake Road

To Whom It May Concern:

Reason for CUP Application:
Mark and Anita Udager, the homeowners of this residence, are submitting an application for a Conditional Use Permit as a proposed detached garage on our property would exceed the city ordinance of 1500 square feet for total garage space.

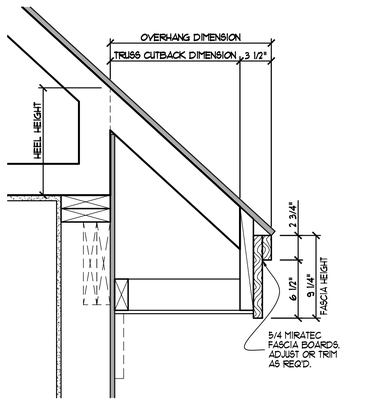
Residence Garage Square Footage:
Our current attached 3-car garage is 1150 sq. ft. and a proposed detached garage would add an additional 1152 sq. ft (576 sq. ft. on each level) bringing the total square footage of all garage space on our property to 2302 sq. ft. or 802 sq. ft. over the sq footage allowed per city ordinance.

Reason for the Additional Garage Space:
In the future, when we sell our northern Minnesota lake home, we will have possessions that are used at both residences - but currently store then at the lake. The larger pieces of equipment include 14-foot dump trailer and a 22 ft. classic wood boat. In addition we have other items such as a small lawn tractor and other watercraft that could be enjoyed with our Pleasant Lake access such as a canoe, kayak and paddleboard. In designing this detached space we has a strong desire to maintain the aesthetics of our custom designed modern farmhouse for storage of these items on our property and also store them within an enclosed, temperature controlled and secured building.

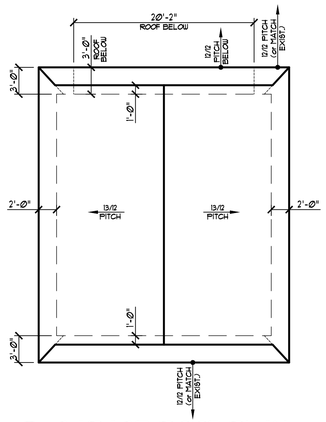
Materials Provided for the CUP Application:
Please note that in the required sets of drawings for the CUP application, the plans include the proposed detached garage project and a proposed sunroom addition. Therefore, we have also included a FAR worksheet that reflects both proposed project areas - the detached garage and sunroom.

CUP MODIFICATION REQUEST DATED 12/12/2023
REV#1 - 01/12/2024

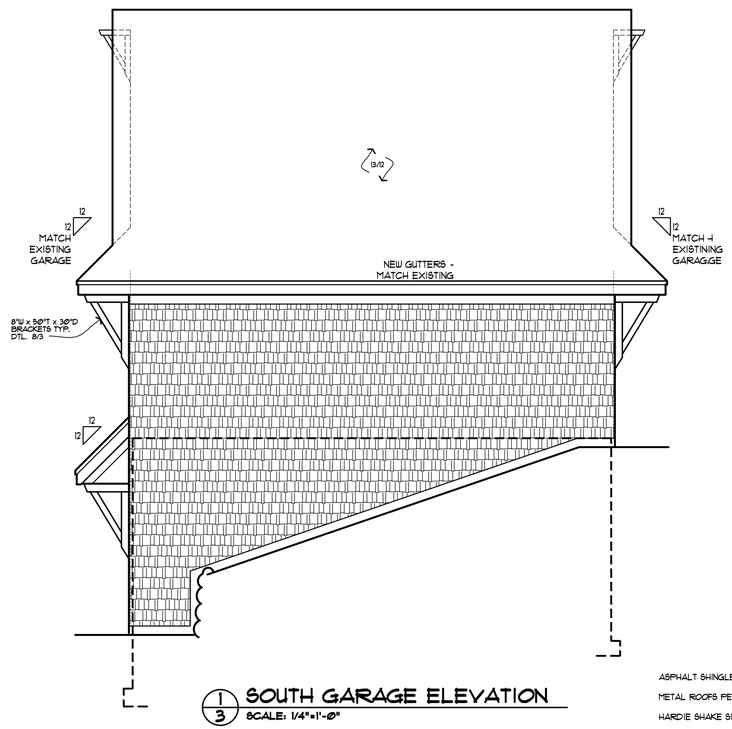
THE OWNER IS MAKING THIS REQUEST TO CORRECT AN ERROR HE MADE IN DETERMINING THE LENGTH REQUIRED TO STORE THE ABOVE MENTIONED 22' CLASSIC BOAT & TRAILER. TO PROVIDE 25'4" INSIDE CLEAR AREA IN LOWER LEVEL FROM CONCRETE WALL TO THE BACK OF GARAGE DOOR (NOT COUNTING HINGES OR BRACES) OVERALL GARAGE MUST BE 24'x27' REV#1



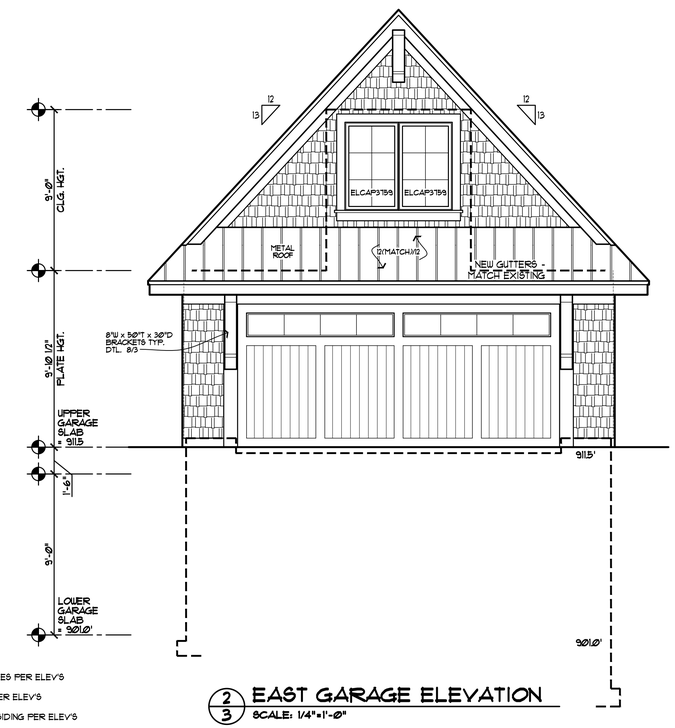
6/3 TYPICAL FASCIA / DIM DIAGRAM
SCALE: 1 1/2"=1'-Ø"



5/3 GARAGE ROOF PLAN
SCALE: 1/8"=1'-Ø"

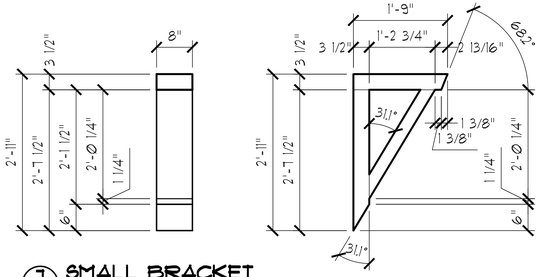


1/3 SOUTH GARAGE ELEVATION
SCALE: 1/4"=1'-Ø"

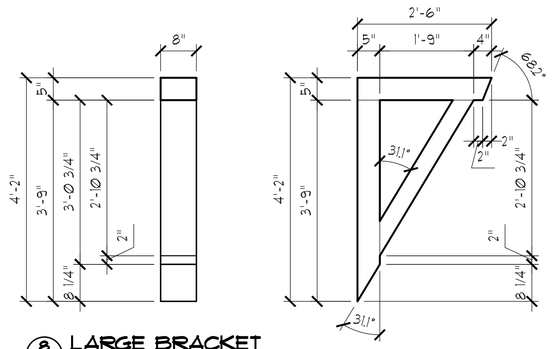


2/3 EAST GARAGE ELEVATION
SCALE: 1/4"=1'-Ø"

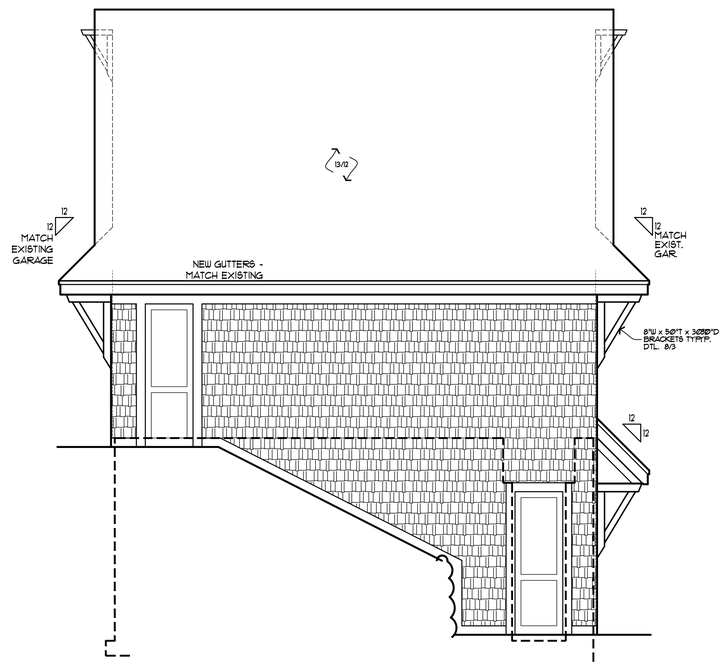
ASPHALT SHINGLES PER ELEV'S
METAL ROOFS PER ELEV'S
HARDIE SHAKE SIDING PER ELEV'S
HARDIE BOARD & BATTEN SIDING PER ELEV'S
6" WNDW & DR TRIM BDS. PER ELEV'S
6" FRIEZE BDS. PER ELEV'S
MIRATEC BANDING PER ELEV'S
RAILINGS TO MATCH EXIST.



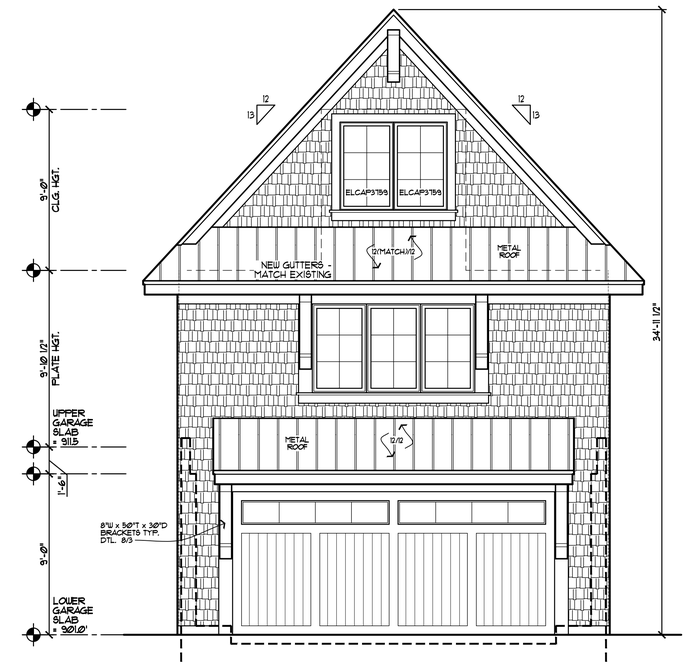
7/3 SMALL BRACKET
SCALE: 3/4"=1'-Ø"



8/3 LARGE BRACKET
SCALE: 3/4"=1'-Ø"



3/3 NORTH GARGE ELEVATION
SCALE: 1/4"=1'-Ø"



4/3 WEST GARAGE ELEVATION
SCALE: 1/4"=1'-Ø"

ALEXANDER DESIGN GROUP INCORPORATED
275 EAST LAKE STREET
SUITE 102
WAYZATA, MN 55391
Phone: 952.473.8777
FAX: 952.473.8222

ISSUE DATE:
12 JANUARY 2024
PREVIOUS ISSUE DATES:

DRAWING DESCRIPTION:
ACCESSORY GARAGE
ELEVATIONS & ROOF PLAN

ADG

CONSTRUCTION SET

UDAGER RESIDENCE
WEST PLEASANT LAKE RD
NORTH OAKS, MN

3
3 OF 4

NOTE - SEE 'HANSON GROUP' STRUCTURAL PAGES FOR ALL ENGINEERING. THESE PAGES TO SUPERSEDE ANY CALLOUTS OR SIZING SHOWN THAT MAY DIFFER.

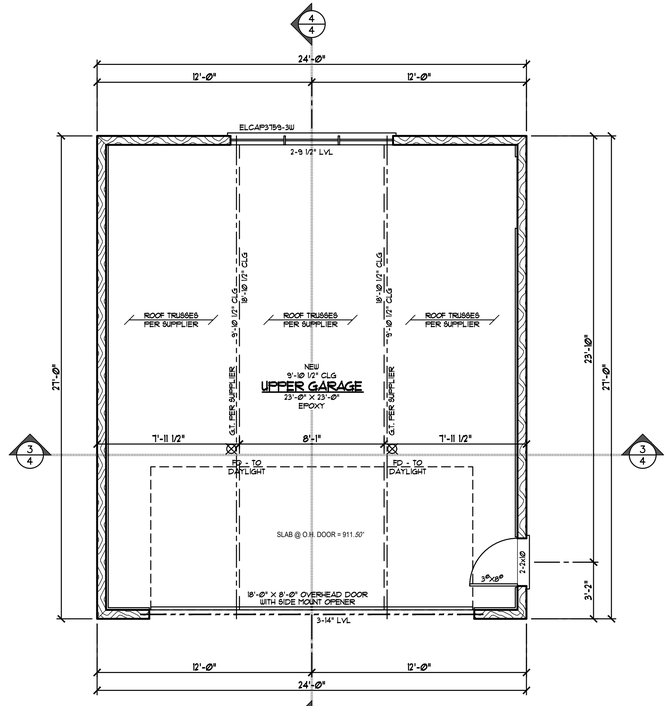
NOTE - OFFSET EXTERIOR STUDS 1-1/2" TO THE OUTSIDE FACE OF FOUNDATION WHERE EXT. FND. INSUL. IS APPLIED, EXCEPT WHERE NOTED.

NOTE - ALL WINDOW & DR. HEAD HGTS. TO BE SET AT 8'-Ø" UNLESS NOTED OTHERWISE

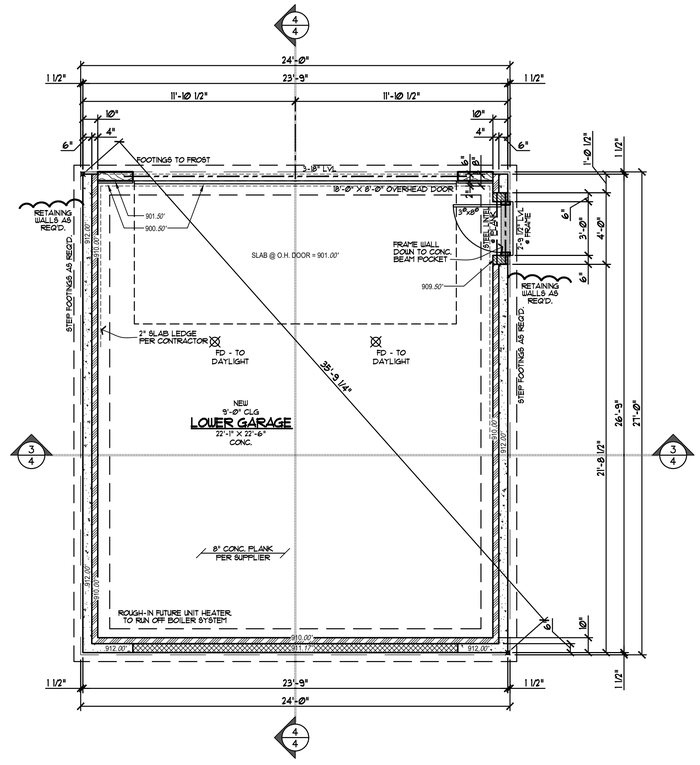
MARVIN INTEGRITY WND. CODES

SQUARE FOOTAGE:	
ADDITION -	306#
UPPER GARAGE -	576#
LOWER GARAGE -	576#

LEGEND
EXISTING WALL =
DEMO WALL =
PROPOSED NEW =



1/4 UPPER GARAGE PLAN
SCALE: 1/4"=1'-Ø"



2/4 LOWER GARAGE PLAN
SCALE: 1/4"=1'-Ø"

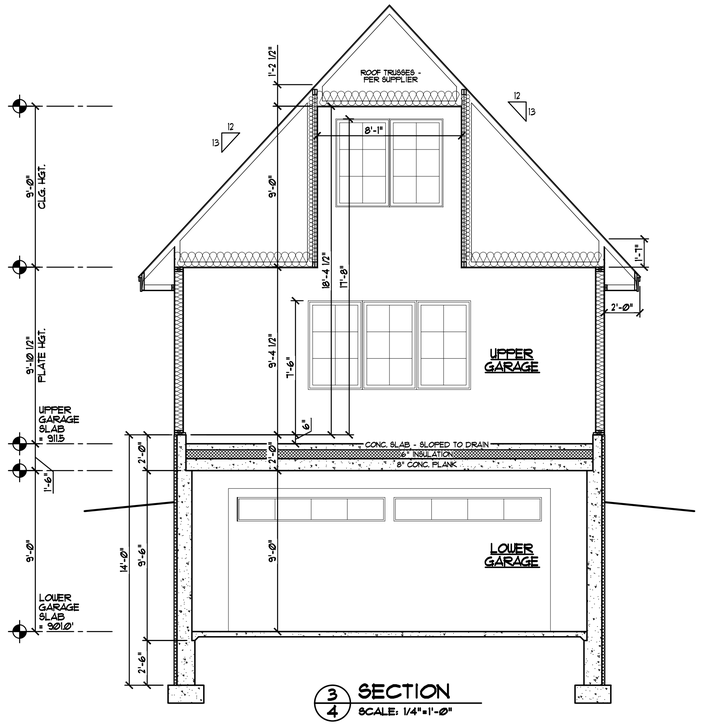
ROOF CONSTRUCTION:
ROOF VENTS AS REQ'D. - I/300.
ASPHALT SHINGLES
METAL ROOF - PER MANUF. INSTALL REQUIREMENTS.
FELT PAPER w/ ICE & WATER SHIELD.
FULL ICE & WATER @ ROOFS UNDER 4:12
5/8" OSB ROOF SHEATHING.
WOOD TRUSSES @ 24" O.C. - ENGINEERED BY SUPPLIER.
BAFFLE @ EACH TRUSS SPACE.
R-49 BLOWN-IN INSULATION.
POLY VAPOR BARRIER - 6 MIL.
5/8" GYP. BD. CEILING.

SOFFIT/FASCIA CONSTRUCTION:
MATCH EXISTING SOFFIT AND FASCIA
GUTTERS - MATCH EXISTING

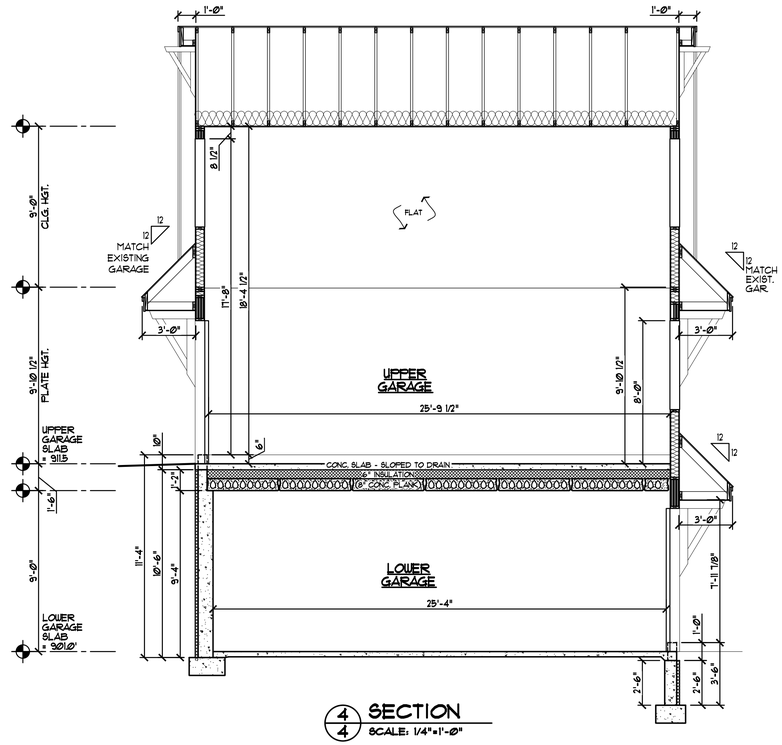
WALL CONSTRUCTION:
SIDING PER ELEVATIONS.
2 LAYERS GRADE "D" BUILDING PAPER.
1/2" PLYWOODD SHEATHING.
2x6 STUDS @ 16" O.C.
1" SPRAY "U" FOAM INSUL & SEALER W/ FIBER GLASS BATTS.
CONTINUOUS POLY VAPOR BARRIER - 6 MIL. - SEAL ALL SEAMS & PENETRATIONS
1/2" GYP. BD. - TAPED, SANDED, PAINTED

FLOOR CONSTRUCTION:
FINISHED FLOOR.
3/4" T. & G. PLYWOOD SUBFLOOR.
FLOOR TRUSSES (PER PLAN) @ 16" O.C. UNLESS OTHERWISE NOTED.
SPRAYED U-FOAM INSUL. @ RIM R-21.
R-49 BLOWN-IN INSULATION.
POLY VAPOR BARRIER - 6 MIL.
5/8" PLYWOOD

FOUNDATION:
CONC. PIERS OR HELICAL PILES - PER ENGINEERING



3/4 SECTION
SCALE: 1/4"=1'-Ø"



4/4 SECTION
SCALE: 1/4"=1'-Ø"

ALEXANDER DESIGN GROUP INCORPORATED
275 EAST LAKE STREET
SUITE 102
WAYZATA, MN 55391
Phone: 952.473.8777
FAX: 952.473.8222

ISSUE DATE:
12 JANUARY 2024
PREVIOUS ISSUE DATES:

DRAWING DESCRIPTION:
ACCESSORY GARAGE
FLOOR PLANS & SECTIONS

ADG

CONSTRUCTION SET

UDAGER RESIDENCE
WEST PLEASANT LAKE RD
NORTH OAKS, MN

4
4 OF 4

MODIFIED FAR - CUP RESOLUTION # 1478 DATED 03/09/2023 REVISION #1 - 01/12/2024

FLOOR AREA RATIO (FAR) WORKSHEET **JOB ADDRESS:** 70 West Pleasant Lake Rd.

1) Total Lot Area 61,476 Sq. Ft.

2) Total Area of Road Easement(s) 5,534 Sq. Ft.

3) **Adjusted Total Lot Area** 55,942 **Sq. Ft.**
(Subtract Line 2 from Line 1)

4) DNR-Designated Wetland 0 Sq. Ft. X .66 = 0 Sq. Ft.

5) **Gross Lot Area** 55,942 **Sq. Ft.**
(Subtract Line 4 from Line 3)

6) Floor Area of Existing or Proposed House

A) First Floor 2,652 Sq. Ft.

B) Second Floor 626 Sq. Ft.

C) Basement 2,575 Sq. Ft.
Exposed Basement Walls 34 %
1)Adjusted Basement Area 876 Sq. Ft.
(Multiply Line 6C by 6C1)

D) Garage 1,150 Sq. Ft.

E) Add Lines A, B, C2, D **Sub-Total:** 5,303 **Sq. Ft.**

7) Additional Floor Area

A) Additions - Sun Room 306 Sq. Ft.

B) Detached Accessory Buildings ~~936~~ 972 Rev#1 Sq. Ft.

C) Add Lines A and B **Sub-Total:** ~~1,242~~ 1,278 Rev#1 **Sq. Ft.**

GARAGE MODIFIED FROM 24' x 24' TO 24' x ~~24~~ 27' Rev#1

8) Total Floor Area (Add Lines 6E and 7C) **TOTAL:** ~~6,545~~ 6,581 Rev#1 **Sq. Ft.**

9) FLOOR AREA RATIO (Divide Line 8 by Line 5) ~~11.70%~~ 11.76% Rev#1

ORIGINAL CUP NUMBERS
864 SF
1,170 SF
6,473 SF
11.57%

Note: For Lots where the combined square footage of all Buildings thereon exceeds 4,000 square feet, then the combined total Floor Area Ratio (FAR) of all Buildings on such Lots shall not exceed 0.12

Date: 12/12/2023 Phone: 651-271-8802 Signature:

Print Name: MARK WEAVER 12/10

01/12/2024 - Rev#1

Z:\North Oaks\FORMS Permit-Lic Application\Building\F.A.R. worksheet.rtf

February 5, 2024

Kendra Lindahl, AICP
City Planner

Via E-mail: KLindahl@landform.net

RE: **70 West Pleasant Lake Road**
Sambatek Project No. 51986

Dear Kendra:

I have reviewed the proposed garage and other proposed improvements for this parcel and am recommending that the applicant provide us with an erosion control plan in conformance with the Best Practices Manual to control erosion in all disturbed areas.

In addition, the driveway installation shall be coordinated with the City Engineer and NOHOA.

Sincerely,
Sambatek, LLC

Michael J. Nielson, PE
Township Engineer

CC: Kevin Kress, Administrator

CITY OF
NorthOaks
Building on a tradition of innovation

PLANNING REPORT

TO: North Oaks City Council

FROM: Kendra Lindahl, City Planner
Kevin Kress, City Administrator
Bridget McCauley Nason, City Attorney
Michael Nielson, City Engineer

DATE: April 5, 2024

RE: Septic Variance at 4 Dove Lane

Date Application Submitted	November 13, 2023
Date Application Determined Complete:	February 5, 2024
Planning Commission Meeting Date:	February 29, 2024
60-day Review Date:	April 5, 2024
City Council Meeting Date:	April 11, 2024
120-day Review Date:	June 4, 2024

REQUEST

James Christiansen has requested approval of a subsurface sewage treatment system (SSTS) variance to allow a zero-foot setback from the road easement where a minimum of 30 feet is required. The variance would allow a replacement of the SSTS at 4 Dove Lane, which is classified as non-compliant under MPCA Rule 7080.1500, Subp.4(B).

PLANNING COMMISSION REVIEW

The Planning Commission held a public hearing on February 29th. Other than the applicant, there was no one present to speak on this item. The Planning Commission voted 7-0 to recommend approval of the request.

BACKGROUND

The site is currently developed with a single family home and a small shed. The property is located in the shoreland district for Gilfillan Lake.

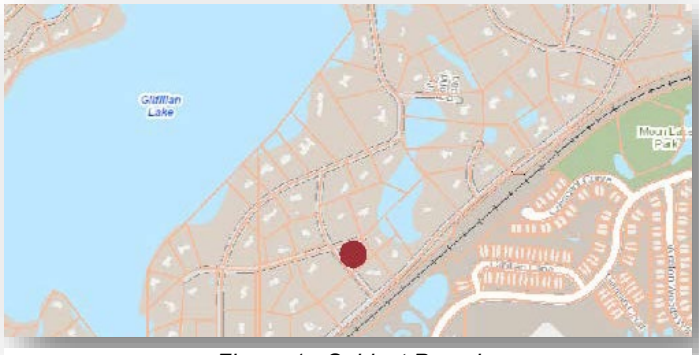


Figure 1 - Subject Parcel

Zoning and Land Use

The property is guided Low Density residential and is zoned Residential Single Family – Low Density (RSL). The 0.57-acre property is located at the southeast corner of Dove Lane and Edgewater Lane.

PLANNING ANALYSIS

Chapter 51 of the City Code establishes standards for SSTS. Section 51.03(3) requires a minimum setback of 30 feet from all property lines, wetlands and the nearest edge of any roadway easement. The applicant's plan shows a zero foot setback from both Dove Lane and Edgewater Lane.

Variance Standards

Section 51.02(11) of the Code says, "Where conditions prevent the construction, alteration, and/or repair of a sewage treatment system in strict compliance with the requirements of this chapter, the property owner may apply for a variance following the procedures outlined in North Oaks City Code Sections 151.078 & 151.079."

Section 151.078 of the Zoning Code requires that the following criteria be considered and a variance only be granted when it is demonstrated that following standards have all been met:

(1)(a) Their strict enforcement would cause practical difficulties because of circumstances unique to the individual land under consideration, and the variances shall be granted only when it is demonstrated that the actions will be in keeping with the spirit and intent of this chapter.

The size and shape of the existing lot of record does not have another location for a new septic on this site and creates a practical difficulty. The location of water supply lines, structures, and the existing cesspools leave only this location for a new septic system.

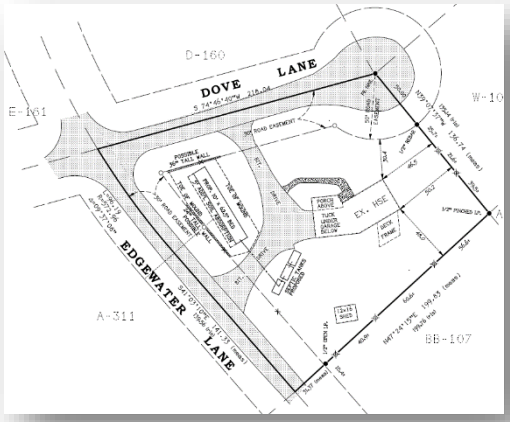


Figure 2-Site Plan

b) PRACTICAL DIFFICULTIES means the land in question cannot be put to a reasonable use if used under conditions allowed by the official controls, the plight of the land owner is due to circumstances unique to the land in question which were not created by the land owner, and the variance, if granted, will not alter the essential character of the locality.

The size and shape of the existing lot of record does not have another location for a new septic on this site and creates a practical difficulty. The location of water supply lines, structures, and the existing cesspools leave only this location for a new septic system. Approving the variance will construction of a new septic system and abandonment of the non-compliant system. It would not alter the essential character of the locality.

(c) Economic considerations alone shall not constitute an undue hardship if reasonable use for the land exists under the terms of this chapter.

The variance requested is to replace a failing system. The variance is not based on economic considerations alone.

(d) A variance may not be granted for any use that is not permitted under this chapter for land in the zone where the affected person's land is located.

The variance would allow a new septic system. It would not allow a use that is not permitted by City Code.

(2) Subject to the above, a variance may be granted only in the event that all of the following circumstances exist:

(a) Unique circumstances apply to the which do not generally apply to other land in the same zone or vicinity, and result from lot size or shape, topography, or other circumstances over which the owners of the land have no control;

The circumstances of this site do not apply to other properties in same zone and are the result of the small lot size, topography and existing conditions on this lot.

(b) The proposed uses is reasonable;

The proposed use is reasonable. It will allow replacement of the failing system with a new septic system.

(c) That the unique circumstances do not result from the actions of the applicant;

The circumstances do not result from the action of the applicant. The existing septic system has failed and must be replaced.

(d) That granting the variance requested will not confer on the applicant any special privilege that is denied by this chapter to other lands, structures, or buildings in the same district;

Granting the variance will not confer upon the applicant any special privilege. It will simply allow them to replace their failing system.

(e) That the Variance requested is the minimum variance which would alleviate the practical difficulties;

The variance is the minimum action needed to alleviate the practical difficulties on site.

(f) The proposed variance will not impair an adequate supply of light and air to adjacent land, or substantially increase the congestion of the roads and streets, or increase the danger of fire, or endanger the public safety, or substantially diminish or impair property values within the neighborhood; and

The proposed variance will not impair an adequate supply of light and air to adjacent land, or substantially increase the congestion of the roads and streets, or increase the danger of fire, or endanger the public safety, or substantially diminish or impair property values within the neighborhood.

(g) At no time after the land became nonconforming was the property under common ownership with contiguous land, the combination of which could have been used to reduce or avoid the nonconformity of the land.

At no time after the land became nonconforming was the property under common ownership with contiguous land, the combination of which could have been used to reduce or avoid the nonconformity of the land.

Attached for reference:

Exhibit A: Location Map

Exhibit b: Site Survey dated February 5, 2024

Exhibit C: KSD SSTS Design dated November 1, 2023

STAFF RECOMMENDATION

Based on the preceding review, Staff finds that the variance standards are met and that the new system will result in improvement to the local ground and surface waters by eliminating a non-compliant cesspool.

ACTION

Move to approve the resolution approving the septic variance, as recommended by the Planning Commission.

RESOLUTION No. 2024- ____

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA

RESOLUTION GRANTING SETBACK VARIANCE FROM PRIVATE ROAD EASEMENTS TO ALLOW REPLACEMENT OF A NON-COMPLIANT SUBSURFACE SEWAGE TREATMENT SYSTEM (SSTS) AT 4 DOVE LANE

WHEREAS, the City of North Oaks (City) has received an application for a variance to allow a zero-setback for a new SSTS to replace a non-compliant system at 4 Dove Lane;

WHEREAS, the variance would allow a replacement of the SSTS at 4 Dove Lane, which is classified as non-compliant under MPCA Rule 7080.1500, Subp. 4(B)e;

WHEREAS, the grading of the mound system is at a zero-foot setback and the soil absorption area is at a five foot setback from the adjacent private road easements where 30 feet is required;

WHEREAS, the Planning Commission reviewed the request at a duly called public meeting and, following a public hearing on February 29, 2024, voted to recommend approval.

NOW, THEREFORE BE IT RESOLVED by the City Council of the City of North Oaks that the variance is approved subject to the following findings and conditions:

1. A variance to allow a zero-foot setback from the adjacent private road easements where 30 feet is required for an SSTS to replace a non-compliant system as shown on the survey dated February 5, 2024.

2. The Council finds that the variance standards in Section 151.078 of the Zoning Code have been met as follows:

    a. Strict enforcement would cause practical difficulties because of circumstances unique to the individual land under consideration. The size and shape of the existing lot of record does not have another location for a new septic on this site and creates a practical difficulty. The location of water supply lines, structures, and the existing cesspools leave only this location for a new septic system.

    b. The size and shape of the existing lot of record does not have another location for a new septic on this site and creates a practical difficulty. The location of water supply lines, structures, and the existing cesspools leave only this location for a new septic system. Approving the variance will construction of a new septic system and abandonment of the non-compliant system. It would not alter the essential character of the locality.

    c. The variance requested is to replace a failing system. The variance is not based on economic considerations alone.

    d. The variance would allow a new septic system. It would not allow a use that is not permitted by City Code.

e. The circumstances of this site do not apply to other properties in same zone and are the result of the small lot size, topography and existing conditions on this lot.

f. The proposed use is reasonable. It will allow replacement of the failing system with a new septic system.

g. The circumstances do not result from the action of the applicant. The existing septic system has failed and must be replaced.

h. Granting the variance will not confer upon the applicant any special privilege. It will simply allow them to replace their failing system.

i. The variance is the minimum action needed to alleviate the practical difficulties on site.

j. The proposed variance will not impair an adequate supply of light and air to adjacent land, or substantially increase the congestion of the roads and streets, or increase the danger of fire, or endanger the public safety, or substantially diminish or impair property values within the neighborhood.

k. At no time after the land became nonconforming was the property under common ownership with contiguous land, the combination of which could have been used to reduce or avoid the nonconformity of the land.

3. The applicant must apply for a septic permit and receive approval prior to beginning replacement of the system.

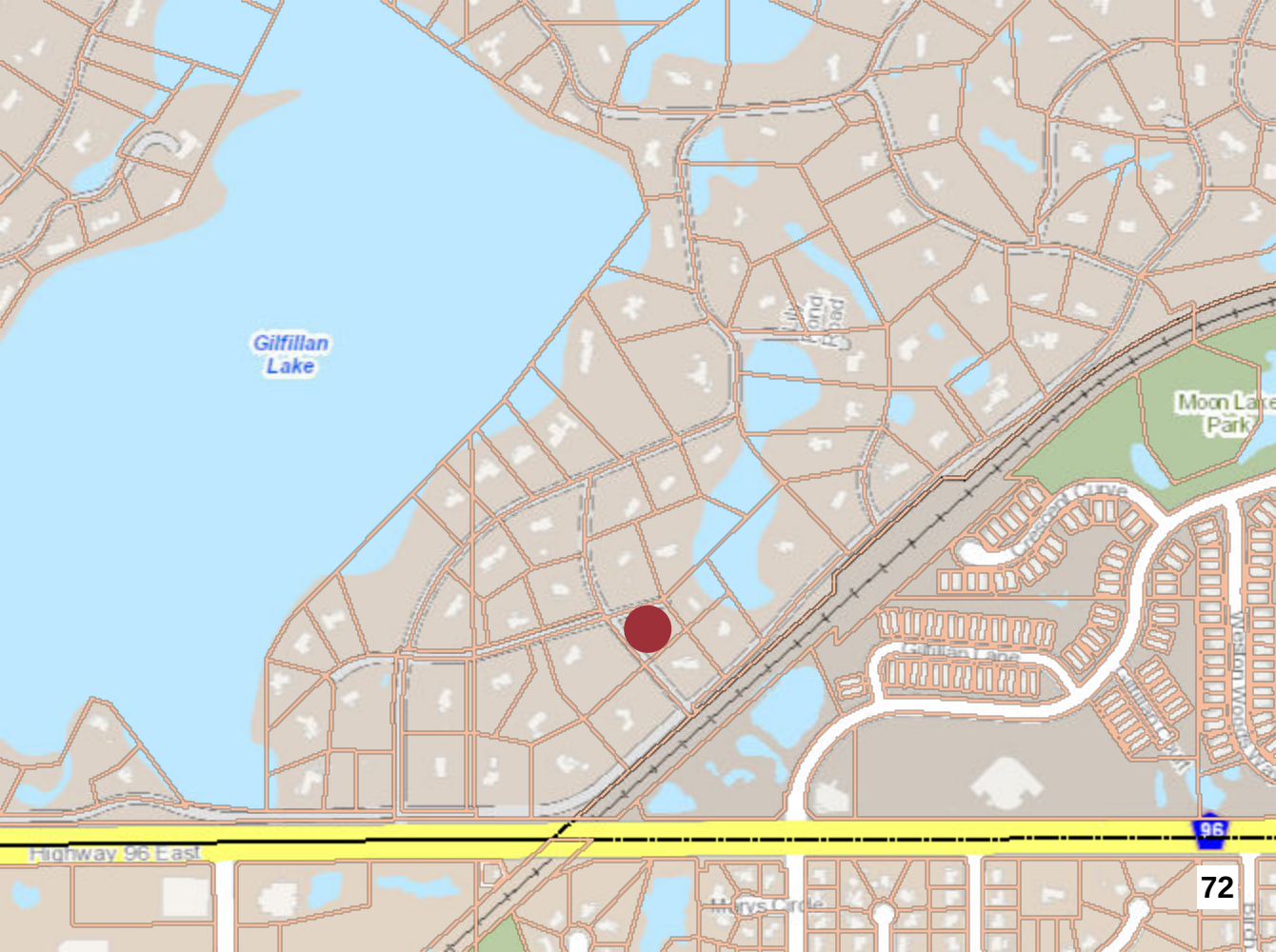
Adopted by the City Council of the City of North Oaks on this 11th day of April 2024.

Ayes: Nays:

By: _____
Krista Wolter
Its: Mayor

Attested:

By: _____
Kevin Kress
Its: City Administrator/City Clerk


Gilfillan Lake
Moon Lake Park
Highway 96 East
96
72

CERTIFICATE OF SURVEY

FOR Jim Christianson

(MEASUREMENTS SHOWN IN FEET AND DECIMALS OF A FOOT)

DATE MAY 16, 2023

I HEREBY CERTIFY THAT THIS SURVEY. PLAN OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

Randy L. Kurth, L.L.S. No. 20270
Russell J. Kurth, L.L.S. No. 16113

KURTH SURVEYING, INC.
4002 JEFFERSON ST. N.E.
COLUMBIA HEIGHTS, MN 55421
PHONE (763) 788-9769
E-MAIL: ksi@kurthsurveyinginc.com.

0 40
SCALE IN FEET

○ = IRON PIPE MONUMENT SET
● = IRON PIPE FOUND
⊠ = 60d SPIKE SET ON LINE
× = WOOD LATH SET ON LINE

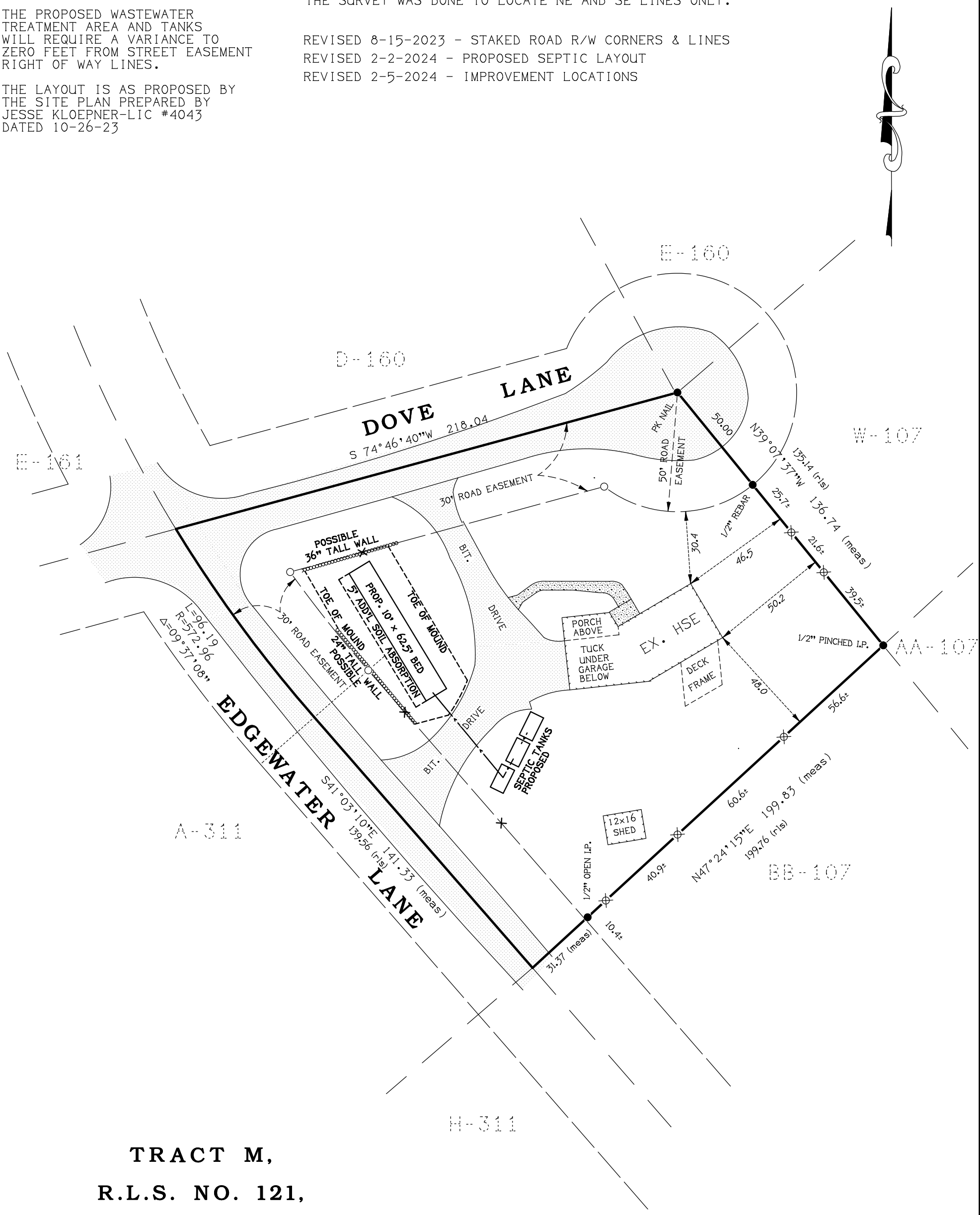
FEBRUARY 5, 2024

THE PROPOSED WASTEWATER TREATMENT AREA AND TANKS WILL REQUIRE A VARIANCE TO ZERO FEET FROM STREET EASEMENT RIGHT OF WAY LINES.

THE LAYOUT IS AS PROPOSED BY THE SITE PLAN PREPARED BY JESSE KLOEPNER-LIC #4043 DATED 10-26-23

THIS IS NOT A FULL BOUNDARY SURVEY
THE SURVEY WAS DONE TO LOCATE NE AND SE LINES ONLY.

REVISED 8-15-2023 - STAKED ROAD R/W CORNERS & LINES
REVISED 2-2-2024 - PROPOSED SEPTIC LAYOUT
REVISED 2-5-2024 - IMPROVEMENT LOCATIONS



TRACT M,
R.L.S. NO. 121,
RAMSEY COUNTY, MN.

RLK....City of North Oaks\rls 121\4 DOVE LANE CERT REV2-2024.gxd

11/1/2023

KSD

Your water. Our neighbors.

SSTS Design

4 Dove Lane

North Oaks, MN 55127

PID # 173022430006

Version 1.2

Kloeppner Services & Designs, LLC
MPCA LICENSE # 4043

763.843.4114
CONNECT@KSD-MN.COM

SSTS Design Summary Report

11/1/23

Updated 11/1/23 – Report includes need for Variances from the Road Right of Way (ROW) 30' setback requirement. Site plan illustrates need for a variance throughout the property for a new SSTS.

Updated 10/25/23 – The mound sand depth was increased to 24" deep to create 36" of separation from the Bottom of Distribution Media to the limiting depth in the soil.

On August 15th, 2023, a site evaluation was conducted at 4 Dove Lane, North Oaks, MN 55127 to design a replacement Soil Absorption Area for the Subsurface Sewage Treatment System (SSTS) for the existing 6-bedroom house. The PID number is 173022430006.

Prior to submitting a permit from the City of North Oaks please review and sign all pages which require a signature.

Variance Request

The new SSTS will require the following variances to install the sewage tanks and soil treatment area.

- Distance from ROW along Dove Lane:
  - 30' to Soil Treatment Area
- Distance from ROW along Edgewater Lane:
  - 30' to Soil Treatment Area
  - 30' to Sewage and Pump Tanks

Wastewater Sources & Peak Flow Rate

The expected waste strength is Residential Wastewater with a Peak Flow of 900 gallons per day (GPD) for a 6-bedroom house. The Expected Daily Flow should be less than 70% of the Peak Flow (630 GPD).

Type III Mound

The dispersal area will be a Type III Mound. The Mound Soil Absorption Area required is 937.5-sqft (15' x 62.5'). The soil must be removed to expose the sandy soil 30" or deeper prior to construction of the mound. The excavated area must be back filled with washed mound sand.

The minimum required materials for the sewer line, distribution network, pumps, supply line, sand, rock, fill and cover are detailed in the design worksheets included with this design. Actual values may change slightly and will need to be field verified for correctness.

Design Notes

1. The design is a Type III that will reduce the total flow of the system to use a maximum of 5-bedrooms of peak flow to the soil treatment area (750 GPD). A time dosed controller will be used to restrict the flow from the pump tank to allow for a maximum of 625 gallons of water usage in a 24-hour period. An alarm will be activated if water usage exceeds this flow.
2. Minimum Volumes for New Tanks: 1st Tank 1,500-gallons; 2nd Tank 1,500-gallons; Pump Tank 1,500-gallons.
3. The location for the sewage tanks is only proposed. Discuss options with Licensed Installer.
4. The berms will extend into ROW to make the system aesthetically pleasing from the view of the road.
5. The pump supply line will cross under the driveway. Frost protection measures must be considered to avoid the line freezing.

Construction Notes

Building Permit requirements

No construction shall be allowed by any local unit of government until the permit required for the subsurface sewage treatment system has been issued.

Site Protection

Prior to and during construction or lot improvements, the proposed initial and replacement soil treatment and dispersal areas shall be protected from disturbance, compaction, or other damage by use of stakes and silt fence or snow fence.

MR 7080.2100, Subpart 1. F

Electrical installations must comply with applicable laws and ordinances including the most current codes, rules, and regulations of public authorities having jurisdiction and with part 1315.0200, which incorporates the National Electrical Code.

As-Built Drawing

The Licensed Installer must provide an As-Built of the final location of all components. The attached Site Plan is only for reference and should not be considered as a final survey or location of system components.

Protection from Freezing for Supply Line

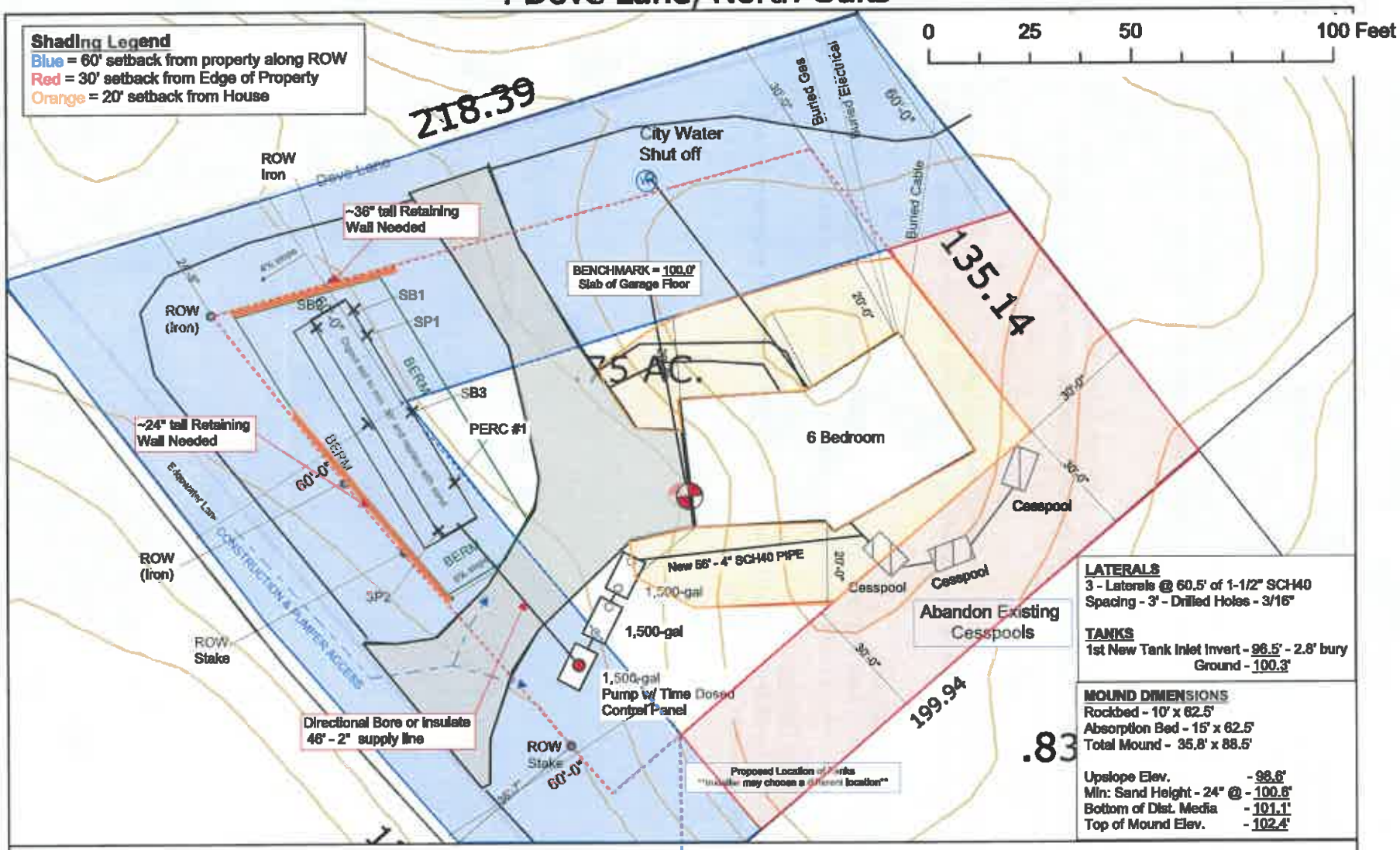
The Mound supply line must drain back and empty pipe after each dose. To avoid potential freezing, additional depth or insulation may be necessary to keep line from freezing if buried too shallow.

Soil Erosion & Protection from Freezing

The dispersal area must have seed and grass established throughout the excavated areas to maintain proper protection from soil erosion and freezing.

4 Dove Lane, North Oaks

version 1.2



NOTES:

1. The design is a Type III that will reduce the total flow of the system to use a maximum of 5-bedrooms of peak flow to the soil treatment area (750 GPD). A time dosed controller will be used to restrict the flow from the pump tank to allow for a maximum of 625 gallons of water usage in a 24-hour period. An alarm will be activated if water usage exceeds this flow.
2. Minimum Volumes for New Tanks: 1st Tank 1,500-gallons; 2nd Tank 1,500-gallons; Pump Tank 1,500-gallons.
3. The location for the sewage tanks is only proposed. If tanks are placed more than 15' from proposed location, contact KSD to discuss options.
4. Remove top layer of soil to expose sandy soil to a minimum depth of 30" and replace with washed mound sand before construction of the mound.
5. The berms will not extend into the ROW. Retaining walls must be built on the North and West ends of the mound berms to keep off the ROW.
6. The pump supply line will cross under the driveway. Frost protection measures must be considered to avoid the line freezing.

- THIS IS ONLY A SITE PLAN
- ALL SEPTIC LOCATIONS AND MEASUREMENTS ARE ONLY ESTIMATES
- AS-BUILT WILL NEED TO BE PROVIDED BY INSTALLER AFTER CONSTRUCTION

KSD

Kloeppner Services & Designs, LLC
Lic # 4043

LEGEND:
W = Well
SB = Soil Boring
SP = Soil Pit
= Benchmark

NORTH

Approved by: Jesse Kloeppner

Date - 10/26/23

ONSITE SEWAGE TREATMENT PROGRAM

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 03.15.2023

Property Owner/Client: Jim Christiansen | Date Completed: 8/8/2023

Site Address: 4 Dove Lane, North Oaks, MN 55127 | Project ID:

Legal Description: REGISTERED LAND SURVEY 121 SUBJ TO AND WITH PVT RD ESMTS TRACT M

Parcel ID: 173022430006 | SEC: 17 | TWP: 30 | RNG: 22

2. Flow and General System Information

A. Client-Provided Information

Project Type: ☐ New Construction ☑ Replacement ☐ Expansion ☐ Repair

Project Use: ☑ Residential ☐ Other Establishment:

Residential use: # Bedrooms: 6 | Dwelling sq.ft.: | Unfinished sq.ft.:

Adults: | # Children: | # Teenagers:

In-home business (Y/N): No | If yes, describe:

Water-using devices (*check all that apply*):

☐ Garbage Disposal/Grinder	☑ Dishwasher	☐ Hot Tub*
☐ Sewage pump in basement	☐ Water Softener*	☐ Sump Pump*
☐ Large Bathtub >40 gallons	☐ Iron Filter*	☐ Self-Cleaning Humidifier*
☑ Clothes Washing Machine	☐ High Eff. Furnace*	☐ Other:

* Clear water source - should not go into system

Additional current or future uses: 4-bedroom house to be remodeled to 6-bedroom house.

Anticipated non-domestic waste: N/A

The above is complete & accurate: _____

Client signature & date

B. Designer-determined Flow and Anticipated Waste Strength Information

Attach additional information as necessary.

Design Flow: 900 GPD | Anticipated Waste Type: Residential

Maximum Concentration BOD: 170 mg/L | TSS 60 mg/L | Oil & Grease 25 mg/L

3. Preliminary Site Information

A. Water Supply Wells

#	Description	Mn. ID#	Well Depth (ft.)	Casing Depth (ft.)	Confining Layer	STA Setback	Source
1	4 DOVE LA	105302	171	null		unknown	MN Well Index
2	19 ROBB FARM RD	130937	200	170		50'	MN Well Index
3	2 EDGEWATER LA	138921	207	165		50'	MN Well Index
4							

Additional Well Information: SSTS components must be > 50 from Non-Sensitive Wells

Onsite Sewage Treatment Program

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Site within 200' of noncommunity transient well (Y/N)	No	Yes, source:	
Site within a drinking water supply management area (Y/N)	No	Yes, source:	
Site in Well Head Protection inner wellhead management zone (Y/N)	No	Yes, source:	
Buried water supply pipes within 50 ft of proposed system (Y/N)	No		
B. Site located in a shoreland district/area?	No	Yes, name:	N/A
Elevation of ordinary high water level:	N/A ft	Source:	N/A
Classification: N/A	Tank Setback: N/A ft.	STA Setback: N/A ft.	
C. Site located in a floodplain?	No	Yes, Type(s):	N/A
Floodplain designation/elevation (10 Year):	N/A ft	Source:	N/A
Floodplain designation/elevation (100 Year):	N/A ft	Source:	N/A

D. Property Line Id / Source: ☐ Owner ☐ Survey ☑ County GIS ☐ Plat Map ☐ Other

E. ID distance of relevant setbacks on map: ☑ Water ☑ Easements ☑ Well(s) ☑ Building(s) ☑ Property Lines ☑ OHWL ☐ Other:

4. Preliminary Soil Profile Information From Web Soil Survey (attach map & description)

Map Units: 225; Nessel fine sandy loam 1-4 %

List landforms: Moraines

Landform position(s): Plain

Parent materials: Till

Depth to Bedrock/Restrictive Feature: >80 in Depth to Watertable: >80 in

Map Unit Ratings

Septic Tank Absorption Field- At-grade:	Moderately limited
Septic Tank Absorption Field- Mound:	Slightly limited
Septic Tank Absorption Field- Trench:	Extremely limited

5. Local Government Unit Information

Name of LGU:	City of North Oaks
LGU Contact:	Septic Inspections
LGU-specific setbacks:	30' to wetlands
LGU-specific design requirements:	Septic Tanks: 6-bedroom = 3,000-gal
LGU-specific installation requirements:	
Notes:	

ONSITE SEWAGE TREATMENT PROGRAM

Proposed Design Map

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

Property Address: 4 Dove Lane, North Oaks, MN 55127

Date Completed: 8/15/2023

Elevations in feet Benchmark: 100.0 ft BM Location - Slab of Garage Floor

Primary Mound STA

NW:	98.0	ft
NE:	98.6	ft
SW:	97.7	ft
SE:	98.6	ft
Rockbed	N - 98.1	ft
Rockbed -	S - 98.0	ft

Soil Observation:

SB1:	98.6	ft
SB2:	98.1	ft
SB3:	98.6	ft
SP1:	98.4	ft
SP2:	98.0	ft
Perc #1	98.1	ft
Perc #2	98.6	ft

Existing Tanks

			Bury Depth
1st Tank - Ground	105.0	ft	
1st Tank - Inlet Invert	103.0		1.0 ft

New Tanks

			Bury Depth
1st Tank - Ground	100.3	ft	
- Inlet Invert	96.5	ft	2.8 ft
2nd Tank - Ground	99.1	ft	
- Inlet Invert	95.8	ft	2.8 ft
Pump Tank - Ground	97.9	ft	
- Inlet Invert	93.9	ft	3.0 ft

Mound

Upslope Elevation		98.6	ft
Sand	24 in @	100.6	ft
Bottom of Laterals (+0.5)		101.1	ft
Top of Media (+0.3)		101.4	ft
Top of System (+1.0)		102.4	ft

Mound Dimensions

Width		Length	
10.0 ft x		62.5 ft	Rockbed
15.0 ft x		62.5 ft	Absorption Area
35.8 ft x		88.5 ft	Berm

Pump Intake (-3.5' from I.I.): 90.4 ft

Elevation Difference (for pump system)

For Mound: - +0.5' above Sand Height - Pump Intake: 10.7 ft

For Trenches: - Min. Elev. Trench #1 - Pump Intake: ft

For Pressure Bed: ft

Supply Pipe Length: 46.0 ft

Trenches # @ ft long

	3 feet wide Ground	Min. Depth in	Max. Depth in
#1	ft	ft	ft
#2	ft	ft	ft
#3	ft	ft	ft
#4	ft	ft	ft
#5	ft	ft	ft
#6	ft	ft	ft
#7	ft	ft	ft

Pressure Bed

Width		Length	
ft x		ft	Rockbed
ft x		ft	Absorption Area

Pressure Bed

NW		ft
NE		ft
SW		ft
SE		ft

Alternate STA

NW:		ft	SB4: ft
NE:		ft	SB5: ft
SW:		ft	SB6: ft
SE:		ft	SP2: ft

Comments:

Elevation Difference: Pump Intake - 90.4' to 101.1' = 10.7'

Mapping Checklist

Locate

- ☑ Lot Dimensions/Property Lines
- ☑ Dwellings and Other Improvements
- ☑ Existing or Proposed System(s)
- ☑ Replacement Area
- ☑ Unsuitable Area(s)
- ☐ Public Water Supply Wells
- ☑ Pumping Access
- ☐ Inner Wellhead Zone
- ☐ Other:
- ☐ Other:

Easements

- ☑ Phone
- ☑ Electric
- ☑ Gas
- ☐ Other:
- ☐ Other:

Elevations

- ☑ Benchmark
- ☑ Borings
- ☐ Perc Tests
- ☐ Horizontal and Vertical Reference Points

Setbacks

- ☑ Building
- ☑ All water wells within 100 feet
- ☐ Pressure Pipe
- ☐ Water Suction
- ☐ Streams, Lakes
- ☑ Floodway and Fringe
- ☐ Other:
- ☐ Other:
- ☐ Other:

ONSITE SEWAGE TREATMENT PROGRAM

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 03.15.2023

Property Owner/Client: Jim Christiansen | Project ID:

Site Address: 4 Dove Lane, North Oaks, MN 55127 | Date Completed: 8/15/2023

2. Utility and Structure Information

Utility Locations Identified ☑ Gopher State One Call # | ☐ Any Private Utilities:

Locate and Verify (*see Site Evaluation map*) ☑ Existing Buildings ☑ Improvements ☑ Easements ☑ Setbacks

3. Site Information

Vegetation type(s): Lawn | Landscape position: Foot Slope

Percent slope: 5 % | Slope shape: Linear, Linear | Slope direction: west

Describe the flooding or run-on potential of site: Direct rain run-on around upslope of soil treatment area.

Describe the need for Type III or Type IV system: Disturbed and fill soil throughout STA. The lot is too small

Note: to support a Type I system to meet setbacks.

Proposed soil treatment area protected? (Y/N): Yes | If yes, describe: Stakes

4. General Soils Information

Filled, Compacted, Disturbed areas (Y/N): Yes

If yes, describe: The upper 22" appear to be either fill or gravel driveway throughout STA. The soil must be removed to expose the natural and sandy soil.

Soil observations were conducted in the proposed system location (Y/N): Yes

A soil observation in the most limiting area of the proposed system (Y/N): Yes

Number of soil observations: 5 | Soil observation logs attached (Y/N): Yes

Percolation tests performed & attached (Y/N): Yes

5. Phase I. Reporting Information

	Depth		Elevation		
Limiting Condition*:	12	in	97.6	ft	*Most Restrictive Depth Identified from List Below
Periodically saturated soil:	12	in	97.6	ft	Soil Texture: Medium Sand
Standing water:		in		ft	Percolation Rate: 3.50 min/inch
Bedrock:		in		ft	Soil Hyd Loading Rate: 1.2 gpd/sq.ft
Benchmark Elevation:	100.0	ft			Elevations and Benchmark on map? (Y/N): Yes

Benchmark Elevation Location: Slab of Garage Floor

Differences between soil survey and field evaluation: Soil has medium & coarse sand @ 20" to 30".

Site evaluation issues / comments: The ROW was marked out by surveyor.

Anticipated construction issues: The berms will extend into ROW to make the system aesthetically pleasing from the view of the road.

ONSITE SEWAGE TREATMENT PROGRAM

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Jim Christiansen	Location / Address:	4 Dove Lane, North Oaks, MN 55127

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☐ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill

Landscape Position:	Foot Slope	Slope %:	4.0	Slope shape:	Linear, Linear	Flooding/Run-On potential:	No
Vegetation:	Lawn	Soil survey map units:	225; Nessel fine sandy loam			Surface Elevation-Relative to benchmark:	98.6
Date/Time of Day/Weather Conditions:		8/11/2023	1:15PM	Sunny		Limiting Layer Elevation:	97.3
Observation #/Location:	SB1	NE Corner of Mound Upslope				Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-4	Medium Loamy Sand	10%	10YR 3/2	None	None	None	Granular	Weak	Friable
4-15	Medium Loamy Sand	30%	7.5YR 5/4 10YR 3/2	Disturbed Soil	None	None	Granular	Weak	Friable
15-22	Sandy Clay Loam	15%	10YR 3/2	None	None	None	Blocky	Moderate	Friable
22-30	Medium Sandy Loam	20%	10YR 3/3	7.5YR 5/6 10YR 4/2	Concentrations Depletions	S1 S2	Granular	Moderate	Friable
30-36	Medium Sand	15%	10YR 4/3	10YR 5/2	Depletions	S2	Single grain	Structureless	Loose

Comments: Limiting Layer = 22" - Filled and disturbed soil observed to 15" deep. Soil must be removed to 36" deep to expose medium sand.

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Jesse Kloeppner		L4043	8/11/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

ONSITE SEWAGE TREATMENT PROGRAM

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Jim Christiansen			Location / Address:	4 Dove Lane, North Oaks, MN 55127
Soil parent material(s): (Check all that apply)	☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill				
Landscape Position:	Toe Slope	Slope %: 4.0	Slope shape:	Linear, Linear	Flooding/Run-On potential: No
Vegetation:	Lawn	Soil survey map units:	225; Nessel fine sandy loam		Surface Elevation-Relative to benchmark: 98.1
Date/Time of Day/Weather Conditions:		8/15/2023	2:45PM	Sunny	Limiting Layer Elevation: 96.5
Observation #/Location:	SB2	NW Corner of Rockbed			Observation Type: Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-5	Medium Loamy Sand	10%	10YR 3/1	None	None	None	Granular	Weak	Friable
5-16	Medium Loamy Sand	40%	7.5YR 5/4	None	None	None	Granular	Structureless	Loose
16-21	Medium Sandy Loam	25%	10YR 4/3	None	None	None	Granular	Weak	Friable
21-25	Sandy Clay Loam	30%	10YR 3/3	10YR 4/2	Depletions	S2	Blocky	Moderate	Firm
25-28	Medium Sand	>50	7.5YR 3/3	None	None	None	Single grain	Structureless	Loose

Comments: Limiting Layer = 21"

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Jesse Kloeppner		L4043	8/15/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

ONSITE SEWAGE TREATMENT PROGRAM

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Jim Christiansen	Location / Address:	4 Dove Lane, North Oaks, MN 55127

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill

Landscape Position:	Toe Slope	Slope %:	Slope shape:	Linear, Linear	Flooding/Run-On potential: No
Vegetation:	Lawn	Soil survey map units:	225; Nessel fine sandy loam		Surface Elevation-Relative to benchmark: 98.6
Date/Time of Day/Weather Conditions:		8/15/2023	2:05PM	Sunny	Limiting Layer Elevation: 97.0
Observation #/Location:	SB3	Center of Mound Upslope			Observation Type: Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-7	Medium Sandy Loam	10%	10YR 3/1	None	None	None	Granular	Weak	Friable
7-16	Medium Sandy Loam	35%	7.5YR 5/4 10YR 4/6	Mixed/fill soil	None	None	Granular	Weak	Friable
16-20	Medium Sandy Loam	30%	10YR 3/3 10YR 4/3	None	None	None	Granular	Weak	Friable
20-26	Sandy Clay Loam	20%	10YR 5/4	10YR 5/2 7.5YR 5/4	Depletions Concentrations		Blocky	Moderate	Friable
26-34	Medium Loamy Sand	10%	10YR 3/3	10YR 4/2	Depletions	S2	Granular	Weak	Friable
34-40	Loamy Coarse Sand	5%	7.5YR 3/3	None	None	None	Granular	Structureless	Loose

Comments: Limiting Layer = 20" - Mixed/Fill soil for 0-16" must be removed and replaced with washed mound sand. Remove all soil to depth necessary to expose loamy medium sand.

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Jesse Kloeppner		L4043	8/15/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

ONSITE SEWAGE TREATMENT PROGRAM

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Jim Christiansen			Location / Address:	4 Dove Lane, North Oaks, MN 55127
Soil parent material(s): (Check all that apply)	☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill				
Landscape Position:	Toe Slope	Slope %: 4.0	Slope shape:	Linear, Linear	Flooding/Run-On potential: No
Vegetation:	Lawn	Soil survey map units:	225; Nessel fine sandy loam		Surface Elevation-Relative to benchmark: 93.4
Date/Time of Day/Weather Conditions:		8/11/2023	3:05PM	Sunny	Limiting Layer Elevation: 97.4
Observation #/Location:	SP1	NE Corner of Mound Upslope			Observation Type: Pit

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-10	Medium Sandy Loam	10%	10YR 3/1	None	None	None	Granular	Weak	Friable
10-22	Medium Loamy Sand	10%	10YR 3/2	None	None	None	Granular	Weak	Friable
22-32	Medium Loamy Sand	30%	10YR 3/3	10YR 5/6	Concentrations	S1	Granular	Weak	Loose
32-40	Medium Sand	20%	7.5YR 3/2	10YR 6/1	Depletions	S2	Single grain	Structureless	Loose
40-46	Medium Sand	5%	7.5YR 4/4	5YR 4/6	Concentrations	S1	Single grain	Structureless	Loose

Comments: Limiting Layer = 22" - 12" Soil Credit

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Jesse Kloeppner		L4043	8/11/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

ONSITE SEWAGE TREATMENT PROGRAM

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Jim Christiansen			Location / Address:	4 Dove Lane, North Oaks, MN 55127		
Soil parent material(s): (Check all that apply)	☐ Outwash	☐ Lacustrine	☐ Loess	☑ Till	☐ Alluvium	☐ Bedrock	☐ Organic Matter	☐ Disturbed/Fill
Landscape Position:	Foot Slope	Slope %:	6.0	Slope shape:	Linear, Linear	Flooding/Run-On potential:	No
Vegetation:	Lawn	Soil survey map units:	225; Nessel fine sandy loam			Surface Elevation-Relative to benchmark:	98.0
Date/Time of Day/Weather Conditions:	8/15/2023	2:20PM	Sunny			Limiting Layer Elevation:	95.9
Observation #/Location:	SP2	South Edge of Mound Rockbed Downslope				Observation Type:	Pit

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-4	Medium Loamy Sand	5%	10YR 3/1	None	None	None	Granular	Weak	Friable
4-19	Medium Sandy Loam	30%	10YR 5/6	Disturbed Soil	None	None	Granular	Weak	Friable
19-25	Medium Loamy Sand	15%	10YR 5/4 10YR 4/4	None	None	None	Granular	Structureless	Loose
25-36	Medium Sand	5%	10YR 3/4	10YR 6/2 10YR 3/2	Depletions Concentrations	S2 S1	Single grain	Structureless	Loose

Comments: Limiting Layer = 25" - Disturbed soil must be removed and replaced with washed mound sand. Soil from 0"- 19" looks like an old driveway.

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Jesse Kloeppner		L4043	8/15/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

Textures:	
C	Clay
SIC	Silty Clay
SC	Sandy Clay
CL	Clay Loam
SiCL	Silty Clay Loam
SCL	Sandy Clay Loam
Si	Silt
SiL	Silt Loam
L	Loam
SL	Sandy Loam*
LS	Loamy Sand*
S	Sand*

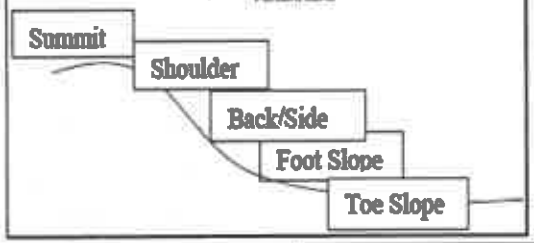
*Sand Modifiers:	
Co	Coarse
M	Medium
F	Fine
VF	Very Fine

Topsoil Indicator(s) of Saturation:

T1. Wetland Vegetation
T2. Depressional Landscape
T3. Organic texture or organic modifiers
T4. N 2.5/ 0 color
T5. Redox features in topsoil
T6. Hydraulic indicators

Subsoil Indicator(s) of Saturation:

S1. Depleted matrix (value >/=4 and chroma </=2)
S2. Distinct gray or red redox features (any Matrix Hue)
S3. Matrix Hue of 5Y with a chroma </= 3
S4. Matrix Hue of 7.5 YR or redder with faint redox concentrations or redox depletions



Slope Shape:

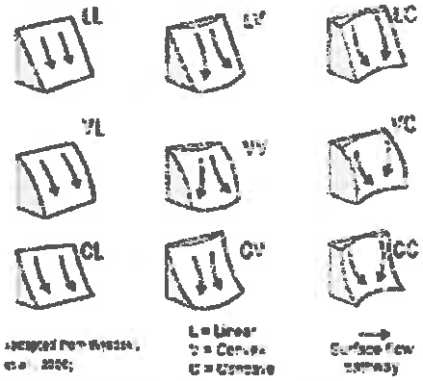
Slope shape is described in two directions:
up and down slope (perpendicular to the contour),
and across slope (along the horizontal contour);
e.g. Linear, Convex or LV.

Shape:

Granular	The peds are approximately spherical or polyhedral and are commonly found in topsoil. These are the small, rounded peds that hang onto roots when soil is turned over.
Platy	The peds are flat and plate like. They are oriented horizontally and are usually overlapping. Platy structure is commonly found in forested areas just below the leaf litter or shallow topsoil.
Blocky	The peds are block-like or polyhedral, and are bounded by flat or slightly rounded surface that are castings of the faces of surrounding peds. Blocky structure is commonly found in the lower topsoil and subsoil.
Prismatic	Flat or slightly rounded vertical faces bound the individual peds. Peds are distinctly longer vertically, and faces are typically casts or molds of adjoining peds. Prismatic structure is commonly found in the lower subsoil.
Single Grain	The structure found in a sandy soil. The individual particles are not held together.

Grade:

Loose	No peds, sandy soil
Weak	Poorly formed, indistinct peds, barely observable in place
Moderate	Well formed, distinct peds, moderately durable and evident, but not distinct in undisturbed soil
Strong	Durable peds that are quite evident in un-displaced soil, adhere weakly to one another, withstand displacement, and become separated when soil is disturbed
Massive	No observable aggregates, or no orderly arrangement of natural lines of weakness



Consistence:

Loose	Intact specimen not available
Friable	Slight force between fingers
Firm	Moderate force between fingers
Extremely Firm	Moderate force between hands or slight foot pressure
Rigid	Foot pressure

ONSITE SEWAGE TREATMENT PROGRAM

Percolation Test Data

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information Project ID: v 03.15.2023

Property Owner/Client: Jim Christiansen

2. General Percolation Information

Diameter: 8 in Date prepared and/or soaked: 8/15/2023

Method of scratching sidewall: Rake

Is pre-soak required*? No If No, how long for 12" to soak away: 7.00 min

Soak* start time: Soak* end time: hrs. of soak

Method to maintain 12 in of water during soak: n/a

** Not required in fast perc soils*

3. Summary of Percolation Test Data

Design Percolation Rate (maximum of all tests attached) = 3.50 mpi

ONSITE SEWAGE TREATMENT PROGRAM

Percolation Test Data

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

Date Completed: 8/15/2023

Test hole: #1 Location: Perc #1 Depth**: 28 inches

Soil texture description: Elevation: 98.6 feet

Depth (in)	Soil Texture
0-17	Medium Loamy Sand
17-25	Sandy Clay Loam
25-28	Medium Loamy Sand

*** 12 in. for mounds & at-grades, depth of absorption area for trenches and beds*

Measurement readings to be completed to the closest 0.05 inch (1/16") to be considered a correct perc test.

Fractions to decimal = Top ÷ Bottom 1/16" = 0.06"

Reading	Start Time	End Time	Start Reading (in)	End Reading (in)	Perc rate (mpi)	% Difference Last 3 Rates	Pass
1	1:05 PM	1:15 PM	8.00	1.00	1.4	NA	NA
2	1:15 PM	1:25 PM	8.00	2.00	1.7	NA	NA
3	1:25 PM	1:35 PM	8.00	3.25	2.1	50.0	No
4	1:36 PM	1:46 PM	8.00	3.33	2.1	23.5	No
5	1:52 PM	2:02 PM	8.00	3.50	2.2	4.8	Yes

Chosen Percolation Rate for Test Hole #1: 3.5 mpi

Design Summary Page

1. PROJECT INFORMATION

v 03.15.2023

Property Owner/Client:	Jim Christiansen	Project ID:	
Site Address:	4 Dove Lane, North Oaks, MN 55127	Date:	10/25/23
Email Address:		Phone:	

2. DESIGN FLOW & WASTE STRENGTH

Attach waste strength data/estimated strength for Other Establishments

Design Flow: 900 GPD — Anticipated Waste Type: Residential

BOD: 170 mg/L — TSS: 60 mg/L — Oil & Grease: 25 mg/L

Treatment Level: C — *Select Treatment Level C for residential septic tank effluent*

3. HOLDING TANK SIZING

Minimum Capacity: Residential =1000 gal or 400 gal/bedroom, Other Establishment = Design Flow x 5.0, Minimum size 1000 gallons

Code Minimum Holding Tank Capacity: ____ Gallons with ____ Tanks or Compartments

Recommended Holding Tank Capacity: ____ Gallons with ____ Tanks or Compartments

Type of High Level Alarm: ____ (Set @ 75% tank capacity)

Comments: ____

4. SEPTIC TANK SIZING

A. Residential dwellings:

Number of Bedrooms (Residential): 6

Code Minimum Septic Tank Capacity: 3000 Gallons with 2 Tanks or Compartments

Recommended Septic Tank Capacity: 3000 Gallons with 2 Tanks or Compartments

Effluent Screen & Alarm (Y/N): Yes — Model/Type: PolyLok 525

B. Other Establishments:

Waste received by: ____ ____ GPD x ____ Days Hyd. Retention Time

Code Minimum Septic Tank Capacity: ____ Gallons with ____ Tanks or Compartments

Recommended Septic Tank Capacity: ____ Gallons with ____ Tanks or Compartments

Effluent Screen & Alarm (Y/N): ____ Model/Type: ____

5. PUMP TANK SIZING

Soil Treatment Dosing Tank		Other Component Dosing Tank:	
Pump Tank Capacity (Minimum):	1000 Gal	Pump Tank Capacity (Minimum):	Gal
Pump Tank Capacity (Recommended):	1500 Gal	Pump Tank Capacity (Recommended):	Gal
Pump Req:	27.0 GPM	Pump Req:	GPM
Total Head	16.8 ft	Total Head	ft
Supply Pipe Dia.	2.00 in	Supply Pipe Dia.	in
Dose Vol:	120.0 gal	Dose Vol:	Gal

* Flow measurement device must be incorporated for any system with a pump: Elapsed Time Meter and/or Event Counter *

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Mound	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	100.0 ft	Benchmark Location:	Slab of Garage Floor
MPCA System Type:	Type III	Distribution Media:	Rock
Type III/IV/V Details:	The soil will be corrected & STA reduced.		

7. SITE EVALUATION SUMMARY:

Describe Limiting Condition: Redoximorphic Features/Saturated Soils

Layers with >35% Rock Fragments? (yes/no) No If yes, describe below: % rock and layer thickness, amount of soil credit and any additional information for addressing the rock fragments in this design.

Note: See Soil Boring Logs

	Depth		Depth		Elevation of Limiting Condition		
Limiting Condition:	12	inches	1.0	ft	97.60	ft	***Critical for system compliance***
Minimum Req'd Separation:	36	inches	3.0	ft			*Distribution Elevation >Code Max Depth*
					Elevation		
Code Max System Depth*:	Mound	inches	-2.0	ft	100.60	ft	Elevation OK

*This is the maximum depth to the bottom of the distribution media for required separation. Negative Depth (ft) requires a mound.

Designed Distribution Elevation: 100.6 ft Minimum Sand Depth: 24.0 inches

A. Soil Texture:	Medium Sand	B. Organic Loading Rate (optional):		lbs/sq.ft/day 0
C. Soil Hyd. Loading Rate:	1.20 GPD/ft^2	D: Percolation Rate:	3.50 MPI	
E. Contour Loading Rate:	12	Note:		
F. Measured Land Slope:	5.0 %	Note:		
Comments:				

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area	sq.ft	Sidewall Depth	in	Trench Width	ft
Total Lineal Feet	ft	No. of Trenches		Code Max. Trench Depth	in
Contour Loading Rate	ft	Minimum Length	ft	Designed Trench Depth	in

Bed:

Dispersal Area	sq.ft	Sidewall Depth	in	Maximum Bed Depth	in
Bed Width	ft	Bed Length	ft	Designed Bed Depth	in

Mound:

Dispersal Area	625.0 sq.ft	Bed Length	62.5 ft	Bed Width	10.0 ft
Absorption Width	15.0 ft	Clean Sand Lift	2.0 ft	Berm Width (0-1%)	ft
Upslope Berm Width	10.0 ft	Downslope Berm	15.8 ft	Endslope Berm Width	13.0 ft
Total System Length	88.5 ft	System Width	35.8 ft	Contour Loading Rate	12.0 gal/ft

Project ID:

At-Grade:

Dispersal Area	sq.ft	Bed Length	ft	Bed Width	ft
Upslope Berm	ft	Downslope Berm	ft	Finished Height	ft
System Length	ft	Endslope Berm	ft	System Width	ft

Level & Equal Pressure Distribution Soil Treatment Area

No. of Laterals	3	Lateral Diameter	1.50	in	Lateral Spacing	3	ft
Perforation Spacing	3	ft	Perforation Diameter	3/16	in	Drainback Volume	8	gal
Min Dose Volume	80	gal	Max Dose Volume	225	gal	Total Dosing Volume	128	gal

9. Organic Loading and Additional Info for At-Risk, HSW or Type IV Design

Organic Loading to Soil Treatment

A. Starting BOD Concentration = Design Flow X 0.7 X Starting BOD (mg/L) X 8.35 ÷ 1,000,000

gpd X mg/L X 8.35 ÷ 1,000,000 = lbs. BOD/day (Organic Loading Design)

B. Organic Loading to Soil Treatment Area: (enter loading value in 7B)

mg/L X gpd X 0.7 X 8.35 ÷ 1,000,000 ÷ sq.ft = lbs./day/sqft

HSW Technology Strength Reduction

A. Starting BOD Concentration = Design Flow X Starting BOD (mg/L) X 8.35 ÷ 1,000,000

gpd X mg/L X 8.35 ÷ 1,000,000 = 0.00000 lbs. BOD/day (HSW Technology Design)

B. Target BOD Concentration = Design Flow X Target BOD (mg/L) X 8.35 ÷ 1,000,000

gpd X mg/L X 8.35 ÷ 1,000,000 = lbs. BOD/day (HSW Technology Design)

Lbs. BOD To Be Removed: lbs. BOD/day (HSW Technology Design)

Pretreatment Technology: *Must Meet or Exceed Target

Disinfection Technology: *Required for Levels A & B

10. Comments/Special Design Considerations:

1. The design is a Type III that will reduce the total flow of the system to use a maximum of 5-bedrooms of peak flow to the soil treatment area (750 GPD). A time dosed controller will be used to restrict the flow from the pump tank to allow for a maximum of 625 gallons of water usage in a 24-hour period. An alarm will be activated if water usage exceeds this flow.
2. Minimum Volumes for New Tanks: 1st Tank 1,500-gallons; 2nd Tank 1,500-gallons; Pump Tank 1,500-gallons.
3. The location for the sewage tanks is only proposed. If tanks are placed more than 15' from proposed location, contact KSD to discuss options.
4. Remove top layer of soil to expose sandy soil to a minimum depth of 30" and replace with washed mound sand before construction of the mound.
5. The berms will extend into the ROW to make the system aesthetically pleasing from the view of the road.
6. The pump supply line will cross under the driveway. Frost protection measures must be considered to avoid the line freezing.

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Jesse Kloeppner		L4043	10/25/23
(Designer)	(Signature)	(License #)	(Date)

ONSITE SEWAGE TREATMENT PROGRAM

Mound Design Worksheet
≥1% Slope

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: v 03.15.2023

A. Design Flow Reduced to 750 GPD	750	GPD
B. Soil Loading Rate:	1.20	GPD/sqft
C. Depth to Limiting Condition	1.0	ft
D. Percent Land Slope:	5.0	%
E. Media (Sand) Loading Rate:	1.2	GPD/sqft
F. Mound Absorption Ratio:	1.50	

Table I
MOUND CONTOUR LOADING RATES:

Measured Perc Rate	← OR →	Texture - derived mound absorption ratio		Contour Loading Rate:
≤ 60mpi		1.0, 1.3, 2.0, 2.4, 2.6	→	≤12
61-120 mpi	← OR →	5.0	→	≤12
≥ 120 mpi*		>5.0*	→	≤6*

TABLE IXa
LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA AND ABSORPTION RATIOS USING PERCOLATION TESTS

Percolation Rate (MPI)	Treatment Level C: Absorption Area Loading Rate (gpd/ft²)	Treatment Level C: Mound Absorption Ratio	Treatment Level A, A-2, B: Absorption Area Loading Rate (gpd/ft²)	Treatment Level A, A-2, B: Mound Absorption Ratio
<0.1	-	1	-	1
0.1 to 5	1.2	1	1.6	1
0.1 to 5 (fine sand and loamy fine sand)	0.8	2	1	1.6
6 to 15	0.78	1.5	1	1.6
16 to 30	0.6	2	0.78	2
31 to 45	0.6	2.4	0.78	2
46 to 60	0.45	2.6	0.6	2.6
61 to 120	-	5	0.3	5.3
>120	-	-	-	-

*Systems with these values are not Type I systems. Contour Loading Rate (linear loading rate) is a recommended value.

2. DISPERSAL MEDIA SIZING

A. Hydraulic Absorption Required Bottom Area: Design Flow (1A) ÷ Design Media Loading Rate(1E)

750 GPD ÷ 1.2 GPD/sqft = 625 sq.ft

Organic Sizing (OPTIONAL)

B. Organic Absorption Bed Area = Organic Loading (Summary 9A) ÷ Organic Soil Loading Rate (Summary 7B)

lbs BOD ÷ lbs BOD/sq.ft = sq.ft

C. Required Bed Area = Greater of Hydraulic (1D) or Organic Bed Area (1E) 625 sq.ft

D. Designed Dispersal Media Area: 625 sq.ft *Optional upsizing of area to be larger than 2C*

B. Enter Dispersal Bed Width: 10.0 ft *Can not exceed 10 feet*

C. Calculate Contour Loading Rate: Bed Width(2B) X Design Media Loading Rate(1E)

10 ft X 1.2 GPD/sqft = 12.0 gal/ft *Can not exceed Table 1*

D. Calculate Minimum Dispersal Bed Length: Dispersal Bed Area(2A) ÷ Bed Width(2B)

625 sqft ÷ 10.0 ft = 62.5 ft

If a larger dispersal media Length is desired, enter size: ft

3. ABSORPTION AREA SIZING

A. Calculate Absorption Width: Bed Width(2B) X Mound Absorption Ratio(1F)

10.0 ft X 1.5 = 15.0 ft

B. For slopes >1%, the Absorption Width is measured downhill from the upslope edge of the Bed.

Calculate Downslope Absorption Width: Absorption Width(1F) - Bed Width(2B)

15.0 ft - 10.0 ft = 5.0 ft

4. DISTRIBUTION MEDIA: Project ID:

Select Dispersal Media: Rock — Enter Either 4A or 4B

A. Rock Depth Below Distribution Pipe

6 in

B. Registered Media

Registered Media Depth in

Check registered product information for specific application details and design

Specific Media Comments:

5. MOUND SIZING Project ID:

A. Clean Sand Lift: Required Separation - Depth to Limiting Condition = Clean Sand Lift (1 ft minimum)

3.0 ft - 1.0 ft = 2.0 ft Design Sand Lift (optional): ft

B. Upslope Height: Clean Sand Lift(6A) + Depth of Media(4AorB) +Depth to Cover Pipe+ Depth of Cover (1 ft)

2.0 ft + 0.50 ft + 0.33 ft + 1.0 ft = 3.8 ft

Land Slope %		0	1	2	3	4	5	6	7	8	9	10	11	12
Upslope Berm Ratio	3:1	3.00	2.91	2.83	2.75	2.68	2.61	2.54	2.48	2.42	2.36	2.31	2.26	2.21
	4:1	4.00	3.85	3.70	3.57	3.45	3.33	3.23	3.12	3.03	2.94	2.86	2.78	2.70

C. Select Upslope Berm Multiplier (based on land slope): 2.61

D. Calculate Upslope Berm Width: Multiplier (5C) X Upslope Mound Height (5B)

2.61 X 3.8 ft = 10.0 ft

E. Calculate Drop in Elevation Under Bed: Bed Width(2B) X Land Slope(1D) ÷ 100 = Drop (ft)

10.0 ft X 5.0 % ÷ 100 = 0.50 ft

F. Calculate Downslope Mound Height: Upslope Height(5B) + Drop in Elevation(5E)

3.8 ft + 0.50 ft = 4.3 ft

Land Slope %		0	1	2	3	4	5	6	7	8	9	10	11	12
Downslope Berm Ratio	3:1	3.00	3.09	3.19	3.30	3.41	3.53	3.66	3.80	3.95	4.11	4.29	4.48	4.69
	4:1	4.00	4.17	4.35	4.54	4.76	5.00	5.26	5.56	5.88	6.25	6.67	7.14	7.69

G. Select Downslope Berm Multiplier (based on land slope): 3.66

H. Calculate Downslope Berm Width: Downslope Multiplier(5G) X Downslope Height (5F)

3.66 x 4.3 ft = 15.8 ft

I. Calculate Minimum Berm to Cover Absorption Area: Downslope Absorption Width(3A) + 4 feet

5.0 ft + 4 ft = 9.0 ft

J. Design Downslope Berm = greater of 5H and 5I: 15.8 ft

K. Select Endslope Berm Multiplier: 3.00 *(usually 3.0 or 4.0)*

L. Calculate Endslope Berm Width = Endslope Berm Multiplier(5K) X Downslope Mound Height(5F)

3.00 X 4.3 ft = 13.0 ft

M. Calculate Mound Width: Upslope Berm Width(5D) + Bed Width(2B) + Downslope Berm Width(5J)

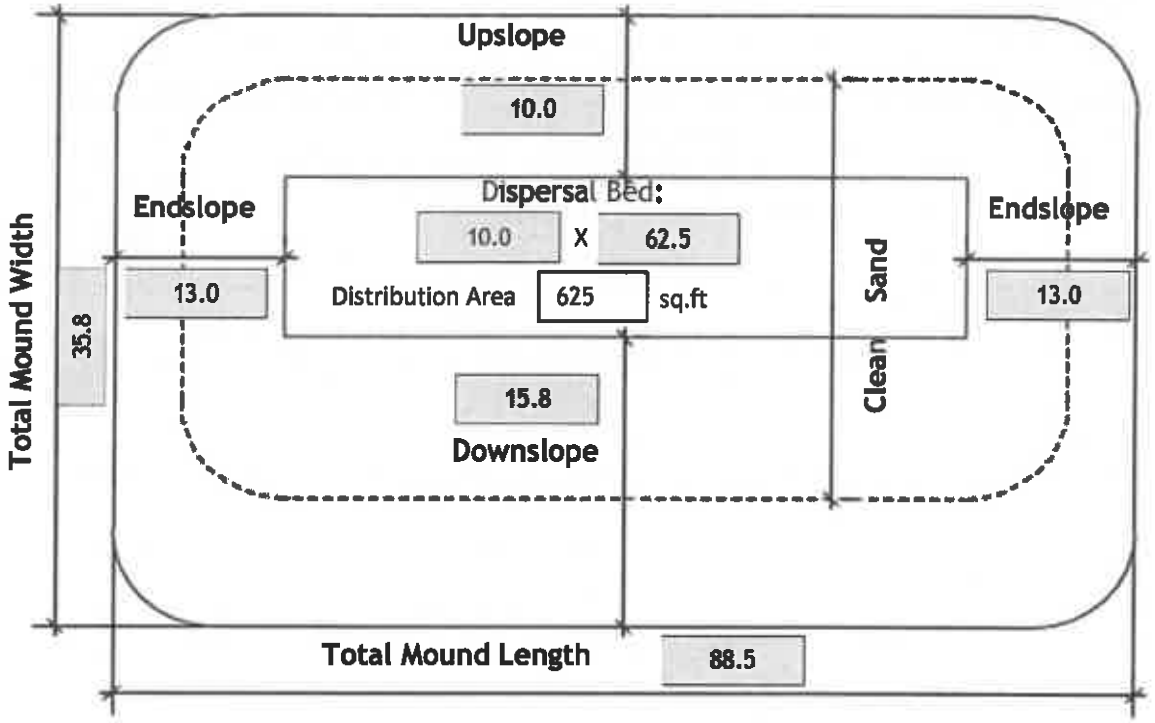
10.0 ft + 10.0 ft + 15.8 ft = 35.8 ft

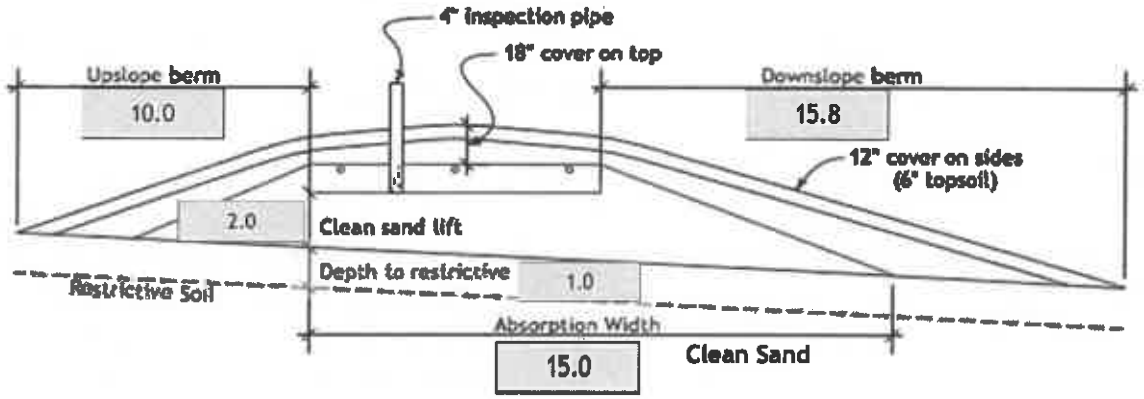
N. Calculate Mound Length: Endslope Berm Width (5L) + Bed Length(2D) + Endslope Berm Width(5L)

13.0 ft + 62.5 ft + 13.0 ft = 88.5 ft

6. MOUND DIMENSIONS (Feet)

Project ID:





			Elevation to Benchmark
Required Separation:	36 (in)	Elevation Limiting Layer:	97.6 ft
Distribution Media:	Rock	Elevation required Separation:	100.6 ft
Media Depth:	6.0 (in)	Elevation Distribution Media Bottom:	100.6 ft
Manifold Connection:	End	Elevation Top of Media(min):	101.4 ft
Lateral Pipe Diameter:	1.50 (in)	Elevation Top of System(min):	102.4 ft
Perforation Size:	3/16 (in)	Perforation Spacing:	36.0 (in)

If Split and Non-Level Pressure Distribution Used: See Non-Level Pressure Distribution Form

Comments:

All berm slopes calculated using 3:1 slope ratio. The Mound Absorption Ratio was increased to add more absorption.

ONSITE SEWAGE TREATMENT PROGRAM

Mound Materials Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 03.15.2023

A. Rock *Volume*: (Rock Below Pipe + Rock to cover pipe (*pipe outside dia + ~2 inch*)) X *Bed Length* X *Bed Width* = *Volume*

(6 in + 2.0 in) ÷ 12 X 62.5 ft X 10.0 ft = 416.7 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 416.7 cu.ft ÷ 27 = 15.4 cu.yd

Add 30% for constructability: 15.4 cu.yd X 1.3 = 20.1 cu.yd

B. Calculate *Clean Sand Volume*:

Volume Under Rock bed: *Average Sand Depth* x *Media Width* x *Media Length* = cubic feet

2.3 ft X 10.0 ft X 62.5 ft = 1406 cu.ft

For a Mound on a slope from 0-1%

Volume from Length = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Length)

(ft - 1) X X ft =

Volume from Width = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Width)

(ft - 1) X X ft =

Total Clean Sand Volume: *Volume from Length* + *Volume from Width* + *Volume Under Media*

cu.ft + cu.ft + cu.ft = cu.ft

For a Mound on a slope greater than 1%

Upslope Volume: ((*Upslope Mound Height - 1*) x 3 x *Bed Length*) ÷ 2 = cubic feet

((5.8 ft - 1) X 3.0 ft X 62.5) ÷ 2 = 452.8 cu.ft

Downslope Volume: ((*Downslope Height - 1*) x Downslope Absorption Width x *Media Length*) ÷ 2 = cubic feet

((6.3 ft - 1) X 5.0 ft X 62.5) ÷ 2 = 832.8 cu.ft

Endslope Volume: (*Downslope Mound Height - 1*) x 3 x *Media Width* = cubic feet

(6.3 ft - 1) X 3.0 ft X 10.0 ft = 159.9 cu.ft

Total Clean Sand Volume: *Upslope Volume* + *Downslope Volume* + *Endslope Volume* + *Volume Under Media*

452.8 cu.ft + 832.8 cu.ft + 159.9 cu.ft + 1406.3 cu.ft = 2851.8 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 2851.8 cu.ft ÷ 27 = 105.6 cu.yd

Add 30% for constructability: 105.6 cu.yd X 1.3 = 137.3 cu.yd

C. Calculate *Sandy Berm Volume*:

Total Berm Volume (approx.): ((Avg. Mound Height - 0.5 ft topsoil) x Mound Width x Mound Length) ÷ 2

(6.1 - 0.5)ft X 35.8 ft X 88.5) ÷ 2 = 8848.4 cu.ft

Total Mound Volume - Clean Sand volume -Rock Volume = cubic feet

8848.4 cu.ft - 2851.8 cu.ft - 416.7 cu.ft = 5580.0 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 5580.0 cu.ft ÷ 27 = 206.7 cu.yd

Add 30% for constructability: 206.7 yd^3 x 1.3 = 268.7 cu.yd

D. Calculate *Topsoil Material Volume: Total Mound Width X Total Mound Length X .5 ft*

35.8 ft X 88.5 ft X 0.5 ft = 1585.7 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1585.7 cu.ft ÷ 27 = 58.7 cu.yd

Add 30% for constructability: 58.7 cu.yd X 1.3 = 76.4 cu.yd

ONSITE SEWAGE TREATMENT PROGRAM

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 03.15.2023

1. Media Bed Width: 10 ft

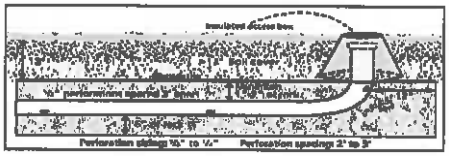
2. Minimum Number of Laterals in system/zone = Rounded up number of [(Media Bed Width - 4) ÷ 3] + 1.

[(10 - 4) ÷ 3] + 1 = 3 laterals *Does not apply to at-grades*

3. Designer Selected *Number of Laterals*: 3 laterals
Cannot be less than line 2 (Except in at-grades)

4. Select *Perforation Spacing*: 3.00 ft

5. Select *Perforation Diameter Size:* 3/16 in



6. *Length of Laterals* = Media Bed Length(1.) - 2 Feet.

62.5 - 2ft = 60.5 ft *Perforation can not be closer then 1 foot from edge.*

7. Determine the *Number of Perforation Spaces*. Divide the *Length of Laterals(6.)* by the *Perforation Spacing* (4.) and round down to the nearest whole number.

Number of Perforation Spaces = 60.5 ft ÷ 3.0 ft = 20 Spaces

8. *Number of Perforations per Lateral* is equal to 1.0 plus the *Number of Perforation Spaces(7.)*. Check table below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

Perforations Per Lateral = 20 Spaces + 1 = 21 Perfs. Per Lateral

Maximum Number of Perforations Per Lateral to Guarantee <10% Discharge Variation

1/4 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (inches) 1	1¼	1½	2	3
2	10	13	18	30	60
2½	8	12	16	28	54
3	8	12	16	25	52

7/32 Inch Perforations

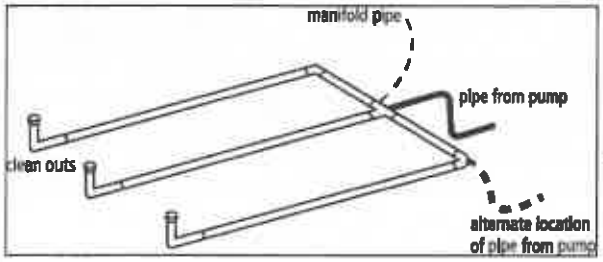
Perforation Spacing (Feet)	Pipe Diameter (inches) 1	1¼	1½	2	3
2	11	16	21	34	68
2½	10	14	20	32	64
3	9	14	19	30	60

3/16 Inch Perforations

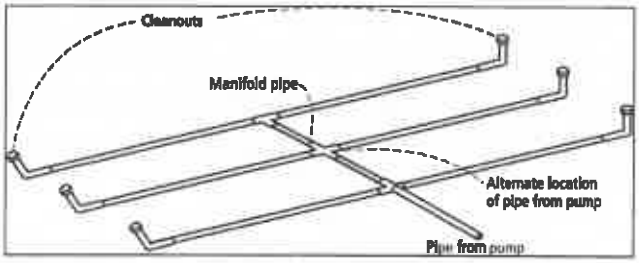
Perforation Spacing (Feet)	Pipe Diameter (inches) 1	1¼	1½	2	3
2	12	18	26	46	87
2½	12	17	24	40	80
3	12	16	22	37	75

1/8 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (inches) 1	1¼	1½	2	3
2	21	33	44	74	149
2½	20	30	41	69	135
3	20	29	38	64	128



END Connection



CENTER Connection

Perf Per Lateral: 21

Perf Per Lateral Equal Split: 11 | 10

OPTIONAL Perf Per Lateral Non-Equal Split*: ____ | ____

* must not exceed maximum number perfs per lateral in table

University of Minnesota Onsite Sewage Treatment Program

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

9. *Total Number of Perforations* equals the *Number of Perforations per Lateral (8.)* multiplied by the *Number of Perforated Laterals.(3.)*

21	Perf. Per Lat. X	3	Number of Perf. Lat. =	63	Total Number of Perf.

10. Spacing of laterals; Must be greater than 1 foot and no more than 3 feet: 3.0 ft

11. Select *Type of Manifold Connection* (End or Center): End

12. *Select Lateral Diameter (See Table)*: 1.50 in

If Center Manifold Connection the max number of perfs per lateral in the table can be doubled.

13. Calculate the *Square Feet per Perforation.*

Recommended value is 4-11 ft2 per perforation, Does not apply to At-Grades

a. *Bed Area* = Bed Width (ft) X Bed Length (ft)

10	ft X	63	ft =	625	sq.ft

b. *Square Foot per Perforation* = *Bed Area* ÷ by the *Total Number of Perfs*

625	sqft ÷	63	perf =	9.9	sq.ft/perf

14. Select *Minimum Average Head*: 1.0 ft

15. Select *Perforation Discharge* based on Table: 0.41 GPM per Perf

16. *Flow Rate = Total Number of Perfs(9.) X Perforation Discharge(15.)*

63	Perfs X	0.41	GPM per Perforation =	27	GPM

17. *Volume of Liquid Per Foot of Distribution Piping (Table II)*: 0.110 Gallons/ft

18. *Volume of Distribution Piping = Number of Perforated Laterals(3.) X Length of Laterals(6.) X Volume of Liquid Per Foot of Distribution Piping (17.)*

3	X	61	ft X	0.110	gal/ft	=	20.0	Gallons

19. Minimum Delivered Volume = Volume of Distribution Piping X 4

20.0	gals X	4	=	79.9	Gallons

20. Maximum Delivered Volume = Design flow x 25%

900.0	gpd X	25%	=	225.0	Gallons

21. Minimum Delivered vs Maximum Delivered evaluation: Volume ratio correct

Perforation Discharge (GPH)				
Head (ft)	Perforation Diameter 1/8	1/11	7/32	1/4
1.0	0.18	0.41	0.56	0.74
1.5	0.22	0.51	0.69	0.9
2.0	0.26	0.59	0.80	1.04
2.5	0.29	0.65	0.89	1.17
3.0	0.32	0.72	0.98	1.28
4.0	0.37	0.83	1.13	1.47
5.0	0.41	0.93	1.26	1.65

1 foot	Dwellings with 3/16 inch to 1/4 inch perforations
2 feet	Dwellings with 1/8 inch perforations Other establishments and MSTS with 3/16 inch to 1/4 inch perforations
5 feet	Other establishments and MSTS with 1/8 inch perforations

Table II Volume of Liquid in Pipe

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

Comments/Special Design Considerations:

Onsite Sewage Treatment Program

Basic STA Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY

Project ID:

v 03.15.2023

Pumping to Gravity or Pressure Distribution: **Pressure**

A. If pumping to gravity enter the gallon per minute of the pump: _____ GPM *(10 - 45 gpm)*

B. If pumping to a pressurized distribution system: **27.0** GPM

C. Enter pump description: **Demand Dosing**

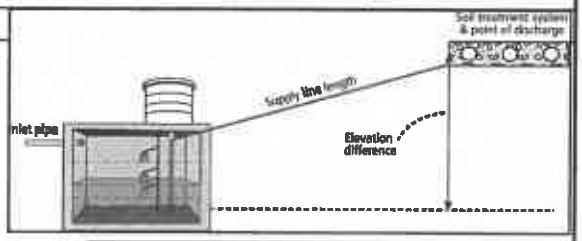
2. HEAD REQUIREMENTS

A. Elevation Difference between pump and point of discharge: **10.7** ft

B. Distribution Head Loss: **5** ft

C. Additional Head Loss*: _____ ft (due to special equipment, etc.)

* Common additional head loss: gate valve = 1 ft each, globe valve = 1.5 ft each, splitter valve = see manufacturers details



Distribution Head Loss	
Gravity Distribution = 0ft	
Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet:	
Minimum Average Head	**Distribution Head Loss**
1ft	5ft
2ft	6ft
5ft	10ft

Table I. Friction Loss in Plastic Pipe per 100ft

Flow Rate (GPM)	Pipe Diameter (inches)			
	1	1.25	1.5	2
10	9.1	3.1	1.3	0.3
12	12.8	4.3	1.8	0.4
14	17.0	5.7	2.4	0.6
16	21.8	7.3	3.0	0.7
18		9.1	3.8	0.9
20		11.1	4.6	1.1
25		16.8	6.9	1.7
30		23.5	9.7	2.4
35			12.9	3.2
40			16.5	4.1
45			20.5	5.0
50				6.1
55				7.3
60				8.6
65				10.0
70				11.4
75				13.0
85				16.4
95				20.1

D. 1. Supply Pipe Diameter: **2.0** in

2. Supply Pipe Length: **46** ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = **1.95** ft per 100ft of pipe

F. Determine *Equivalent Pipe Length* from pump discharge to soil dispersal area discharge point. Estimate by adding 25% to supply pipe length for fitting loss. *Supply Pipe Length* X 1.25 = *Equivalent Pipe Length*

46 ft X 1.25 = **57.5** ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft(E.)* by the *Equivalent Pipe Length(F.)* and divide by 100.

Supply Friction Loss =

1.95 ft per 100ft X **57.5** ft ÷ 100 = **1.1** ft

H. *Total Head* requirement is the sum of the *Elevation Difference(2A)* + Distribution Head Loss(2B) + Additional Head Loss(2C) + Supply Friction Loss(2G)

10.7 ft + **5.0** ft + _____ ft + **1.1** ft = **16.8** ft

3. PUMP SELECTION

A pump must be selected to deliver at least **27.0** GPM with at least **16.8** feet of total head.

Comments:

Goulds Pump PE41 Pump Curve: 42 GPM @ 16.8 TDH

Elevation Difference: Pump Intake - 90.4' to 101.1' = 10.7'

STA Dosing Pump Tank Design Worksheet (Time Dose)

Onsite Sewage Treatment Program

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 03.15.2023

DETERMINE TANK CAPACITY AND DIMENSIONS

1. A. *Design Flow (Design Sum. 1A)*: 900 GPD B. Tank Use: Dosing
   C. Percentage of Design Flow 69.4 % 625 Gal Up to 75% design flow is normal for Design percentage
   D. Min. required pump tank capacity: 1000 Gal E. Recommended capacity: 1500 Gal

2. A. Tank Manufacturer: Wieser Concrete B. Tank Model: W1500-R CENTER
   C. Capacity from manufacturer: 1687 Gallons
   D. Gallons per inch: 31.0 Gallons per inch
   E. Liquid depth of tank from manufacturer: 51.0 inches

Note: Design calculations are based on this specific tank. Substituting a different tank model will change the pump float or timer settings. Contact designer if changes are necessary.

DETERMINE DOSING VOLUME

3. *Volume to Cover Pump* (The inlet of pump should be 4 inches from the bottom of the tank & 2 inches covering the pump recommended)

   (Pump and block height + 2 inches) X *Gallons Per Inch* (2D)

   (14 in + 2 inches) X 31.0 Gallons Per Inch = 496 Gallons

4. *Minimum Delivered Volume* = 4 X Volume of Distribution Piping:

   -Item 19 of the Pressure Distribution or Item 11 of Non-level 80 Gallons (minimum dose) 2.6 inches/dose

5. Calculate *Maximum Pumpout Volume* (25% of Design Flow)

   Design Flow: 900 GPD X 0.25 = 225 Gallons (maximum dose) 7.3 inches/dose

6. *Select a pumpout volume that meets both Minimum and Maximum:* 120 Gallons

7. Calculate *Doses Per Day* = Percentage Design Flow(1C) ÷ *Delivered Volume(6.)*

   624.6 gpd ÷ 120 gal = 5.2 *Doses*

8. Calculate Drainback:

   A. *Diameter of Supply Pipe* = 2 inches
   B. Length of Supply Pipe = 46 feet
   C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.170 Gallons/ft
   D. *Drainback = Length of Supply Pipe(2B) X Volume of Liquid Per Lineal Foot of Pipe(2C)*

   46 ft X 0.170 gal/ft = 7.8 Gallons

9. *Total Dosing Volume = Delivered Volume(6.) + Drainback(8D)*

   120 gal + 7.8 gal = 128 Gallons

10. Working Storage Volume = Tank Volume (2C) - Volume to Cover Pump(3.) - Reserve Capacity (22.)

    1687 gal - 496 gal - 696 = 495 Gallons

Volume of Liquid in Pipe

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

11. Required *Flow Rate*:

    A. From Pump Curve - Must verify after install: 42 GPM*

    B. Calculated GPM = Change in Depth (in) x Gallons Per Inch(2D) / Time Interval in Minutes

    in X 31.0 gal/in ÷ min = GPM

12. Select Flow Rate from 11 A or B: 42.0 GPM*

**Note: This value must be adjusted after installation based on pump calibration.*

ONSITE SEWAGE TREATMENT PROGRAM

STA Dosing Pump Tank Design Worksheet (Time Dose)

MINNESOTA POLLUTION CONTROL AGENCY

NORMAL OPERATION TIMER SETTINGS*

13. Calculate **TIMER ON** setting*:

Total Dosing Volume(9.) ÷ GPM(12.)

128	gal	÷	42.0	gpm	=	3.0	Minutes ON*	HR: 0	MIN: 3.0	SEC: 2

14. Calculated **TIMER OFF** setting*:

Minutes Per Day (1440)/*Doses Per Day(7.)* - Minutes On(13.)

1440 min ÷	5	doses/day -	3.0	min	=	273.6	Minutes OFF*	HR: 4	MIN: 33.0	SEC: 37

OPTIONAL PEAK ENABLE DOSING* - *Designers option for peak flow operation*

15. Peak Percentage of Design Flow: 69.4 %

16. Peak Pump Volume that meets both Minimum and Maximum Volume: 120 gal + Drainback: 7.8 gal

17. Peak Dose Volume: 128 gal

18. Peak TIMER ON: 128 gal ÷ 42 gpm = 3.0 min ON — HR: 0, MIN: 3.0, SEC: 2

**Note: This value must be adjusted after installation based on pump calibration.*

19. Peak TIMER OFF: 1440 min ÷ 5 doses/day - 3.0 min On: 273.6 min Off — HR: 4, MIN: 33.0, SEC: 37

FLOAT SETTINGS — Alarm and Pump are to be wired on separate circuits and inspected by the electrical inspector

20. Pump Off Float - Measuring from bottom of tank:

Distance to set Pump Off Float=Gallons to Cover Pump(3.) ÷ Gallons Per Inch(2D):

496	gal	÷	31.0	gal/in	=	16.0	inches

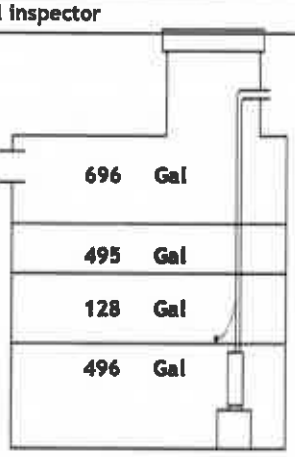
21. Alarm Float - Measuring from bottom of tank (90% recommended):

Distance to set Alarm Float = Tank Depth(2E) X % of Tank Depth (90% recommended)

51.0	in	X	56	%	=	28.56	inches

22. Reserve Capacity in gallons = Tank Depth(2E) - Alarm Depth(21.) X GPI(2D)

(51.0	in	-	28.6	in)	X	31.0	=	695.6	gallons



Tank Buoyancy Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Tank Specifications Project ID: v 03.15.2023

A. Tank Manufacturer: Wieser Concrete Tank Model: W1500-R END RISER

B. Outside Tank Dimensions and Specifications: Tank Use: Septic

Length: 129 in Width: 73 in Height: 68.5 in Diameter: in

Length: 10.8 ft Width: 6.1 ft Height: 5.7 ft Radius of Tank: in

2. Outside Volume of Tank

Rectangular Tank	Circular Tank
A. Area of Tank = Length (ft) X Width (ft)	A. Area of Tank = πr^2 = (3.14 X (Radius of Tank)^2)
10.8 ft X 6.1 ft = 65.4 sq.ft	3.14 X (ft)^2 = sq.ft
B. Volume of Tank = Area of Tank (2.A) X Height (ft)	B. Volume of Tank = Area of Tank X Height (ft)
65.4 sq.ft X 5.7 ft = 373.3 cu.ft	sq.ft X ft = cu.ft

3. Force of Tank Weight (F_{TW})

Weight of Tank (provided by manufacturer) 11500 lbs

4. Force of Soil Weight Over Tank (F_{SW})

A. Depth of Cover Over Tank: 34 in 2.8 ft

B. Weight of Soil Per Cubic Foot: 120 lbs/cu.ft

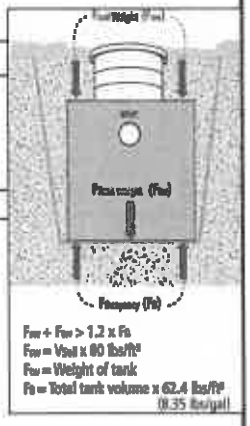
C. Volume of Soil Over Tank = Depth of Cover(4A) (ft) X Area of Tank(2A) (ft^2)

2.8 ft X 65.4 sq.ft = 185.3 cu.ft

D. Weight of Soil Over Tank = Volume of Soil Over Tank(4C) X Weight of Soil Per Cubic Foot

185.3 cu.ft X 120 lbs/cu.ft = 22,234.6 lbs *Note: Assumes saturation does not get over the lid of the tank*

Soil Type	Weight of Soil (lbs/ft^3)
Sandy	120
Loamy	100
Clay	90



5.Buoyant Force (F_B)

Buoyant Force (F_B) = Outside Volume of Tank(2B) X Weight of Water Per Cubic Foot (62.4 lbs/ft^3) X 1.2 (Safety Factor)

373 X 62.4 lbs/cu.ft X 1.2 = 27,952.8 lbs

6. Evaluation of Net Forces

A. Downward Force = Force of Tank Weight (F_{TW})(3.) + Force of Soil Weight of Soil (F_{SW})(4.)

11500 lbs + 22235 lbs = 33,734.6 lbs

B. Net Difference = Downward Force(6A) - Buoyant Force Including Safety Factor (5.)

33735 lbs - 27953 lbs = 5,781.8 lbs

If the Net Difference is negative, counter measures will need to be taken to prevent the tank from floating out of the ground.

Comments/Solution:

All soil types can be used to bury tanks 34" or deeper.

Tank Buoyancy Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Tank Specifications Project ID: v 03.15.2023

A. Tank Manufacturer: Wieser Concrete — Tank Model: W1500-R END RISER

B. Outside Tank Dimensions and Specifications: — Tank Use: Septic

Length: 129 in — Width: 73 in — Height: 68.5 in — Diameter: in

Length: 10.8 ft — Width: 6.1 ft — Height: 5.7 ft — Radius of Tank: in

2. Outside Volume of Tank

Rectangular Tank	Circular Tank
A. Area of Tank = Length (ft) X Width (ft)	A. Area of Tank = πr^2 = (3.14 X (Radius of Tank)^2)
10.8 ft X 6.1 ft = 65.4 sq.ft	3.14 X (ft)^2 = sq.ft
B. Volume of Tank = Area of Tank (2.A) X Height (ft)	B. Volume of Tank = Area of Tank X Height (ft)
65.4 sq.ft X 5.7 ft = 373.3 cu.ft	sq.ft X ft = cu.ft

3. Force of Tank Weight (F_{TW})

Weight of Tank (provided by manufacturer) 11500 lbs

4. Force of Soil Weight Over Tank (F_{SW})

A. Depth of Cover Over Tank: 36 in 3.0 ft

B. Weight of Soil Per Cubic Foot: 120 lbs/cu.ft

C. Volume of Soil Over Tank = Depth of Cover(4A) (ft) X Area of Tank(2A) (ft^2)

3.0 ft X 65.4 sq.ft = 196.2 cu.ft

D. Weight of Soil Over Tank = Volume of Soil Over Tank(4C) X Weight of Soil Per Cubic Foot

196.2 cu.ft X 120 lbs/cu.ft = 23,542.5 lbs *Note: Assumes saturation does not get over the lid of the tank*

Soil Type	Weight of Soil (lbs/ft^3)
Sandy	120
Loamy	100
Clay	90

5.Buoyant Force (F_B)

Buoyant Force (F_B) = Outside Volume of Tank(2B) X Weight of Water Per Cubic Foot (62.4 lbs/ft^3) X 1.2 (Safety Factor)

373 X 62.4 lbs/cu.ft X 1.2 = 27,952.8 lbs

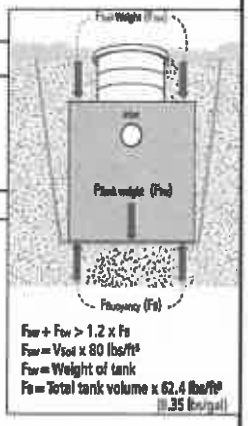
6. Evaluation of Net Forces

A. Downward Force = Force of Tank Weight (F_{TW})(3.) + Force of Soil Weight of Soil (F_{SW})(4.)

11500 lbs + 23543 lbs = 35,042.5 lbs

B. Net Difference = Downward Force(6A) - Buoyant Force Including Safety Factor (5.)

35043 lbs - 27953 lbs = 7,089.7 lbs



If the Net Difference is negative, counter measures will need to be taken to prevent the tank from floating out of the ground.

Comments/Solution:

All soil types can be used to bury tanks 34" or deeper.

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Septic System Management Plan for Above Grade Systems

The goal of a septic system is to protect human health and the environment by properly treating wastewater before returning it to the environment. Your septic system is designed to kill harmful organisms and remove pollutants before the water is recycled back into our lakes, streams and groundwater.

This **management plan** will identify the operation and maintenance activities necessary to ensure long-term performance of your septic system. Some of these activities must be performed by you, the homeowner. Other tasks must be performed by a licensed septic maintainer or service provider. However, it is **YOUR** responsibility to make sure all tasks get accomplished in a timely manner.

The University of Minnesota's *Septic System Owner's Guide* contains additional tips and recommendations designed to extend the effective life of your system and save you money over time.

Proper septic system design, installation, operation and maintenance means safe and clean water!

Property Owner	Jim Christiansen	Email	
Property Address	4 Dove Lane, North Oaks, MN 55127	Property ID	17322430006
System Designer	Kloeppner Services & Designs, LLC	Contact Info	763-843-4114
System Installer		Contact Info	
Service Provider/Maintainer		Contact Info	
Permitting Authority	City of North Oaks	Contact Info	
Permit #		Date Inspected	

Keep this Management Plan with your Septic System Owner's Guide. The Septic System Owner's Guide includes a folder to hold maintenance records including pumping, inspection and evaluation reports. Ask your septic professional to also:

- Attach permit information, designer drawings and as-built of your system, if they are available.
- Keep copies of all pumping records and other maintenance and repair invoices with this document.
- Review this document with your maintenance professional at each visit; discuss any changes in product use, activities, or water-use appliances.

For a copy of the *Septic System Owner's Guide*, visit www.bookstores.umn.edu and search for the word "septic" or call 800-322-8642.

For more information see http://septic.umn.edu

Version: August 2015

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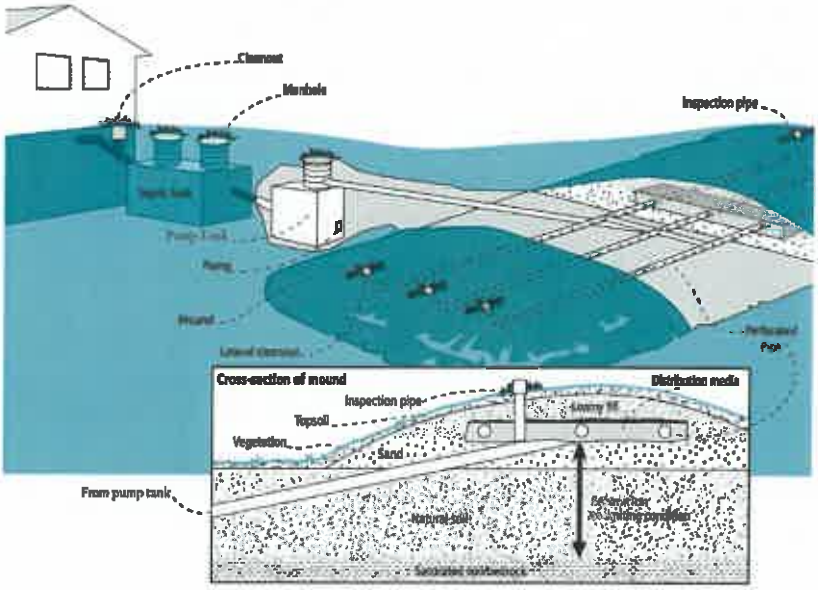
Septic System Management Plan for Above Grade Systems

Your Septic System



Septic System Specifics

System Type: ○ I ○ II ◉ III ○ IV* ○ V*

(Based on MN Rules Chapter 7080.2200 – 2400)

**Additional Management Plan required*

☑ System is subject to operating permit*

☑ System uses UV disinfection unit*

Type of advanced treatment unit _____

Dwelling Type

Number of bedrooms: 6

System capacity/ design flow (gpd): 900

Anticipated average daily flow (gpd): 630

Comments _____

Business? : ○ Y ◉ N What type? _____

Well Construction

Well depth (ft): City Water connection

- ☐ Cased well Casing depth: _____
- ☐ Other (specify): _____

Distance from septic (ft): _____

Is the well on the design drawing? ○ Y ◉ N

Septic Tank

- ☐ First tank *Tank volume:* 1,500 *gallons*
  Does tank have two compartments? ○ Y ◉ N
- ☐ Second tank *Tank volume:* 1,500 *gallons*
- ☐ Tank is constructed of Concrete
- ☐ Effluent screen: ◉ Y ○ N Alarm ◉ Y ○ N

- ☐ Pump Tank 1,500 *gallons*
- ☐ Effluent Pump *make/model:* PE41 or equal
  Pump capacity 27.0 GPM
  TDH 16.8 Feet of head
- ☐ Alarm location TBD

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 31.7 ft x 84.5 ft

Rock bed size (width x length): 10 ft x 62.5 ft

Location of additional STA: _____

Type of distribution media: Rock

☑ Inspection ports ☑ Cleanouts

☑ Surface water diversions

☐ Additional STA not available

Homeowner Management Tasks

These op*eration and maintenance ac*tivities are your responsibility. *Chart on page 6 can help track your activities.*

Your toilet is not a garbage can. Do not flush anything besides human waste and toilet paper. No wet wipes, cigarette butts, disposal diapers, used medicine, feminine products or other trash!

The system and septic tanks needs to be checked every 24 months

Your service provider or pumper/maintainer should evaluate if your tank needs to be pumped more or less often.

Seasonally or several times per year

- *Leaks.* Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.
- *Soil treatment area.* Regularly check for wet or spongy soil around your soil treatment area. If surfaced sewage or strong odors are not corrected by pumping the tank or fixing broken caps and leaks, call your service professional. *Untreated sewage may make humans and animals sick.* Keep bikes, snowmobiles and other traffic off and control borrowing animals.
- *Alarms.* Alarms signal when there is a problem; contact your service professional any time the alarm signals.
- *Lint filter.* If you have a lint filter, check for lint buildup and clean when necessary. If you do not have one, consider adding one after washing machine.
- *Effluent screen.* If you do not have one, consider having one installed the next time the tank is cleaned along with an alarm.

Annually

- *Water usage rate.* A water meter or another device can be used to monitor your average daily water use. Compare your water usage rate to the design flow of your system (listed on the next page). Contact your septic professional if your average daily flow over the course of a month exceeds 70% of the design flow for your system.
- *Caps.* Make sure that all caps and lids are intact and in place. Inspect for damaged caps at least every fall. Fix or replace damaged caps before winter to help prevent freezing issues.
- *Water conditioning devices.* See Page 5 for a list of devices. When possible, program the recharge frequency based on *water demand (gallons)* rather than *time (days)*. Recharging too frequently may negatively impact your septic system. Consider updating to demand operation if your system currently uses time,
- *Review your water usage rate.* Review the Water Use Appliance chart on Page 5. Discuss any major changes with your service provider or pumper/maintainer.

During each visit by a service provider or pumper/maintainer

- Make sure that your service professional services the tank through the manhole. (NOT though a 4" or 6" diameter inspection port.)
- Ask how full your tank was with sludge and scum to determine if your service interval is appropriate.
- Ask your pumper/maintainer to accomplish the tasks listed on the Professional Tasks on Page 4.

Professional Management Tasks

These are the operation and maintenance activities that a pumper/maintainer performs to help ensure long-term performance of your system. At each visit a written report/record must be provided to homeowner.

Plumbing/Source of Wastewater

- Review the Water Use Appliance Chart on Page 5 with homeowner. Discuss any changes in water use and the impact those changes may have on the septic system.
- Review water usage rates (if available) with homeowner.

Septic Tank/Pump Tanks

- *Manhole lid.* A riser is recommended if the lid is not accessible from the ground surface. Insulate the riser cover for frost protection.
- *Liquid level.* Check to make sure the tank is not leaking. The liquid level should be level with the bottom of the outlet pipe. (If the water level is below the bottom of the outlet pipe, the tank may not be watertight. If the water level is higher than the bottom of the outlet pipe of the tank, the effluent screen may need cleaning, or there may be ponding in the soil treatment area.)
- *Inspection pipes.* Replace damaged or missing pipes and caps.
- *Baffles.* Check to make sure they are in place and attached, and that inlet/outlet baffles are clear of buildup or obstructions.
- *Effluent screen.* Check to make sure it is in place; clean per manufacturer recommendation. Recommend retrofitted installation if one is not present.
- *Alarm.* Verify that the alarm works.
- *Scum and sludge.* Measure scum and sludge in each compartment of each septic and pump tank, pump if needed.

Pump

- *Pump and controls.* Check to make sure the pump and controls are operating correctly.
- *Pump vault.* Check to make sure it is in place; clean per manufacturer recommendations.
- *Alarm.* Verify that the alarm works.
- *Drainback.* Check to make sure it is draining properly.
- *Event counter or elapsed time meter.* Check to see if there is an event counter or elapsed time meter for the pump. If there is one or both, calculate the water usage rate and compare to the anticipated use listed on Design and Page 2. Dose Volume: 120 gallons: Pump run time: 2.85 Minutes

Soil Treatment Area

- *Inspection pipes.* Check to make sure they are properly capped. Replace caps and pipes that are damaged.
- *Surfacing of effluent.* Check for surfacing effluent or other signs of problems.
- *Lateral flushing.* Check lateral distribution; if cleanouts exist, flush and clean at recommended frequency.
- *Vegetation* - Check to see that a good growth of vegetation is covering the system.

All other components – evaluate as listed here:

Water-Use Appliances and Equipment in the Home

Appliance	Impacts on System	Management Tips
Garbage disposal	• Uses additional water. • Adds solids to the tank. • Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Use of a garbage disposal is not recommended. • Minimize garbage disposal use. Compost instead. • To prevent solids from exiting the tank, have your tank pumped more frequently. • Add an effluent screen to your tank.
Washing machine	• Washing several loads on one day uses a lot of water and may overload your system. • Overloading your system may prevent solids from settling out in the tank. Unsettled solids can exit the tank and enter the soil treatment area.	• Choose a front-loader or water-saving top-loader, these units use less water than older models. • Limit the addition of extra solids to your tank by using liquid or easily biodegradable detergents. Limit use of bleach-based detergents and fabric softeners. • Install a lint filter after the washer and an effluent screen to your tank • Wash only full loads and think even – spread your laundry loads throughout the week.
Dishwasher	• Powdered and/or high-phosphorus detergents can negatively impact the performance of your tank and soil treatment area. • New models promote "no scraping". They have a garbage disposal inside.	• Use gel detergents. Powdered detergents may add solids to the tank. • Use detergents that are low or no-phosphorus. • Wash only full loads. • Scrape your dishes anyways to keep undigested solids out of your septic system.
Grinder pump (in home)	• Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Expand septic tank capacity by a factor of 1.5. • Include pump monitoring in your maintenance schedule to ensure that it is working properly. • Add an effluent screen.
Large bathtub (whirlpool)	• Large volume of water may overload your system. • Heavy use of bath oils and soaps can impact biological activity in your tank and soil treatment area.	• Avoid using other water-use appliances at the same time. For example, don't wash clothes and take a bath at the same time. • Use oils, soaps, and cleaners in the bath or shower sparingly.
Clean Water Uses	**Impacts on System**	**Management Tips**
High-efficiency furnace	• Drip may result in frozen pipes during cold weather.	• Re-route water directly out of the house. Do not route furnace discharge to your septic system.
Water softener Iron filter Reverse osmosis	• Salt in recharge water may affect system performance. • Recharge water may hydraulically overload the system.	• These sources produce water that is not sewage and should not go into your septic system. • Reroute water from these sources to another outlet, such as a dry well, draintile or old drainfield. • When replacing, consider using a demand-based recharge vs. a time-based recharge. • Check valves to ensure proper operation; have unit serviced per manufacturer directions
Surface drainage Footing drains	• Water from these sources will overload the system and is prohibited from entering septic system.	

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Septic System Management Plan for Above Grade Systems

Homeowner Maintenance Log

Track maintenance activities here for easy reference. See list of management tasks on pages 3 and 4.

Activity	Date accomplished									
Check frequently:										
Leaks: check for plumbing leaks*										
Soil treatment area check for surfacing**										
Lint filter: check, clean if needed*										
Effluent screen (if owner-maintained)***										
Alarm**										
Check annually:										
Water usage rate (maximum gpd _____)										
Caps: inspect, replace if needed										
Water use appliances – review use										
Other:										

*Monthly

**Quarterly

***Bi-Annually

Notes:

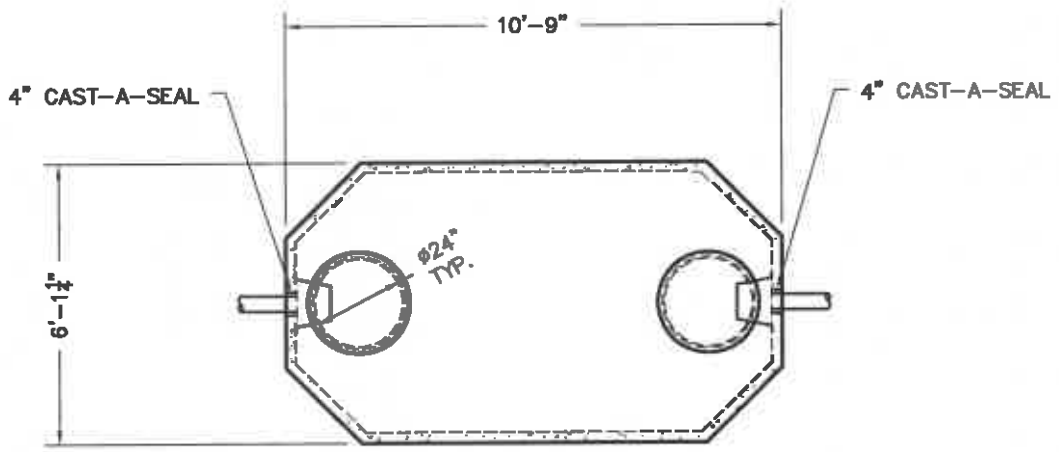
"As the owner of this SSTS, I understand it is my responsibility to properly operate and maintain the sewage treatment system on this property, utilizing the Management Plan. If requirements in this Management Plan are not met, I will promptly notify the permitting authority and take necessary corrective actions. If I have a new system, I agree to adequately protect the reserve area for future use as a soil treatment system."

Property Owner Signature: _____ Date _____

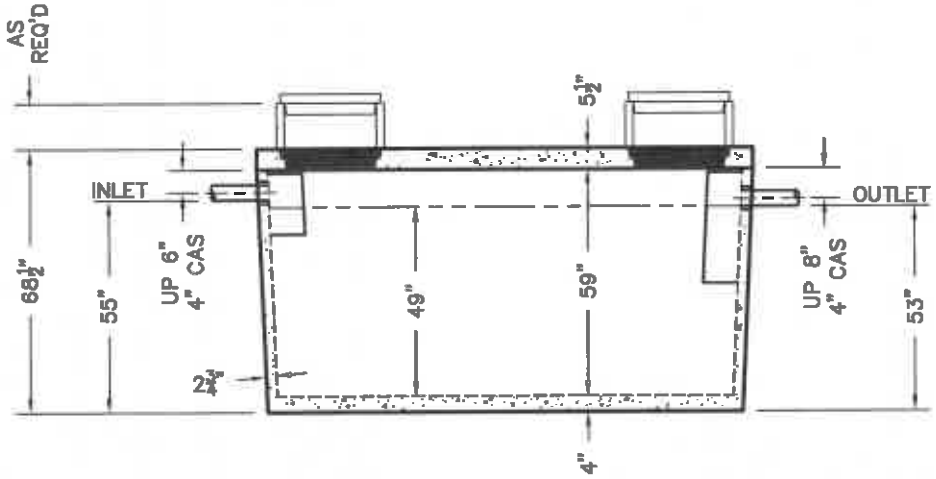
Management Plan Prepared By: Jesse Kloeppner Certification # C8188

Permitting Authority: City of North Oaks

W1500–R END RISER
TANK SPECIFICATIONS



TOP VIEW



SIDE VIEW

DIMENSIONS:
- WALL: 2 3/4"
- BOTTOM: 4"
- COVER: 5 1/2"
- MANHOLE: 24" I.D. PRECAST CONCRETE RISER
- HEIGHT: 68 1/2"
- LENGTH: 10'–9"
- WIDTH: 6'–1 1/4"
- BELOW INLET: 55"
- LIQUID LEVEL: 49"
- WEIGHT: 11,500 LBS.

INLET AND OUTLET:
- 4" CAST–A–SEAL BOOT OR EQUAL GASKET

LIQUID CAPACITY: 31.00 GAL/IN

HOLDING TANK:
- OUTLET HOLE PLUGGED
- ACTUAL CAPACITY: 1,687 GALLONS

LOADING DESIGN: 8'–0" UNSATURATED SOIL

TANK CAN BE USED AS:
- SEPTIC / HOLDING / PUMP OR SIPHON

COVER: MIX DESIGN #8 (NO FIBER)
TANK: MIX DESIGN #10 (STRUCTURAL FIBER)

CUSTOMIZED TANKS:
- FOR CUSTOM TANKS CONTACT WIESER CONCRETE

PRE–POUR:
POST–POUR:
DATE:
REV.
SCALE: 1/4" = 1'–0"
DRAWN BY: WCP
DATE: 00/00/00
FILE: w1500–r single lid

WIESER CONCRETE
W3716 US HWY 10, MAIDEN ROCK, WI 54750
800–325–8456

W1500–R SINGLE LID
SEPTIC MANUAL

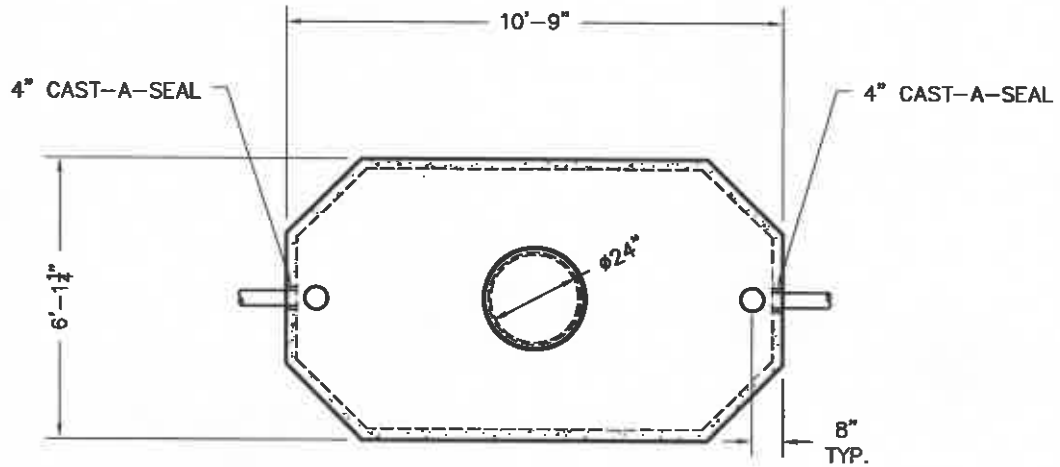
SHEET NO. 1 OF 1

REVIEWED BY _____
REVIEW DATE _____

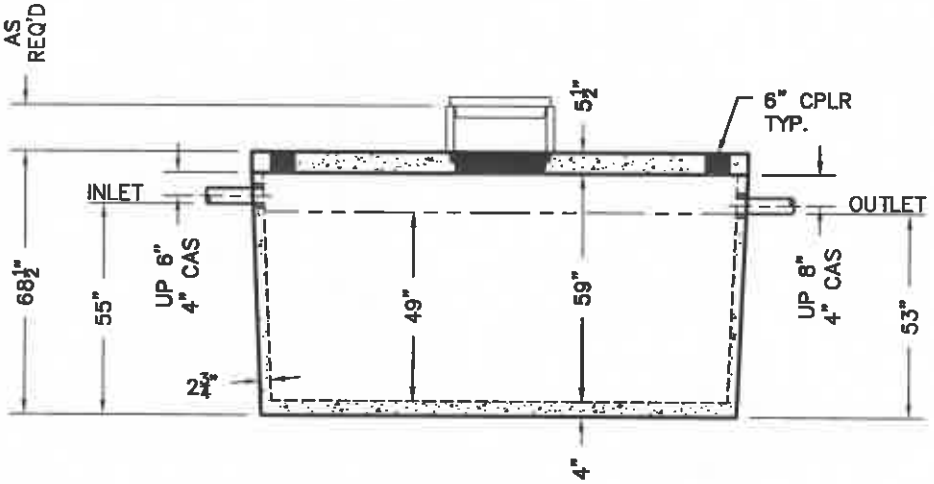
DRAWINGS SUBMITTED FOR APPROVAL
APPROVED BY: _____
APPROVAL DATE: _____
PRODUCTS NEEDED BY: _____

TANKS ARE MANUFACTURED TO MEET OR EXCEED ASTM C–1227 REQUIREMENTS

W1500-R CENTER RISER
TANK SPECIFICATIONS



TOP VIEW



SIDE VIEW

DIMENSIONS:
- WALL: 2 3/4"
- BOTTOM: 4"
- COVER: 5 1/2"
- MANHOLE: 24" I.D. PRECAST CONCRETE RISER
- HEIGHT: 68 1/2"
- LENGTH: 10'-9"
- WIDTH: 6'-1 1/4"
- BELOW INLET: 55"
- LIQUID LEVEL: 49"
- WEIGHT: 11,500 LBS.

INLET AND OUTLET:
- 4" CAST-A-SEAL BOOT OR EQUAL GASKET

LIQUID CAPACITY: 31.00 GAL/IN

HOLDING TANK:
- OUTLET HOLE PLUGGED
- ACTUAL CAPACITY: 1,687 GALLONS

LOADING DESIGN: 8'-0" UNSATURATED SOIL

TANK CAN BE USED AS:
- SEPTIC / HOLDING / PUMP OR SIPHON

COVER: MIX DESIGN #8 (NO FIBER)
TANK: MIX DESIGN #10 (STRUCTURAL FIBER)

CUSTOMIZED TANKS:
- FOR CUSTOM TANKS CONTACT WIESER CONCRETE

TANKS ARE MANUFACTURED TO MEET OR EXCEED ASTM C-1227 REQUIREMENTS

REVIEWED BY _____
REVIEW DATE _____

DRAWINGS SUBMITTED FOR APPROVAL
APPROVED BY: _____
APPROVAL DATE: _____
PRODUCTS NEEDED BY: _____

PRE-POUR:
POST-POUR:
DATE:
REV.
SCALE: 1/4" = 1'-0"
DRAWN BY: WCP
DATE: 00/00/00
FILE: w1500-r single lid

WIESER CONCRETE
W3716 US HWY 10, MAIDEN ROCK, WI 54750
800-325-8456

W1500-R SINGLE LID
SEPTIC MANUAL

SHEET NO. 1 OF 1

PL-525 Filter

The PL-525 Filter is rated for 10,000 GPD (gallons per day) making it one of the largest filters in its class. It has 525 linear feet of 1/16" filtration slots. Like the Polylok PL-122, the Polylok PL-525 has an automatic shut-off ball installed with every filter. When the filter is removed for cleaning, the ball will float up and temporarily shut off the system so the effluent won't leave the tank.

Features:

- Rated for 10,000 GPD (gallons per day).
- 525 linear feet of 1/16" filtration.
- Accepts 4" and 6" SCHD 40 pipe.
- Built in gas deflector.
- Automatic shut-off ball when filter is removed.
- Alarm accessibility.
- Accepts PVC extension handle.

PL-525 Installation:

Ideal for residential and commercial waste flows up to 10,000 gallons per day (GPD).

1. Locate the outlet of the septic tank.
2. Remove the tank cover and pump tank if necessary.
3. Glue the filter housing to the 4" or 6" outlet pipe. If the filter is not centered under the access opening use a Polylok Extend & Lok or piece of pipe to center filter.
4. Insert the PL-525 filter into its housing.
5. Replace and secure the septic tank cover.

PL-525 Maintenance:

The PL-525 Effluent Filters will operate efficiently for several years under normal conditions before requiring cleaning. It is recommended that the filter be cleaned every time the tank is pumped, or at least every three years. If the installed filter contains an optional alarm, the owner will be notified by an alarm when the filter needs servicing. Servicing should be done by a certified septic tank pumper or installer.

1. Locate the outlet of the septic tank.
2. Remove tank cover and pump tank if necessary.
3. Do not use plumbing when filter is removed.
4. Pull PL-525 cartridge out of the housing.
5. Hose off filter over the septic tank. Make sure all solids fall back into septic tank.
6. Insert the filter cartridge back into the housing making sure the filter is properly aligned and completely inserted.
7. Replace and secure septic tank cover.

Outdoor SmartFilter® Alarm
Polylok, Zabel & Best filters accept the SmartFilter® switch and alarm.

Extend & Lok™
Easily installs into existing tanks.

xylem
Let's Solve Water

TECHNICAL BROCHURE
BPE R2

PE

SUBMERSIBLE EFFLUENT PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

- Corrosion resistant construction
- Cast iron body
- Thermoplastic impeller and cover
- Upper sleeve and lower heavy duty ball bearing construction
- Motor is permanently lubricated for extended service life
- Powered for continuous operation
- All ratings are within the working limits of the motor
- Quick disconnect power cord, 20' standard length, heavy duty 16/3 SJTW with 115 or 230 volt grounding plug
- Complete unit is heavy duty, portable and compact
- Mechanical seal is carbon, ceramic, BUNA and stainless steel
- Stainless steel fasteners

APPLICATIONS

Specially designed for the following uses:

- Mound Systems
- Effluent/Dosing Systems
- Low Pressure Pipe Systems
- Basement Draining
- Heavy Duty Sump/Dewatering

SPECIFICATIONS

Pump - General:

- Discharge: 1½" NPT
- Temperature: 104°F (40°C) maximum, continuous when fully submerged.
- Solids handling: ½" maximum sphere.
- Automatic models include a float switch.
- Manual models available.
- Pumping range: see performance chart or curve.

PE31 Pump:

- Maximum capacity: 53 GPM
- Maximum head: 25' TDH

PE41 Pump:

- Maximum capacity: 61 GPM
- Maximum head: 29' TDH

PE51 Pump:

- Maximum capacity: 70 GPM
- Maximum head: 37' TDH

MOTOR

General:

- Single phase, 60 Hz, 115 and 230 volts
- Built-in thermal overload protection with automatic reset
- Class B insulation
- Oil-filled design
- High strength carbon steel shaft

PE31 Motor:

- .33 HP, 3000 RPM
- 115 volts
- Shaded pole design

PE41 Motor:

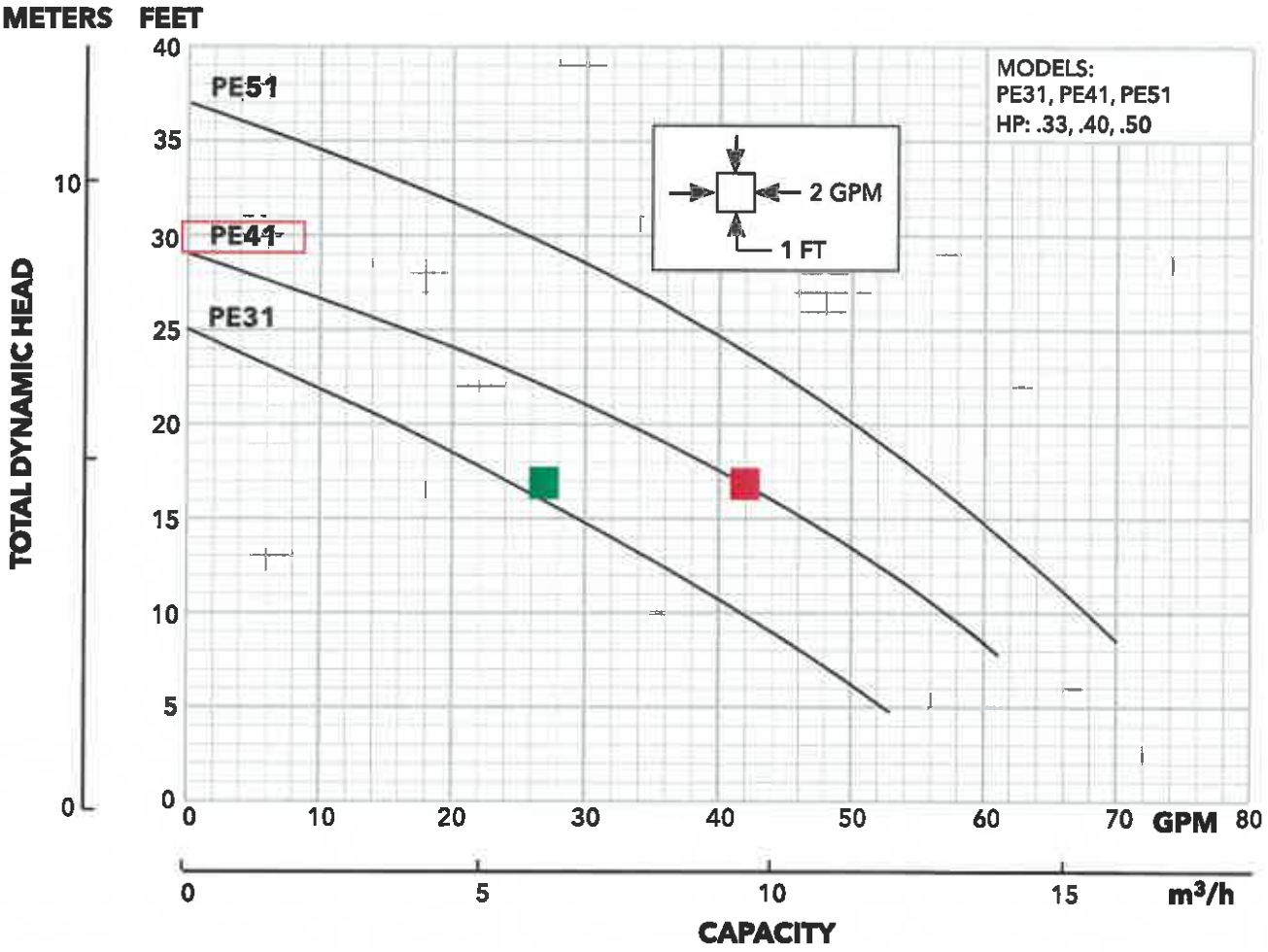
- .40 HP, 3400 RPM
- 115 and 230 volts
- PSC design

PE51 Motor:

- .50 HP, 3400 RPM
- 115 and 230 volts
- PSC design

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549



PUMP INFORMATION

Order No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs/kg
PE31M	0.33	115	12	20	1	Manual / No Switch	20'	1.5"	18"	.5"	31 / 14.1
PE31P1						Piggyback Float Switch					
PE41M	0.4		7.5	15		Manual / No Switch					
PE41P1						Piggyback Float Switch					
PE42P1		230	3.7	10		Piggyback Float Switch					
PE51M	0.5	115	9.5	20		Manual / No Switch					
PE51P1						Piggyback Float Switch					
PE52M		230	4.7	10		Manual / No Switch					
PE52P1						Piggyback Float Switch					

PERFORMANCE RATINGS

PE31

Total Head (feet of water)	GPM
5	52
10	42
15	29
20	16
25	0

PE41

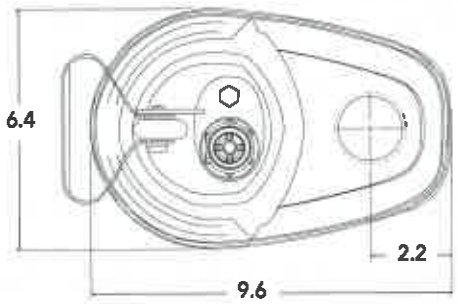
Total Head (feet of water)	GPM
8	61
10	57
15	46
20	33
25	16

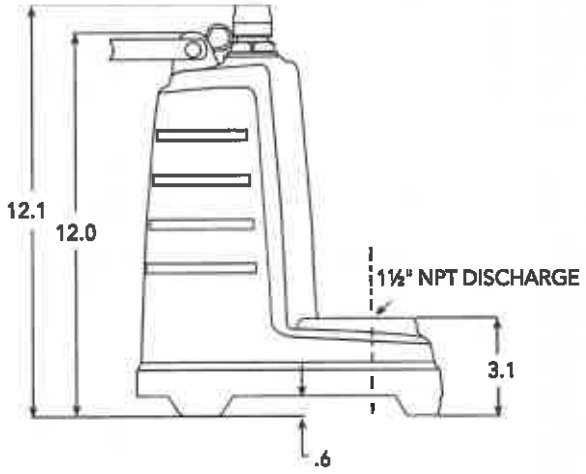
PE51

Total Head (feet of water)	GPM
10	67
15	59
20	50
25	39
30	26
35	8

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)





xylem
Let's Solve Water

Xylem Inc.
2881 East Bayard Street Ext., Suite A
Seneca Falls, NY 13148
Phone: (866) 325-4210
Fax: (888) 322-5877
www.xylem.com/goulds

SITE RESEARCH

Pay Property Tax

Pay Property Taxes

Online payment service is provided by CORE Business Technologies.
You can pay by check, credit card or debit card.
CORE Business Technologies charges a service fee which is applied directly to your payment.
- E-check: $1 per transaction
- Credit card or debit card: 2.49% per transaction

For payment history, please see Tax Transaction History

Summary View

Parcel ID	173022430006
Parcel Status	Active
Property Address	4 DOVE LN NORTH OAKS MN 55127-2507
Sec/Twp/Rng	17/30/22
Brief Tax Description	REGISTERED LAND SURVEY 121 SUBJ TO AND WITH PVT RD ESMTS TRACT M (Note: Not to be used on legal documents)
Parcel Area	0.5739
Parcel Width	0 Feet
Parcel Depth	0 Feet
	(Note: Width and Depth represent buildable area of lot in the case of irregularly shaped lots)
Tax Classification	1A/1B/4BB RESIDENTIAL SINGLE UNIT;
Homestead Status	Non homestead
Roll Type	Real Property
Municipality	NORTH OAKS
District Code	6740
	For homestead vs non-homestead tax calc - use District code above - click here
School District	ISD #624
Watershed	N/A
TIF District	
Land Use Code	510 SINGLE FAMILY DWELLING, PLATTED LOT
	* The Tax Classification is the Assessor Office's determination of the use of the property and is not the same as the property's zoning.
	* Please contact the zoning authority for information regarding zoning.
	* To determine whether your property is Abstract or Torrens, call 651-266-2050

Taxpayers

Please refer to disclaimer at bottom of this page

Type	Name	Address
Owner	James W. Christiansen	4 Dove Ln North Oaks MN 55127-2507

Current Tax Year

*Information listed is as of yesterday. For specific payoff information contact Property Tax Info at 651-266-2000
See Tax Transaction History for payment and/or adjustment information.

First Half Due 05-15-2023		Second Half Due 10-16-2023	
Amount Due	$0.00	**Amount Due**	$2,304.00
Penalty & Fees Due	$0.00	**Penalty & Fees Due**	$0.00
(thru current month)		**(thru current month)**	
Balance Due	$0.00	**Balance Due**	$2,304.00

Total Due $2,304.00

Tax Summary

For payment history, please see Tax Transaction History

		2023 Payable	2022 Payable	2021 Payable	2020 Payable	2019 Payable
	Estimated Market Value	$382,900	$336,900	$326,000	$325,500	$261,800
	Taxable Market Value	$382,900	$336,900	$326,000	$317,600	$248,100
	Net Tax Amount	$4,371.20	$4,126.76	$3,933.69	$4,129.85	$3,005.21
+	Special Assessments	$236.80	$2,411.24	$1,344.31	$520.15	$568.79
=	**Total Taxes**	$4,608.00	$6,538.00	$5,278.00	$4,650.00	$3,574.00
+	Penalty	$0.00	$0.00	$0.00	$0.00	$0.00
+	Interest	$0.00	$0.00	$0.00	$0.00	$0.00
+	Fees	$0.00	$0.00	$0.00	$0.00	$0.00
-	Amount Paid	$2,304.00	$6,538.00	$5,278.00	$4,650.00	$3,574.00
=	**Outstanding Balance**	$2,304.00	$0.00	$0.00	**$0.00**	**$0.00**

Special Assessments

Note: + sign indicates a multiple year assessment. Click on the + to view additional years.

Assess #	Year	Description	Initial Amount	Principal	Interest	Installment Amount	Remaining Balance	Deferred
R672399960	2023	RECYCLING	$175.00	$0.00	$0.00	$175.00	$0.00	No
S032023100	2023	Storm Water Utility	$61.80	$0.00	$0.00	$61.80	$0.00	No

Note: Installment amount is the amount that will be included in the property tax total for the referenced payable year.
Remaining Balance is the amount eligible for prepayment. Prepayment must be paid in full by November 15th of the current year.
Please call the City of Saint Paul General Assessment line for payoff amounts or additional information concerning any Saint Paul assessment. You can reach them at 651-266-8858 or go to Assessment Lookup.

Suburban property owners should call 651-266-2000 for detailed assessment information.

Tax Transaction History

Tax Year	Business Date	Effective Date	Transaction Type	Tax Amount	Special Assessment	Penalty	Interest	Fees	Overpayment	Total
2023	5/15/2023	5/15/2023	Payment	($2,185.60)	($118.40)	$0.00	$0.00	$0.00	$0.00	($2,304.00)
2023	3/1/2023	3/1/2023	Original	$4,371.20	$236.80	$0.00	$0.00	$0.00	$0.00	$4,608.00
2022	10/18/2022	10/17/2022	Payment	($2,063.38)	($1,205.62)	$0.00	$0.00	$0.00	$0.00	($3,269.00)
2022	5/12/2022	5/3/2022	Payment	($2,063.38)	($1,205.62)	$0.00	$0.00	$0.00	$0.00	($3,269.00)
2022	3/2/2022	3/2/2022	Original	$4,126.76	$2,411.24	$0.00	$0.00	$0.00	$0.00	$6,538.00
2021	10/9/2021	10/9/2021	Payment	($1,966.84)	($672.16)	$0.00	$0.00	$0.00	$0.00	($2,639.00)
2021	5/7/2021	5/7/2021	Payment	($1,966.85)	($672.15)	$0.00	$0.00	$0.00	$0.00	($2,639.00)
2021	2/22/2021	2/22/2021	Original	$3,933.69	$1,344.31	$0.00	$0.00	$0.00	$0.00	$5,278.00

Sales

Date	eCRV #	Sale Price	State Study Recommendation	State Study Reject Reason	Cnty Stdy Rec
1/14/2005		$367,000	Y		Y
2/11/2022		$0			
10/28/2022	1484672	$400,000	N	15-DISTRESSED OR FORCED SALE	N

Statements and Notices

2023
Value Notice
Tax Statement
Payment Stubs
Proposed Tax Statement

2022
Value Notice
Tax Statement
Payment Stubs
Proposed Tax Statement

2021
Value Notice
Tax Statement
Payment Stubs
Proposed Tax Statement

2020
Value Notice
Tax Statement
Payment Stubs
Proposed Tax Statement

2019
Value Notice
Tax Statement
Payment Stubs
Proposed Tax Statement

State of Minnesota

The Property Tax Refund Program is administered by the State of Minnesota. For information regarding the program, please call 651-296-3781.

Form M1PR(Property Tax Refund)

4 Dove Lane, North Oaks

Custom Soil Resource Report
Soil Map

Ramsey County, Minnesota

123—Dundas fine sandy loam

Map Unit Setting

National map unit symbol: 1t97z
Elevation: 700 to 1,600 feet
Mean annual precipitation: 28 to 36 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 120 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Dundas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dundas

Setting

Landform: Drainageways on moraines, flats
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Till

Typical profile

Ap - 0 to 9 inches: fine sandy loam
E - 9 to 13 inches: sandy clay loam
Btg - 13 to 45 inches: sandy clay loam
Cg - 45 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F090AY006WI - Wet Loamy Lowland
Forage suitability group: Level Swale, Acid (G090XN005MN)
Other vegetative classification: Level Swale, Acid (G090XN005MN)
Hydric soil rating: Yes

Minor Components

Cathro

Percent of map unit: 5 percent

Landform: Depressions
Hydric soil rating: Yes

Bluffton

Percent of map unit: 5 percent
Landform: Depressions on moraines
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Hayden

Percent of map unit: 5 percent
Hydric soil rating: No

132C—Hayden fine sandy loam, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 1t981
Elevation: 700 to 1,600 feet
Mean annual precipitation: 28 to 36 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 120 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hayden and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hayden

Setting

Landform: Moraines
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Till

Typical profile

Ap - 0 to 4 inches: fine sandy loam
E - 4 to 12 inches: fine sandy loam
Bt - 12 to 42 inches: clay loam
C - 42 to 60 inches: loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F090AY015WI - Loamy Upland with Carbonates
Forage suitability group: Sloping Upland, Acid (G090XN006MN)
Other vegetative classification: Sloping Upland, Acid (G090XN006MN)
Hydric soil rating: No

Minor Components

Braham

Percent of map unit: 3 percent
Hydric soil rating: No

Bluffton

Percent of map unit: 3 percent
Landform: Depressions on moraines
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rifle

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Nessel

Percent of map unit: 2 percent
Hydric soil rating: No

225—Nessel fine sandy loam, 1 to 4 percent slopes

Map Unit Setting

National map unit symbol: 1t98w
Elevation: 1,000 to 1,300 feet
Mean annual precipitation: 28 to 36 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 120 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Nessel and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nessel

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Till

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 13 inches: fine sandy loam
Bt - 13 to 41 inches: loam
C - 41 to 60 inches: fine sandy loam

Properties and qualities

Slope: 1 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Ecological site: F090AY015WI - Loamy Upland with Carbonates
Forage suitability group: Sloping Upland, Acid (G090XN006MN)
Other vegetative classification: Sloping Upland, Acid (G090XN006MN)
Hydric soil rating: No

Minor Components

Braham

Percent of map unit: 4 percent
Hydric soil rating: No

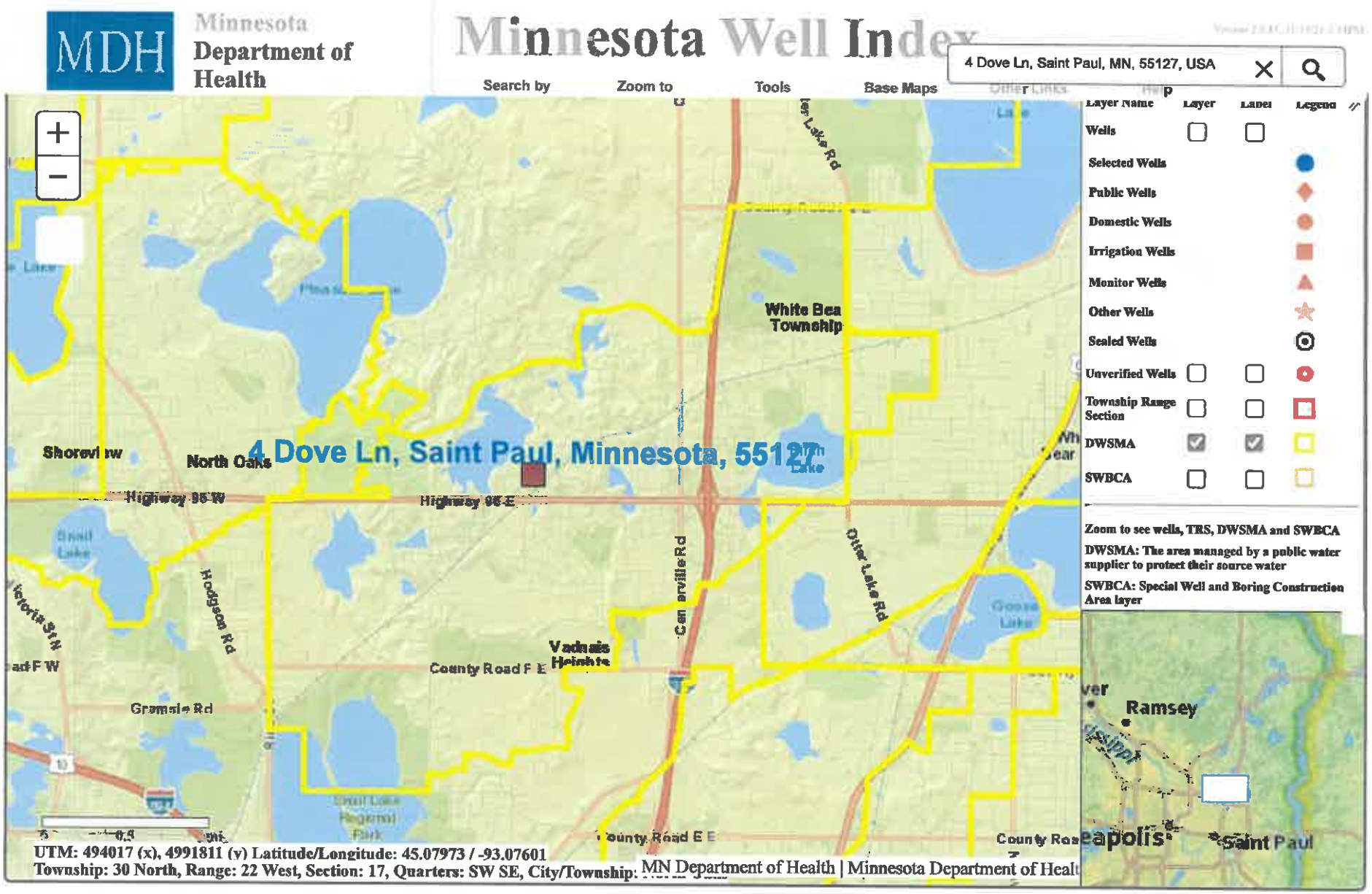
Hayden

Percent of map unit: 3 percent
Hydric soil rating: No

Dundas

Percent of map unit: 3 percent
Landform: Drainageways on moraines, flats
Hydric soil rating: Yes

Septic Tank Absorption Fields (MN)–Ramsey County, Minnesota							
Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields - At-Grade		Septic Tank Absorption Fields - Mound		Septic Tank Absorption Fields - Trench	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
123—Dundas fine sandy loam							
Dundas	85	Extremely limited		Very limited		Extremely limited	
		Soil saturation	0.99	Soil saturation	0.88	Soil saturation	1.00
						Restricted percolation	0.07
132C—Hayden fine sandy loam, 6 to 12 percent slopes							
Hayden	90	Slightly limited		Very limited		Slightly limited	
		Slope	0.05	Slope	0.85	Slope	0.05
225—Nessel fine sandy loam, 1 to 4 percent slopes							
Nessel	90	Moderately limited		Slightly limited		Extremely limited	
		Soil saturation	0.72	Slope	0.02	Soil saturation	1.00


MDH
Minnesota Department of Health
Minnesota Well Index
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Search by
Zoom to
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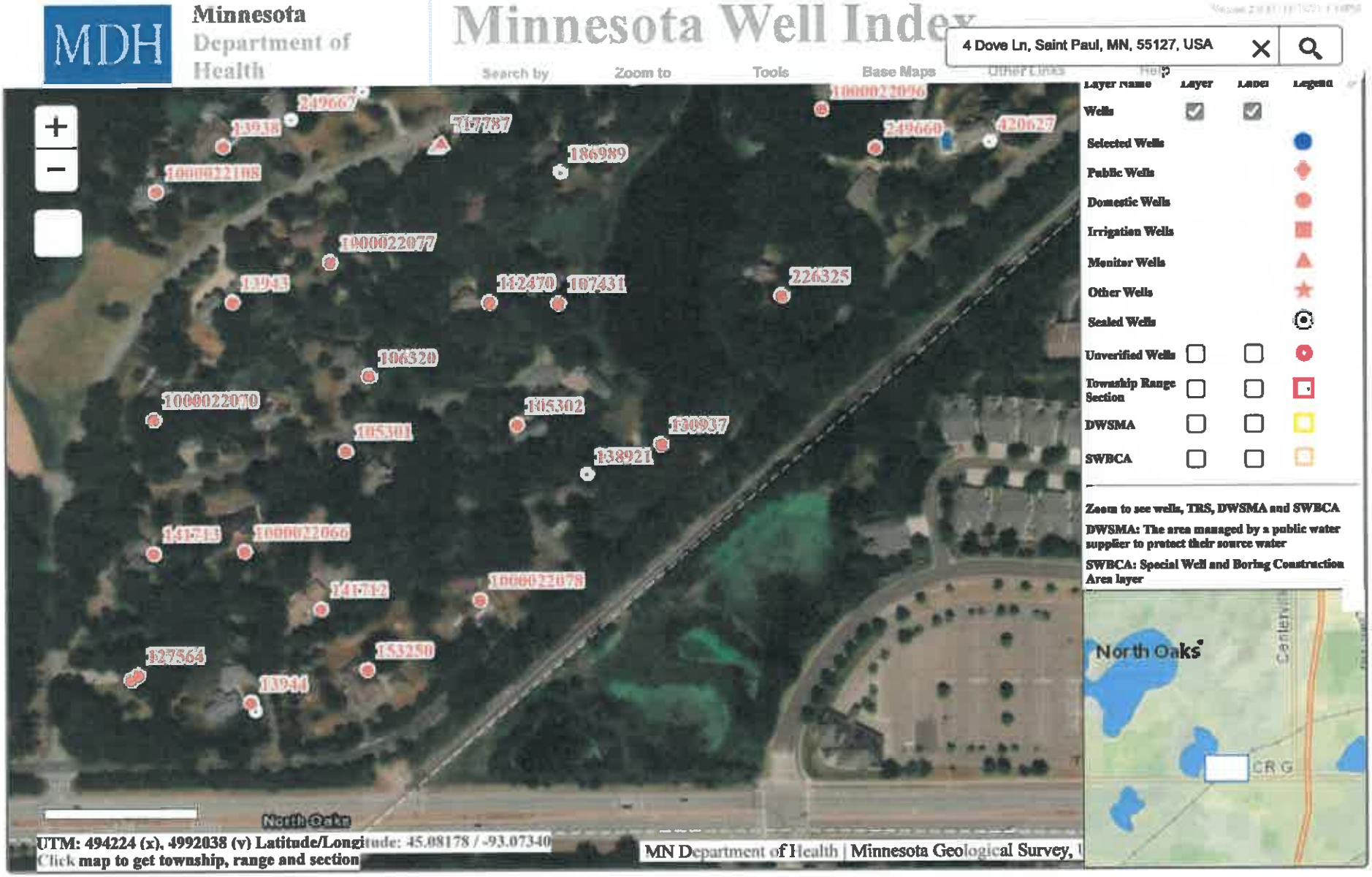
4 Dove Ln, Saint Paul, Minnesota, 55127
White Bea Township
Shoreview
North Oaks
Highway 96 W
Highway 96 E
Hodgson Rd
Victoria St N
County Road F E
Vadnais Heights
Gramsie Rd
Centerville Rd
Otter Lake Rd
Goose Lake
Ramsey
Saint Paul
Layer Name
Layer
Label
Legend
Wells
Selected Wells
Public Wells
Domestic Wells
Irrigation Wells
Monitor Wells
Other Wells
Sealed Wells
Unverified Wells
Township Range Section
DWSMA
SWBCA
Zoom to see wells, TRS, DWSMA and SWBCA
DWSMA: The area managed by a public water supplier to protect their source water
SWBCA: Special Well and Boring Construction Area layer
UTM: 494017 (x), 4991811 (y) Latitude/Longitude: 45.07973 / -93.07601
Township: 30 North, Range: 22 West, Section: 17, Quarters: SW SE, City/Township:
MN Department of Health | Minnesota Department of Healt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4 Dove Ln, Saint Paul, MN, 55127, USA
Layer Name
Layer
Label
Legend
Wells
Selected Wells
Public Wells
Domestic Wells
Irrigation Wells
Monitor Wells
Other Wells
Sealed Wells
Unverified Wells
Township Range Section
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Zoom to see wells, TRS, DWSMA and SWBCA
DWSMA: The area managed by a public water supplier to protect their source water
SWBCA: Special Well and Boring Construction Area layer
249667
13938
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1000022096
249660
420627
1000022108
1000022077
13943
142470
107431
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1000022070
105302
105301
130937
138921
141715
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141712
1000022078
127564
153250
13944
North Oaks
North Oaks
CR G
UTM: 494224 (x), 4992038 (y) Latitude/Longitude: 45.08178 / -93.07340
Click map to get township, range and section
MN Department of Health | Minnesota Geological Survey,

Septic systems 101

Facts about subsurface sewage treatment systems

Subsurface sewage treatment systems (SSTS), commonly known as septic systems, are soil-based treatment systems used by homes and businesses that are not connected to municipal sewers. The systems treat and dispose of wastewater generated on-site. More than 500,000 septic systems are in use in Minnesota, which includes 30% of the state's households. Septic systems treat approximately 25% of wastewater generated in the state.

Wastewater contains sewage, which includes bacteria, viruses, parasites, nutrients, and some chemicals. Correctly treating and disposing of wastewater is critical to protecting public health and the environment. More than two-thirds of Minnesotans get their drinking water from groundwater, and poorly built or ill-functioning septic systems can contaminate groundwater and other water resources. When constructed and maintained properly, septic systems are highly effective at treating sewage and keeping Minnesota's groundwater, lakes, and rivers safe and clean.

How septic systems work

SSTS treat sewage with a combination of biological, physical, and chemical processes. A system's design must account for several factors:

- The amount of daily wastewater generated on site
- Using gravity or a pump for distribution
- The site's soil conditions
- The need for developing a biological layer (biomat)

A typical SSTS includes a septic tank and a soil-based treatment system where liquid waste can come in contact with soils.

The septic tank

Sewage is piped from a home or business into a buried, watertight septic tank, which is sized to retain wastewater for 24 to 36 hours. The time allows the wastewater to separate into three layers in the tank:

- Solids sink to the bottom
- Greases, fats, and soaps float to the top
- The remaining liquid (effluent) flows out to the drainfield for final treatment

Baffles in the tank at the inlet and outlet help prevent the top and bottom layers from moving to the drainfield, where they can clog distribution pipes and cause premature drainfield failure. Over time, these layers will accumulate, and must be pumped out of the tank at regular intervals.

Anaerobic bacteria (bacteria that doesn't need oxygen) in the tank begin the process of breaking down organic matter in the sewage. But microorganisms and pathogens remain. Research shows that effluent leaving the septic tank contains high counts of bacteria (about 1,000,000 colonies per 100 ml) that must be further treated in the soil.

The drainfield/soil treatment system

The effluent from the septic tank moves to the soil treatment system, such as a mound, trench, or at-grade drainfield. A trained SSTS professional must take soil types and other factors into account when designing the correct type of septic system for a specific site.

The effluent moves either by gravity or using a pump, through distribution pipes in the soil treatment system, and down through the distribution medium to its base where the distribution medium meets the underlying soil. That's where a sticky biological layer (biomat) forms. The biomat slows the infiltration of effluent into the underlying unsaturated soil, and further filters out pathogens and solids. The biomat can slow effluent movement to as much as 100 times less than its normal flow rate; this helps maximize the contact time between the effluent and the surrounding soil particles.

Soil particles are negatively charged. Through a process called adsorption, they attract and hold the positively charged pathogens in the effluent. Once held, the pathogens are easily available to the aerobic bacteria in the air pockets between the soil particles. The aerobic bacteria, which are much more efficient than the anaerobic bacteria in the septic tank, continue treatment. Other forms of bacteria also begin to grow, producing slimy films over the soil particles, which act as additional filters to "grab" pathogens.

It is important to properly site the SSTS with the existing soil conditions to ensure maximum treatment occurs. If the site is not optimal for treatment (e.g., it has a high seasonal water table), it won't offer effective soil treatment and the risk of contamination increases.

SSTS regulations in Minnesota

The 1968 Minnesota Shoreland Act required septic systems to be evaluated and managed properly within shoreland areas to better control their impact on water quality. But the first state law specifically addressing septic systems wasn't enacted until 1994: the Individual Sewage Treatment Systems (ISTS) Act (Minn. Stat. §§ 115.55 and 115.56). It requires all new construction and replacement septic systems to meet minimum standards. It also enacted a system to upgrade failing existing SSTS before construction of an additional bedroom, and methods to replace failing SSTS within certain timeframes. The 1994 act has been amended in recent years, with major changes in 1996 and 2008. Regulations will continue to be amended as the SSTS industry advances.

More information

Visit the Minnesota Pollution Control Agency website at http://www.pca.state.mn.us.

Septic system DO's and DON'Ts

A quick reference guide to extend the life of your septic system

A properly constructed and maintained system can last a long time if you follow some common septic system DO's and DON'Ts:

- ✓ **DO** conserve water and fix leaks quickly. Installing high efficiency appliances, such as washers and low-flow toilets, can extend the life of your system while leaky faucets can limit your system's capacity. If you have periods of high water use, talk to a septic professional about helping your system manage the spikes.

- ✓ **DO** have your septic tank routinely serviced as specified by a licensed professional.

- ✓ **DO** regularly check the condition of your septic system and any access covers. Unsecured or unsafe lids can be dangerous to children or pets; falling into a septic tank can be fatal.

- ✓ **DO** keep your septic tank cover accessible for inspections and pumping. You may wish to install septic tank risers to avoid having to disturb your lawn for every maintenance event.

- ✓ **DO** keep records of repairs, pumping, inspections, permits issued, and other SSTS maintenance activities.

- ✓ **DO** identify the location of your septic tank and drainfield. A sketch or map allows easier navigation to septic system components.

- ✓ **DO** divert water sources such as roof drains, house footing drains, and sump pumps away from the septic system— they shouldn't flow into the system or onto the ground over your system. Excessive water can cause back-ups and premature system failure.

- ✓ **DO** call a licensed professional if you experience problems with your system, or if there are any signs of system failure.

- ✗ **DON'T flush the following items:**
  - Lint or clothing fibers
  - Diapers
  - Cigarette butts
  - Facial tissue
  - Condoms
  - Feminine hygiene products
  - Unused medications
  - Paint or solvents
  - Flammable material
  - Coffee grounds
  - Cat litter
  - Cooking oils and grease
  - "Flushable" wipes or paper towels

  These items will shorten the life of your system and may cause component failures or sewage backups. ONLY human waste and toilet paper should ever be flushed. Minimize use of harsh cleaners, bleach, and antibacterial soaps.

- ✗ **DON'T** drive over or park anything above the septic tank or drainfield. This can limit system life and cause damage.

- ✗ **DON'T** plant deep rooted plants over or near the drainfield. Roots from trees or shrubs may clog and damage drain lines. Plant grass or flowers instead (no vegetables), but don't fertilize, water, or burn them.

- ✗ **DON'T** dig in or build anything on top of your drainfield, particularly playgrounds.

- ✗ **DON'T** make or allow repairs to your septic system without obtaining the required local permits and professional assistance.

- ✗ **DON'T** enter your septic tank. Working in and around a septic tank is dangerous, and gases generated in the tank could be fatal.

Subsurface Sewage Treatment Systems

Non-transferable

Business License

Kloeppner Services & Designs LLC

License # L4043 License Expires: 4/1/2024 Issued: 4/7/2023

Specialty Area(s):

Service Provider
Advanced Designer
Advanced Inspector

Designated Certified Individual(s):

Cert #	Name	Certification Expires:
C8188	Jesse J Kloeppner	11/15/2026

Service Provider, Advanced Designer, Advanced Inspector

MINNESOTA POLLUTION CONTROL AGENCY

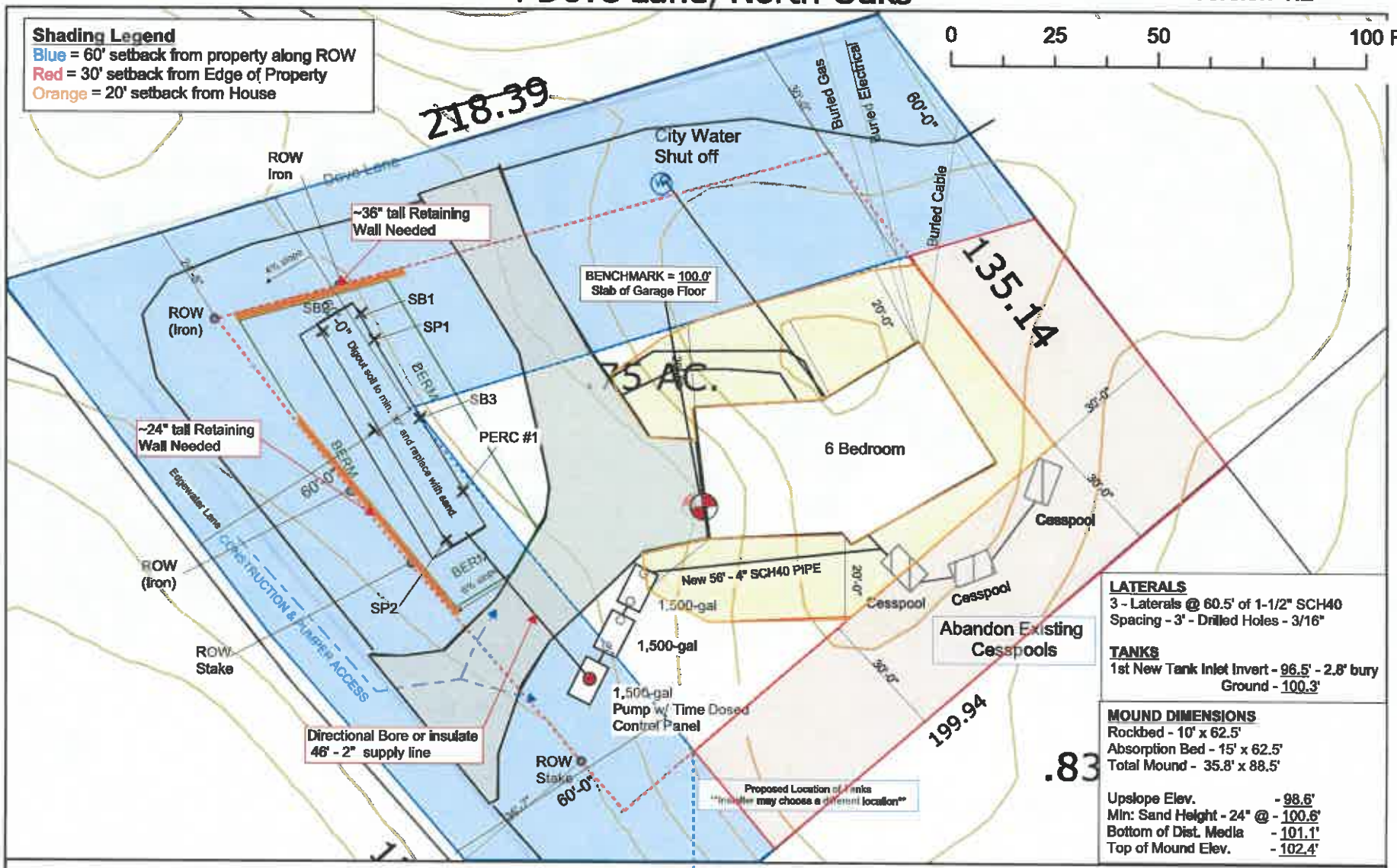
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Nick Haig

Nick Haig, Supervisor
Certification and Training Unit

4 Dove Lane, North Oaks

version 1.2



NOTES:

1. The design is a Type III that will reduce the total flow of the system to use a maximum of 5-bedrooms of peak flow to the soil treatment area (750 GPD). A time dosed controller will be used to restrict the flow from the pump tank to allow for a maximum of 625 gallons of water usage in a 24-hour period. An alarm will be activated if water usage exceeds this flow.
2. Minimum Volumes for New Tanks: 1st Tank 1,500-gallons; 2nd Tank 1,500-gallons; Pump Tank 1,500-gallons.
3. The location for the sewage tanks is only proposed. If tanks are placed more than 15' from proposed location, contact KSD to discuss options.
4. Remove top layer of soil to expose sandy soil to a minimum depth of 30" and replace with washed mound sand before construction of the mound.
5. The berms will not extend into the ROW. Retaining walls must be built on the North and West ends of the mound berms to keep off the ROW.
6. The pump supply line will cross under the driveway. Frost protection measures must be considered to avoid the line freezing.

- THIS IS ONLY A SITE PLAN
- ALL SEPTIC LOCATIONS AND MEASUREMENTS ARE ONLY ESTIMATES
- AS-BUILT WILL NEED TO BE PROVIDED BY INSTALLER AFTER CONSTRUCTION

KSD

Kloeppner Services & Designs, LLC
Lic # 4043

LEGEND:
W = Well
SB = Soil Boring
SP = Soil Pit
= Benchmark

NORTH

Approved by: Jesse Kloeppner

Date - 10/26/23

CITY OF
NorthOaks
Building on a tradition of innovation

PLANNING REPORT

TO: North Oaks City Council

FROM: Kendra Lindahl, City Planner
Kevin Kress, City Administrator
Bridget McCauley Nason, City Attorney
Michael Nielson, City Engineer

DATE: April 3, 2024

RE: Septic Variance at 6 Badger Lane (city file 24-3/Landform file 24-004)

Date Application Submitted	February 2, 2024
Date Application Determined Complete:	March 6, 2024
Planning Commission Meeting Date:	March 28, 2024
City Council Meeting Date:	April 11, 2024
60-day Review Date:	May 5, 2024

REQUEST

Thomas Romanko has requested approval of a subsurface sewage treatment system (SSTS) variance to construct a the new septic system that will be located partially on his property and partially on the adjacent golf course property. The ordinance requires all septic system tanks and treatment areas be at least 30 feet from all property lines, wetlands and roads. The rock bed is approximately 15 feet from the property line and the mound would cross the property line. The variance would allow a replacement of the SSTS at 6 Badger Lane, which is classified as non-compliant under MPCA Rule 7080.1500, Subp.4(B).

PLANNING COMMISSION REVIEW

The Planning Commission reviewed this item at their March 28th meeting. Other than the applicant , there was no one present to speak on this item. The Commission voted unanimously to recommend approval.

BACKGROUND

The site is currently developed with a single family home. The home is surrounded by the golf course on the east and west and single family homes on the north and south.

Figure 1 - Subject Parcel

Zoning and Land Use

The property is guided Low Density residential and is zoned Residential Single Family – Low Density (RSL). The 1.01-acre property is located in the northeast portion of the golf course.

PLANNING ANALYSIS

Chapter 51 of the City Code establishes standards for SSTS. Section 51.03(3) requires a minimum setback of 30 feet from all property lines, wetlands and the nearest edge of any roadway easement. The applicant's plan does not show the exact setback dimension, but the rock bed would be approximately 15 feet from the east lot line where 30 feet is required. Additionally, the grading for the mound will extend into the golf course property. The applicant has been working with the golf course to obtain an easement for this encroachment. The easement document included in the packet has been reviewed by the City Attorney and must be recorded at the County prior to construction of the new septic system.

Variance Standards

Section 51.02(11) of the Code says, "Where conditions prevent the construction, alteration, and/or repair of a sewage treatment system in strict compliance with the requirements of this chapter, the property owner may apply for a variance following the procedures outlined in North Oaks City Code Sections 151.078 & 151.079."

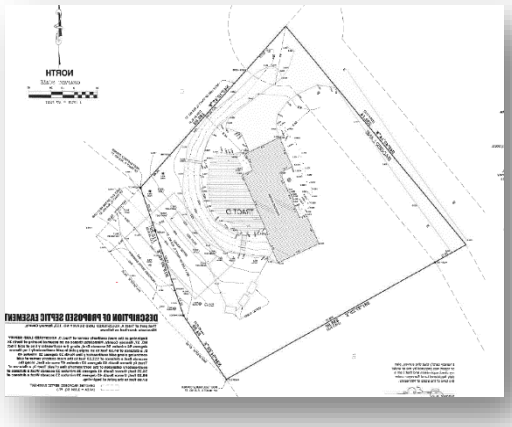


Figure 2-Site Plan

Section 151.078 of the Zoning Code requires that the following criteria be considered and a variance only be granted when it is demonstrated that following standards have all been met:

(1)(a) Their strict enforcement would cause practical difficulties because of circumstances unique to the individual land under consideration, and the variances shall be granted only when it is demonstrated that the actions will be in keeping with the spirit and intent of this chapter.

The size and shape of the existing 1.01-acre lot of record precludes another location for a new septic on this site and creates a practical difficulty. The location of the well, water supply lines, structures, street and the existing cesspools leave only this location for a new septic system.

b) PRACTICAL DIFFICULTIES means the land in question cannot be put to a reasonable use if used under conditions allowed by the official controls, the plight of the land owner is due to circumstances unique to the land in question which were not created by the land owner, and the variance, if granted, will not alter the essential character of the locality.

The size and shape of the existing lot of record does not have another location for a new septic on this site and creates a practical difficulty. The location of water supply lines, structures, and the existing cesspools leave only this location for a new septic system. Approving the variance will allow construction of a new septic system and abandonment of the non-compliant system. It would not alter the essential character of the locality.

(c) Economic considerations alone shall not constitute an undue hardship if reasonable use for the land exists under the terms of this chapter.

The variance requested is to replace a failing system. The variance is not based on economic considerations alone.

(d) A variance may not be granted for any use that is not permitted under this chapter for land in the zone where the affected person's land is located.

The variance would allow a new septic system. It would not allow a use that is not permitted by City Code.

(2) Subject to the above, a variance may be granted only in the event that all of the following circumstances exist:

(a) Unique circumstances apply to the which do not generally apply to other land in the same zone or vicinity, and result from lot size or shape, topography, or other circumstances over which the owners of the land have no control;

The circumstances of this site do not apply to other properties in same zone and are the result of the small lot size, topography and existing conditions on this lot.

(b) The proposed uses is reasonable;

The proposed use is reasonable. It will allow replacement of the failing system with a new septic system.

(c) That the unique circumstances do not result from the actions of the applicant;

The circumstances do not result from the action of the applicant. The existing septic system has failed and must be replaced.

(d) That granting the variance requested will not confer on the applicant any special privilege that is denied by this chapter to other lands, structures, or buildings in the same district;

Granting the variance will not confer upon the applicant any special privilege. It will simply allow them to replace their failing system.

(e) That the Variance requested is the minimum variance which would alleviate the practical difficulties;

The variance is the minimum action needed to alleviate the practical difficulties on site.

(f) The proposed variance will not impair an adequate supply of light and air to adjacent land, or substantially increase the congestion of the roads and streets, or increase the danger of fire, or endanger the public safety, or substantially diminish or impair property values within the neighborhood; and

The proposed variance will not impair an adequate supply of light and air to adjacent land, or substantially increase the congestion of the roads and streets, or increase the danger of fire, or endanger the public safety, or substantially diminish or impair property values within the neighborhood.

(g) At no time after the land became nonconforming was the property under common ownership with contiguous land, the combination of which could have been used to reduce or avoid the nonconformity of the land.

At no time after the land became nonconforming was the property under common ownership with contiguous land, the combination of which could have been used to reduce or avoid the nonconformity of the land.

Attached for reference:

Exhibit A: Location Map

Exhibit B: Application Narrative dated February 12, 2024

Exhibit C: Site Survey dated December 15, 2023

Exhibit D: SP Testing Inc. Design Report dated September 11, 2023 and Exhibit

Exhibit E: Declaration of Grant of Easement

STAFF RECOMMENDATION

Based on the preceding review, Staff finds that the variance standards are met and that the new system will result in improvement to the local ground and surface waters by eliminating a non-compliant cesspool.

ACTION

Move to approve the resolution approving the septic variance, as recommended by the Planning Commission.

RESOLUTION No. 2024- ____

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA

RESOLUTION GRANTING SETBACK VARIANCE TO ALLOW REPLACEMENT OF A NON-COMPLIANT SUBSURFACE SEWAGE TREATMENT SYSTEM (SSTS) AT 6 BADGER LANE

WHEREAS, the City of North Oaks (City) has received an application for a variance to allow a zero-foot setback from the property line for a new SSTS to replace a non-compliant system at 6 Badger Lane; and

WHEREAS, the variance would allow a replacement of the SSTS at 6 Badger Lane, which is classified as non-compliant under MPCA Rule 7080.1500, Subp. 4(B)e; and

WHEREAS, the grading of the mound system is at a zero-foot setback from the property line and encroaches onto the adjacent golf course property; and

WHEREAS, the soil absorption area is at a 15-foot setback where 30 feet is required from the property line; and

WHEREAS, the Planning Commission reviewed the request at a duly called public meeting and voted to recommend approval of the variance application.

NOW, THEREFORE BE IT RESOLVED by the City Council of the City of North Oaks that the variance is approved subject to the following findings and conditions:

1. A variance to allow a zero-foot setback from the property line and grading onto the adjacent golf course property to allow the SSTS soil absorption area at a 15-foot setback where a 30-foot setback is required for an SSTS to replace a non-compliant system as shown on the survey dated December 15, 2023.

2. The variance standards in Section 151.078 of the Zoning Code have been met:

    a. Strict enforcement would cause practical difficulties because of circumstances unique to the individual land under consideration. The size and shape of the existing lot of record does not have another location for a new septic on this site and creates a practical difficulty. The location of water supply lines, structures, and the existing cesspools leave only this location for a new septic system. Approving the variance will allow construction of a new septic system and abandonment of the non-compliant system. It would not alter the essential character of the locality.

    b. The variance requested is to replace a failing system. The variance is not based on economic considerations alone.

    c. The variance would allow a new septic system. It would not allow a use that is not permitted by City Code.

    d. The circumstances of this site do not apply to other properties in same zone and are the result of the small lot size, topography and existing conditions on this lot.

e. The proposed use is reasonable. It will allow replacement of the failing system with a new septic system.

f. The circumstances do not result from the action of the applicant. The existing septic system has failed and must be replaced.

g. Granting the variance will not confer upon the applicant any special privilege. It will simply allow them to replace their failing system.

h. The variance is the minimum action needed to alleviate the practical difficulties on site.

i. The proposed variance will not impair an adequate supply of light and air to adjacent land, or substantially increase the congestion of the roads and streets, or increase the danger of fire, or endanger the public safety, or substantially diminish or impair property values within the neighborhood.

j. At no time after the land became nonconforming was the property under common ownership with contiguous land, the combination of which could have been used to reduce or avoid the nonconformity of the land.

3. The Declaration of Grant of Easement for Ingress, Egress, and Encroachment for the portion of the septic system located on the adjacent golf course property shall be recorded prior to installation of the septic system.

4. The applicant must apply for a septic permit and receive approval prior to beginning replacement of the system.

Adopted by the City Council of the City of North Oaks on this 11th day of April 2024.

Ayes: Nays:

By: _____
Krista Wolter
Its: Mayor

Attested:

By: _____
Kevin Kress
Its: City Administrator/City Clerk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Thomas Romanko

6 Badger Lane
North Oaks, MN 55127
651-261-9120

February 12, 2024

To: Kevin Kress, City of North Oaks

Subject: Variance Request for the installation of a new septic system

The original septic system (circa 1968) at 6 Badger Lane is no longer functioning properly and needs to be replaced. Due to the property soil makeup, uneven ground/slopes, setbacks and large area needed for new septic system designs, there were very limited locations for the new system. With the proposed location (east side of the property), the above ground septic system drain mound slope goes onto the North Oaks Golf Course property. I have been informed a variance from the City of North Oaks and an easement from the golf course are required.

People and companies involved in determining the location include:

- Steve Schirmer – Septic Testing Inc. (Septic Design)
- Mike Capra - Capra's Utilities Inc. (Septic installation)
- Chris from Midwest Sewer (representing North Oaks Inspection)

Other parties involved:

- Pat Markley - North Oaks Golf Course
- E. G. Rud Surveyors
- Wynn Curtiss – Chestnut Cambronne (attorney)
- Kevin Kress – City of North Oaks
- Brian Humpal - (representing North Oaks Inspection)

The site plan for the septic system is defined in the included surveyor documents:

- CERT OF SURVEY Romanko 6 Badger Lane
- DESCRIPTION SEPTIC EASEMENT Romanko 6 Badger Lane

A DECLARATION OF GRANT OF EASEMENT with North Oaks Golf Course has been approved and signed by the President of N.O. Golf Club and the Notary Public on January 25, 2024.

CERTIFICATE OF SURVEY

~for~ TOM AND KIM ROMANKO
~of~ 6 BADGER LANE
NORTH OAKS, MN 55127

PROPERTY DESCRIPTION

Tract D, REGISTERED LAND SURVEY NO. 57, Ramsey County, Minnesota.

NOTES

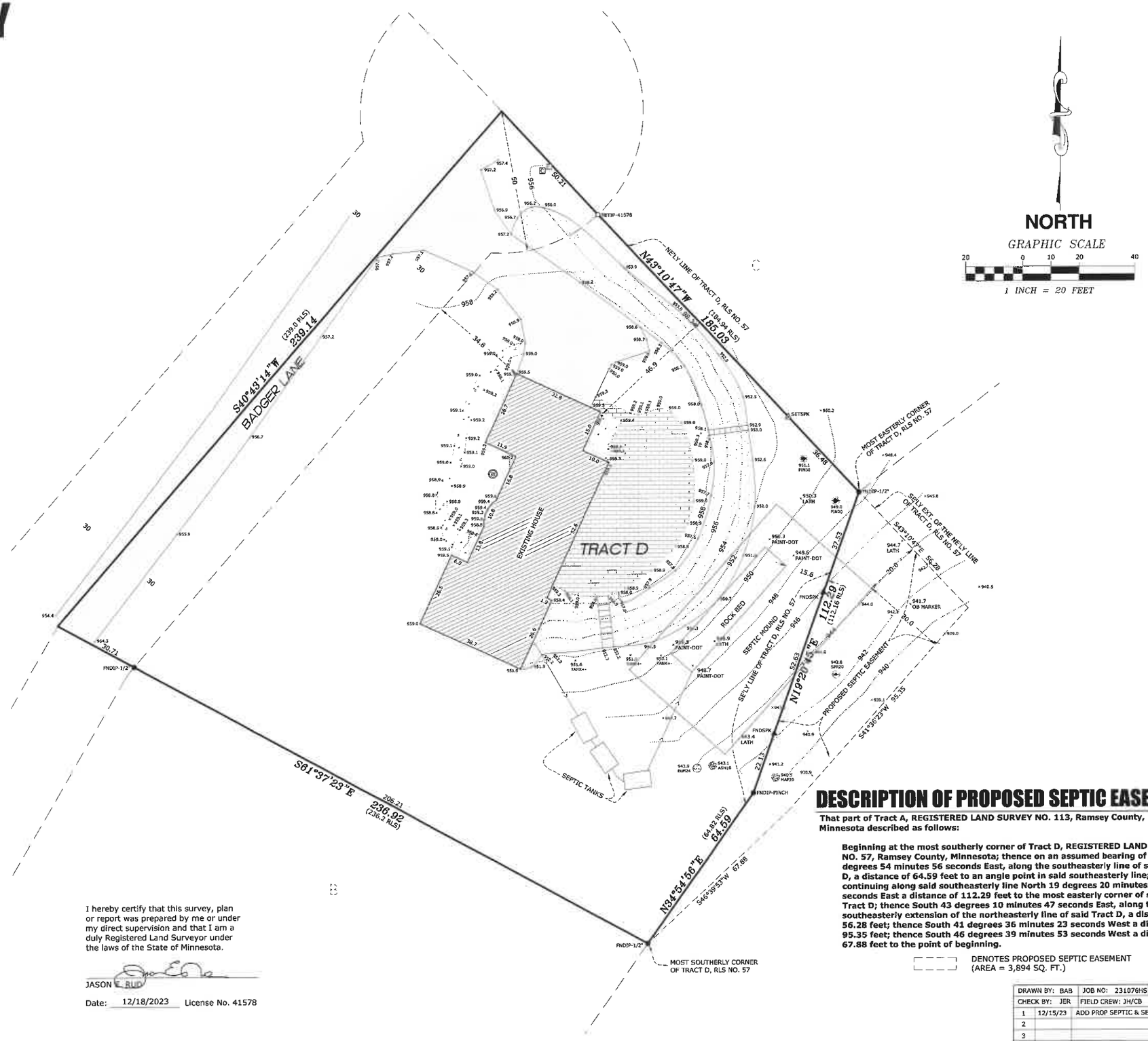
- Field survey was completed by E.G. Rud and Sons, Inc. on 10/25/2023 and 11/13/2023.
- Bearings shown are on Ramsey County datum.
- Parcel ID Number: 18-30-22-14-0013.
- This survey was prepared without the benefit of title work. Additional easements, restrictions and/or encumbrances may exist other than those shown hereon. Survey subject to revision upon receipt of a current title commitment or an attorney's title opinion.
- Septic shown per design sketch by S-P Testing, Inc. dated 12/1/2023.

LEGEND

- DENOTES IRON MONUMENT FOUND AS LABELED
- DENOTES IRON MONUMENT SET, MARKED RLS# 41578
- DENOTES FOUND SPIKE
- DENOTES SET SPIKE
- DENOTES CABLE PEDESTAL
- DENOTES ELECTRICAL BOX
- X 952.36 DENOTES EXISTING SPOT ELEVATION
- DENOTES EXISTING CONTOURS
- DENOTES WELL
- DENOTES BITUMINOUS SURFACE
- DENOTES CONCRETE SURFACE
- DENOTES ROCK AREA
- DENOTES PAVER SURFACE

TREE DETAIL

- DENOTES ELEVATION
- DENOTES TREE QUANTITY
- DENOTES TREE SIZE IN INCHES
- DENOTES TREE TYPE



DESCRIPTION OF PROPOSED SEPTIC EASEMENT

That part of Tract A, REGISTERED LAND SURVEY NO. 113, Ramsey County, Minnesota described as follows:

Beginning at the most southerly corner of Tract D, REGISTERED LAND SURVEY NO. 57, Ramsey County, Minnesota; thence on an assumed bearing of North 34 degrees 54 minutes 56 seconds East, along the southeasterly line of said Tract D, a distance of 64.59 feet to an angle point in said southeasterly line; thence continuing along said southeasterly line North 19 degrees 20 minutes 45 seconds East a distance of 112.29 feet to the most easterly corner of said Tract D; thence South 43 degrees 10 minutes 47 seconds East, along the southeasterly extension of the northeasterly line of said Tract D, a distance of 56.28 feet; thence South 41 degrees 36 minutes 23 seconds West a distance of 95.35 feet; thence South 46 degrees 39 minutes 53 seconds West a distance of 67.88 feet to the point of beginning.

DENOTES PROPOSED SEPTIC EASEMENT
(AREA = 3,894 SQ. FT.)

I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Registered Land Surveyor under the laws of the State of Minnesota.

JASON E. RUD

Date: 12/18/2023 License No. 41578

E. G. RUD & SONS, INC.
EST. 1977
Professional Land Surveyors
6776 Lake Drive NE, Suite 110
Lino Lakes, MN 55014
Tel. (651) 361-8200 Fax (651) 361-8701
www.egrud.com

DRAWN BY: BAB	JOB NO: 231076HS	DATE: 11/14/2023	
CHECK BY: JER	FIELD CREW: JH/CB		
1	12/15/23	ADD PROP SEPTIC & SEPTIC ESMT	BAB
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NO.	DATE	DESCRIPTION	BY

C:\USERS\BBYER.EGRUD\DESKTOP\REMOTE JOBS\231076 ROMANKO\231076HS (COUNTY-COORDS).DWG

23.1076HS

SP TESTING INC.

Steven B. Schirmers – 951 Katydid Lane NE – St. Michael, MN 55376
Cert. No 627 – State License #394 – Phone 763-497-3566 – Fax 763-497-5011
www.sptesting.wastewater@comcast.net – schirmerswastewater.com

September 11, 2023

Tom & Kim Romanko
6 Badger Lane
North Oaks, MN

This site has an existing on-site wastewater treatment system consisting of a cesspool & 2 seepage pits (tanks with no bottoms). These tanks are classified as non-compliant under Minnesota Chapter 7080 rules. The tanks will need to be abandoned, pumped & filled with soil. A tank abandonment report will need to be completed by a licensed contractor.

This onsite sewage treatment system is designed for a Type 1, system, Type 1, 4 bedroom home in accordance with the Minnesota Pollution Control Agency chapter 7080 & local ordinances.

An Easement agreement will be needed with North Oaks Golf Course which includes 30' east of the down slope toe of the mound. The absorption area (5' downslope of the rock bed) & the rock bed at the north end of the system is 15' from the East property line.

The soils on this site are a sandy loam. The seasonally saturated soils (mottled soil were present a depth of 30" to 48". A pressurized mound system will be installed. The bottom of the treatment area must be located at least 3' above mottled soil.

A pumping chamber will need to be installed to lift the effluent to the treatment area. The power supply & switches must be located outside the manhole & pumping chamber in a weather proof enclosure. A warning device must be installed with a light & sound device, this is in case of a pump failure.

The manifold & supply line must have back drainage to the pumping chamber. Be sure the rock & sand fill material are clean. The sod layer below the entire mounded area must be turned over, just break up the sod.

All property lines must be located prior to installation.

If the tanks have less than 2' of cover, the lids, risers & maintenance hole covers must be insulated to a value of R10.

Cleanouts for each lateral with a sweep must be insulated & be accessible from finished grade in an irrigation box with a ball valve.

All neighboring wells are located greater than 100' away from the proposed treatment area.

Keep all heavy equipment off of the proposed treatment area before and after construction. New construction sites must be fenced off prior to starting construction of the home. The treatment area should be marked off before construction. This design is not valid & the system will need to be relocated if failure to protect the sites for new on-site sewage systems.

Install inspection pipes, one to the bottom of the rock & 1 to the bottom of the sand.

MANAGEMENT PLAN:

The tanks need to be maintained at a minimum of 1 time every 2 years, check with your pumper to set up a schedule.

System inspected for areas of wetness by owner & or Inspector as determined by the local unit of Government.

Any other requirements as determined by the local unit of Government.

With proper installation & maintenance, this system should have no problem in treating septic effluent effectively. Nothing other than human waste, toilet tissue, laundry, showers, water softners etc. should be disposed of into the system. Garbage disposals are not recommended. Excessive amounts of soaps, antibacterial soaps, cleaning agents, shower cleaners used every shower & chlorine agents may kill the bacteria needed to treat septic effluent. Additives are not recommended. PAINTS, STAINS, ET.C MUST NOT GO DOWN THE DRAINS. Recommend laundering be limited to 3 to 4 loads per day. IRON FILTERS MUST NOT DISCHARGE INTO THE SYSTEM.

Steven B. Schirmers

CERTIFICATE OF SURVEY

~for~ TOM AND KIM ROMANKO
~of~ 6 BADGER LANE
NORTH OAKS, MN 55127

PROPERTY DESCRIPTION

Tract D, REGISTERED LAND SURVEY NO. 57, Ramsey County, Minnesota.

NOTES

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- Parcel ID Number: 18-30-22-14-0013.
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LEGEND

- DENOTES IRON MONUMENT FOUND AS LABELED
- DENOTES IRON MONUMENT SET, MARKED RLS# 41578
- DENOTES FOUND SPIKE
- DENOTES SET SPIKE
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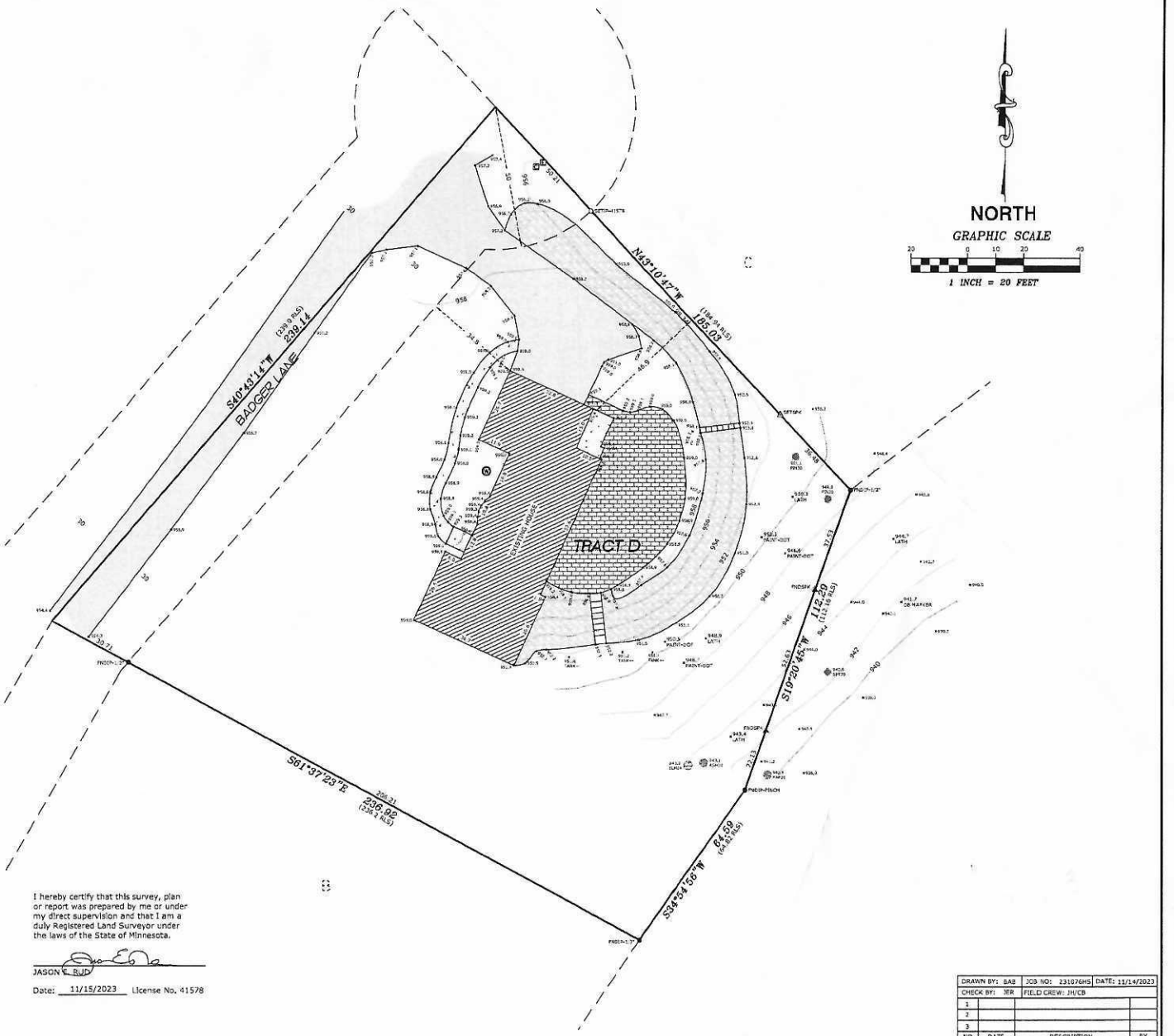

I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Registered Land Surveyor under the laws of the State of Minnesota.

JASON E. RUD

Date: 11/15/2023 License No. 41578

E. G. RUD & SONS, INC.
EST. 1977
Professional Land Surveyors
6776 Lake Drive NE, Suite 110
Lino Lakes, MN 55014
Tel. (651) 361-8200 Fax (651) 361-8701
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DRAWN BY: BAB	JOB NO: 231076HS	DATE: 11/14/2023
CHECK BY: JER	FIELD CREW: JH/CB	

NO.	DATE	DESCRIPTION	BY
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23.1076HS

ONSITE SEWAGE TREATMENT PROGRAM

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 03.15.2023

Property Owner/Client: Tom & Kim Romanko | Date Completed: 8/29/2023

Site Address: 6 Badger Lane, North Oaks | Project ID:

Email: | Phone:

Mailing Address: | Alt Phone:

Legal Description:

Parcel ID: | SEC: | TWP: | RNG:

2. Flow and General System Information

A. Client-Provided Information

Project Type: ☐ New Construction ☑ Replacement ☐ Expansion ☐ Repair

Project Use: ☒ Residential ☐ Other Establishment:

Residential use: # Bedrooms: 4 | Dwelling sq.ft.: | Unfinished sq.ft.:

Adults: 2 | # Children: | # Teenagers:

In-home business (Y/N): | If yes, describe:

Water-using devices: *(check all that apply)*

- ☐ Garbage Disposal/Grinder
- ☑ Dishwasher
- ☐ Hot Tub*
- ☐ Sewage pump in basement
- ☐ Water Softener*
- ☐ Sump Pump*
- ☑ Large Bathtub >40 gallons
- ☐ Iron Filter*
- ☐ Self-Cleaning Humidifier*
- ☑ Clothes Washing Machine
- ☑ High Eff. Furnace*
- ☐ Other:

* Clear water source - should not go into system

Additional current or future uses:

Anticipated non-domestic waste:

The above is complete & accurate:

Client signature & date

B. Designer-determined Flow and Anticipated Waste Strength Information

Attach additional information as necessary.

Design Flow: 600 GPD | Anticipated Waste Type: Residential

Maximum Concentration BOD: 170 mg/L | TSS 60 mg/L | Oil & Grease 25 mg/L

3. Preliminary Site Information

A. Water Supply Wells

#	Description	Mn. ID#	Well Depth (ft.)	Casing Depth (ft.)	Confining Layer	STA Setback	Source
1							
2							
3							
4							

Additional Well Information:

ONSITE SEWAGE TREATMENT PROGRAM

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Site within 200' of noncommunity transient well (Y/N)	No	Yes, source:	
Site within a drinking water supply management area (Y/N)	No	Yes, source:	
Site in Well Head Protection inner wellhead management zone (Y/N)	No	Yes, source:	
Buried water supply pipes within 50 ft of proposed system (Y/N)	No		
B. Site located in a shoreland district/area?	No	Yes, name:	N/A
Elevation of ordinary high water level:	N/A ft	Source:	N/A
Classification: N/A	Tank Setback: N/A ft.	STA Setback: N/A ft.	
C. Site located in a floodplain?	No	Yes, Type(s):	N/A
Floodplain designation/elevation (10 Year):	N/A ft	Source:	N/A
Floodplain designation/elevation (100 Year):	N/A ft	Source:	N/A

D. Property Line Id / Source: ☑ Owner ☐ Survey ☐ County GIS ☐ Plat Map ☐ Other:

E. ID distance of relevant setbacks on map: ☐ Water ☐ Easements ☑ Well(s) ☑ Building(s) ☑ Property Lines ☐ OHWL ☐ Other:

4. Preliminary Soil Profile Information From Web Soil Survey (attach map & description)

Map Units: 169C Slope Range: 16 %

List landforms: hilly

Landform position(s): Back/ Side Slope

Parent materials: Till

Depth to Bedrock/Restrictive Feature: 30 in Depth to Watertable: 30 in

Map Unit Ratings

Septic Tank Absorption Field- At-grade:	
Septic Tank Absorption Field- Mound:	Not Limited
Septic Tank Absorption Field- Trench:	

5. Local Government Unit Information

Name of LGU: North Oaks

LGU Contact: Brian Humpal

LGU-specific setbacks:

LGU-specific design requirements:

LGU-specific installation requirements:

Notes:

ONSITE SEWAGE TREATMENT PROGRAM

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 03.15.2023

Property Owner/Client: Tom & Kim Romanko | Project ID:

Site Address: 6 Badger Lane, North Oaks | Date Completed: 8/29/2023

2. Utility and Structure Information

Utility Locations Identified ☑ Gopher State One Call # ☐ Any Private Utilities:

Locate and Verify (*see Site Evaluation map*) ☑ Existing Buildings ☐ Improvements ☐ Easements ☑ Setbacks

3. Site Information

Vegetation type(s): Grass | Landscape position: Back/ Side Slope

Percent slope: 16 % | Slope shape: Linear, Linear | Slope direction: east

Describe the flooding or run-on potential of site: none

Describe the need for Type III or Type IV system: none

Note:

Proposed soil treatment area protected? (Y/N): No | If yes, describe:

4. General Soils Information

Filled, Compacted, Disturbed areas (Y/N):

If yes, describe:

Soil observations were conducted in the proposed system location (Y/N): Yes

A soil observation in the most limiting area of the proposed system (Y/N): Yes

Number of soil observations: 4 | Soil observation logs attached (Y/N): Yes

Percolation tests performed & attached (Y/N): No

5. Phase I. Reporting Information

	Depth		Elevation		
Limiting Condition*:	30	in	**947.8**	ft	**Most Restrictive Depth Identified from List Below*
Periodically saturated soil:	30	in	947.8	ft	Soil Texture: Medium Loamy Sand
Standing water:	none	in		ft	Percolation Rate: min/inch
Bedrock:	none	in		ft	Soil Hyd Loading Rate: 0.78 gpd/sq.ft
Benchmark Elevation:	949.4	ft			Elevations and Benchmark on map? (Y/N): Yes

Benchmark Elevation Location: Basement slab

Differences between soil survey and field evaluation:

Site evaluation issues / comments:

Anticipated construction issues:

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

1. PROJECT INFORMATION

v 03.15.2023

Property Owner/Client:	Tom & Kim Romanko	Project ID:	
Site Address:	6 Badger Lane, North Oaks	Date:	08/29/23
Email Address:		Phone:	

2. DESIGN FLOW & WASTE STRENGTH

Attach waste strength data/estimated strength for Other Establishments

Design Flow: 600 GPD — Anticipated Waste Type: Residential

BOD: 170 mg/L TSS: 60 mg/L Oil & Grease: 25 mg/L

Treatment Level: C *Select Treatment Level C for residential septic tank effluent*

3. HOLDING TANK SIZING

Minimum Capacity: Residential =1000 gal or 400 gal/bedroom, Other Establishment = Design Flow x 5.0, Minimum size 1000 gallons

Code Minimum **Holding Tank** Capacity: ____ Gallons with ____ Tanks or Compartments

Recommended **Holding Tank** Capacity: ____ Gallons with ____ Tanks or Compartments

Type of High Level Alarm: ____ (Set @ 75% tank capacity)

Comments: ____

4. SEPTIC TANK SIZING

A. Residential dwellings:

Number of Bedrooms (Residential): 4

Code Minimum **Septic Tank** Capacity: 2500 Gallons with 2 Tanks or Compartments

Recommended **Septic Tank** Capacity: 2500 Gallons with 2 Tanks or Compartments

Effluent Screen & Alarm (Y/N): No Model/Type: ____

B. Other Establishments:

Waste received by: ____ ____ GPD x ____ Days Hyd. Retention Time

Code Minimum **Septic Tank** Capacity: ____ Gallons with ____ Tanks or Compartments

Recommended **Septic Tank** Capacity: ____ Gallons with ____ Tanks or Compartments

Effluent Screen & Alarm (Y/N): ____ Model/Type: ____

* Other Establishments Require Department of Labor and Industry Approval and Inspection for Building Sewer *

5. PUMP TANK SIZING

Soil Treatment Dosing Tank				Other Component Dosing Tank:			
Pump Tank Capacity (Minimum):	1000	Gal		Pump Tank Capacity (Minimum):		Gal	
Pump Tank Capacity (Recommended):	1000	Gal		Pump Tank Capacity (Recommended):		Gal	
Pump Req: 38.0 GPM	Total Head	12.8	ft	Pump Req:	GPM	Total Head	ft
Supply Pipe Dia. 2.00 in	Dose Vol:	149.0	gal	Supply Pipe Dia.	in	Dose Vol:	Gal

* Flow measurement device must be incorporated for any system with a pump; Elapsed Time Meter and/or Event Counter *

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

Minnesota Pollution Control Agency

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Mound	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	949.4 ft	Benchmark Location:	Basement slab
MPCA System Type:	Type I	Distribution Media:	Rock
Type III/IV/V Details:	none		

7. SITE EVALUATION SUMMARY:

Describe Limiting Condition: Redoximorphic Features/Saturated Soils

Layers with >35% Rock Fragments? (yes/no) No If yes, describe below: % rock and layer thickness, amount of soil credit and any additional information for addressing the rock fragments in this design.

Note:

	Depth		Depth		Elevation of Limiting Condition		
Limiting Condition:	30	inches	2.5	ft	947.80	ft	***Critical for system compliance***
Minimum Req'd Separation:	36	inches	3.0	ft			*Distribution Elevation >Code Max Depth*
					Elevation		
Code Max System Depth*:	Mound	inches	-0.5	ft	950.30	ft	**Elevation OK**

*This is the maximum depth to the bottom of the distribution media for required separation. Negative Depth (ft) requires a mound.

Designed Distribution Elevation: 951.3 ft Minimum Sand Depth: 12.0 inches

A. Soil Texture: Medium Loamy Sand B. Organic Loading Rate (optional): lbs/sq.ft/day 0

C. Soil Hyd. Loading Rate: 0.78 GPD/ft^2 D: Percolation Rate: MPI

E. Contour Loading Rate: Note:

F. Measured Land Slope: 16.0 % Note:

Comments:

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area		sq.ft	Sidewall Depth		in	Trench Width	ft
Total Lineal Feet		ft	No. of Trenches			Code Max. Trench Depth	in
Contour Loading Rate		ft	Minimum Length		ft	Designed Trench Depth	in

Bed:

Dispersal Area		sq.ft	Sidewall Depth		in	Maximum Bed Depth	in
Bed Width		ft	Bed Length		ft	Designed Bed Depth	in

Mound:

Dispersal Area	500.0	sq.ft	Bed Length	50.0	ft	Bed Width	10.0 ft
Absorption Width	15.0	ft	Clean Sand Lift	1.0	ft	Berm Width (0-1%)	ft
Upslope Berm Width	7.4	ft	Downslope Berm	27.5	ft	Endslope Berm Width	14.0 ft
Total System Length	78.1	ft	System Width	44.9	ft	Contour Loading Rate	12.0 gal/ft

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

Minnesota Pollution Control Agency

Project ID:

At-Grade:

Dispersal Area		sq.ft	Bed Length		ft	Bed Width		ft
Upslope Berm		ft	Downslope Berm		ft	Finished Height		ft
System Length		ft	Endslope Berm		ft	System Width		ft

Level & Equal Pressure Distribution Soil Treatment Area

No. of Laterals	3		Lateral Diameter	2.00	in	Lateral Spacing	3	ft
Perforation Spacing	3	ft	Perforation Diameter	1/4	in	Drainback Volume	7	gal
Min Dose Volume	98	gal	Max Dose Volume	150	gal	Total Dosing Volume	156	gal

Non-Level and Unequal Pressure Distribution Soil Treatment Area

	Elevation (ft)	Pipe Size (in)	Pipe Volume (gal/ft)	Pipe Length (ft)	Perf Size (in)	Spacing (ft)	Spacing (in)
Lateral 1							
Lateral 2							
Lateral 3							
Lateral 4							
Lateral 5							
Lateral 6							

Minimum Dose Volume ____ gal

Maximum Dose Volume ____ gal

Total Dosing Volume ____ gal

9. Organic Loading and Additional Info for At-Risk, HSW or Type IV Design

Organic Loading to Soil Treatment

A. Starting BOD Concentration = Design Flow X 0.7 X Starting BOD (mg/L) X 8.35 ÷ 1,000,000

____ gpd X ____ mg/L X 8.35 ÷ 1,000,000 = ____ lbs. BOD/day (Organic Loading Design)

B. Organic Loading to Soil Treatment Area: (enter loading value in 7B)

____ mg/L X ____ gpd X 0.7 X 8.35 ÷ 1,000,000 ÷ ____ sq.ft = ____ lbs./day/sqft

HSW Technology Strength Reduction

A. Starting BOD Concentration = Design Flow X Starting BOD (mg/L) X 8.35 ÷ 1,000,000

____ gpd X ____ mg/L X 8.35 ÷ 1,000,00(= ____ lbs. BOD/day (HSW Technology Design)

B. Target BOD Concentration = Design Flow X Target BOD (mg/L) X 8.35 ÷ 1,000,000

____ gpd X ____ mg/L X 8.35 ÷ 1,000,00(= ____ lbs. BOD/day (HSW Technology Design)

Lbs. BOD To Be Removed: ____ lbs. BOD/day (HSW Technology Design)

Pretreatment Technology: ____ *Must Meet or Exceed Target

Disinfection Technology: ____ *Required for Levels A & B

10. Comments/Special Design Considerations:

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

STEVEN B. SCHIRMERS	S E B. Sch	394	6-29-23
(Designer)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Mound Design Worksheet
≥1% Slope

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: v 03.15.2023

A. Design Flow:	600	GPD
B. Soil Loading Rate:	0.78	GPD/sqft
C. Depth to Limiting Condition	2.5	ft
D. Percent Land Slope:	16.0	%
E. Media (Sand) Loading Rate:	1.2	GPD/sqft
F. Mound Absorption Ratio:	1.50	

Table I
MOUND CONTOUR LOADING RATES:

Measured Perc Rate	OR	Texture - derived mound absorption ratio		Contour Loading Rate:
≤ 60mpi		1.0, 1.3, 2.0, 2.4, 2.6	→	≤12
61-120 mpi	OR	5.0	→	≤12
≥ 120 mpi*		>5.0*	→	≤6*

TABLE IXa

LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA AND ABSORPTION RATIOS USING PERCOLATION TESTS

Percolation Rate (MPI)	Treatment Level C: Absorption Area Loading Rate (gpd/ft²)	Treatment Level C: Mound Absorption Ratio	Treatment Level A, A-2, B,: Absorption Area Loading Rate (gpd/ft²)	Treatment Level A, A-2, B,: Mound Absorption Ratio
<0 1	-	1	-	1
0 1 to 5	1.2	1	1.6	1
0 1 to 5 (fine sand and loamy fine sand)	0.6	2	1	1.6
6 to 15	0.78	1.5	1	1.6
16 to 30	0.6	2	0.78	2
31 to 45	0.5	2.4	0.78	2
46 to 60	0.45	2.6	0.6	2.6
61 to 120	-	5	0.3	5.3
>120	-	-	-	-

*Systems with these values are not Type I systems. Contour Loading Rate (linear loading rate) is a recommended value.

2. DISPERSAL MEDIA SIZING

A. Hydraulic Absorption Required Bottom Area: Design Flow (1A) ÷ Design Media Loading Rate(1E)

600 GPD ÷ 1.2 GPD/sqft = 500 sq.ft

Organic Sizing (OPTIONAL)

B. Organic Absorption Bed Area = Organic Loading (Summary 9A) ÷ Organic Soil Loading Rate (Summary 7B)

lbs BOD ÷ lbs BOD/sq.ft = sq.ft

C. Required Bed Area = Greater of Hydraulic (1D) or Organic Bed Area (1E) 500 sq.ft

D. Designed Dispersal Media Area: 500 sq.ft *Optional upsizing of area to be larger than 2C*

B. Enter Dispersal Bed Width: 10.0 ft *Can not exceed 10 feet*

C. Calculate Contour Loading Rate: Bed Width(2B) X Design Media Loading Rate(1E)

10 ft X 1.2 GPD/sqft = 12.0 gal/ft *Can not exceed Table 1*

D. Calculate Minimum Dispersal Bed Length: Dispersal Bed Area(2A) ÷ Bed Width(2B)

500 sqft ÷ 10.0 ft = 50.0 ft

If a larger dispersal media Length is desired, enter size: ft

3. ABSORPTION AREA SIZING

A. Calculate Absorption Width: Bed Width(2B) X Mound Absorption Ratio(1F)

10.0 ft X 1.5 = 15.0 ft

B. For slopes >1%, the Absorption Width is measured downhill from the upslope edge of the Bed.

Calculate Downslope Absorption Width: Absorption Width(1F) - Bed Width(2B)

15.0 ft - 10.0 ft = 5.0 ft

4. DISTRIBUTION MEDIA:

Project ID:

Select Dispersal Media: Rock — Enter Either 4A or 4B

A. Rock Depth Below Distribution Pipe

9 in

B. Registered Media

Registered Media Depth in

Check registered product information for specific application details and design

Specific Media Comments:

5. MOUND SIZING

Project ID:

A. Clean Sand Lift: Required Separation - Depth to Limiting Condition = Clean Sand Lift (1 ft minimum)

3.0 ft - 2.5 ft = 1.0 ft Design Sand Lift (optional): ft

B. Upslope Height: Clean Sand Lift(6A) + Depth of Media(4AorB) +Depth to Cover Pipe+ Depth of Cover (1 ft)

1.0 ft + 0.75 ft + 0.33 ft + 1.0 ft = 3.1 ft

Land Slope %		0	1	2	3	4	5	6	7	8	9	10	11	12
Upslope Berm Ratio	3:1	3.00	2.91	2.83	2.75	2.68	2.61	2.54	2.48	2.42	2.36	2.31	2.26	2.21
	4:1	4.00	3.85	3.70	3.57	3.45	3.33	3.23	3.12	3.03	2.94	2.86	2.78	2.70

C. Select Upslope Berm Multiplier (based on land slope): 2.41

D. Calculate Upslope Berm Width: Multiplier (5C) X Upslope Mound Height (5B)

2.41 X 3.1 ft = 7.4 ft

E. Calculate Drop in Elevation Under Bed: Bed Width(2B) X Land Slope(1D) ÷ 100 = Drop (ft)

10.0 ft X 16.0 % ÷ 100 = 1.60 ft

F. Calculate Downslope Mound Height: Upslope Height(5B) + Drop in Elevation(5E)

3.1 ft + 1.60 ft = 4.7 ft

Land Slope %		0	1	2	3	4	5	6	7	8	9	10	11	12
Downslope Berm Ratio	3:1	3.00	3.09	3.19	3.30	3.41	3.53	3.66	3.80	3.95	4.11	4.29	4.48	4.69
	4:1	4.00	4.17	4.35	4.54	4.76	5.00	5.26	5.56	5.88	6.25	6.67	7.14	7.69

G. Select Downslope Berm Multiplier (based on land slope): 5.88

H. Calculate Downslope Berm Width: Downslope Multiplier(5G) X Downslope Height (5F)

5.88 x 4.7 ft = 27.5 ft

I. Calculate Minimum Berm to Cover Absorption Area: Downslope Absorption Width(3A) + 4 feet

5.0 ft + 4 ft = 9.0 ft

J. Design Downslope Berm = greater of 5H and 5I: 27.5 ft

K. Select Endslope Berm Multiplier: 3.00 *(usually 3.0 or 4.0)*

L. Calculate Endslope Berm Width = Endslope Berm Multiplier(5K) X Downslope Mound Height(5F)

3.00 X 4.7 ft = 14.0 ft

M. Calculate Mound Width: Upslope Berm Width(5D) + Bed Width(2B) + Downslope Berm Width(5J)

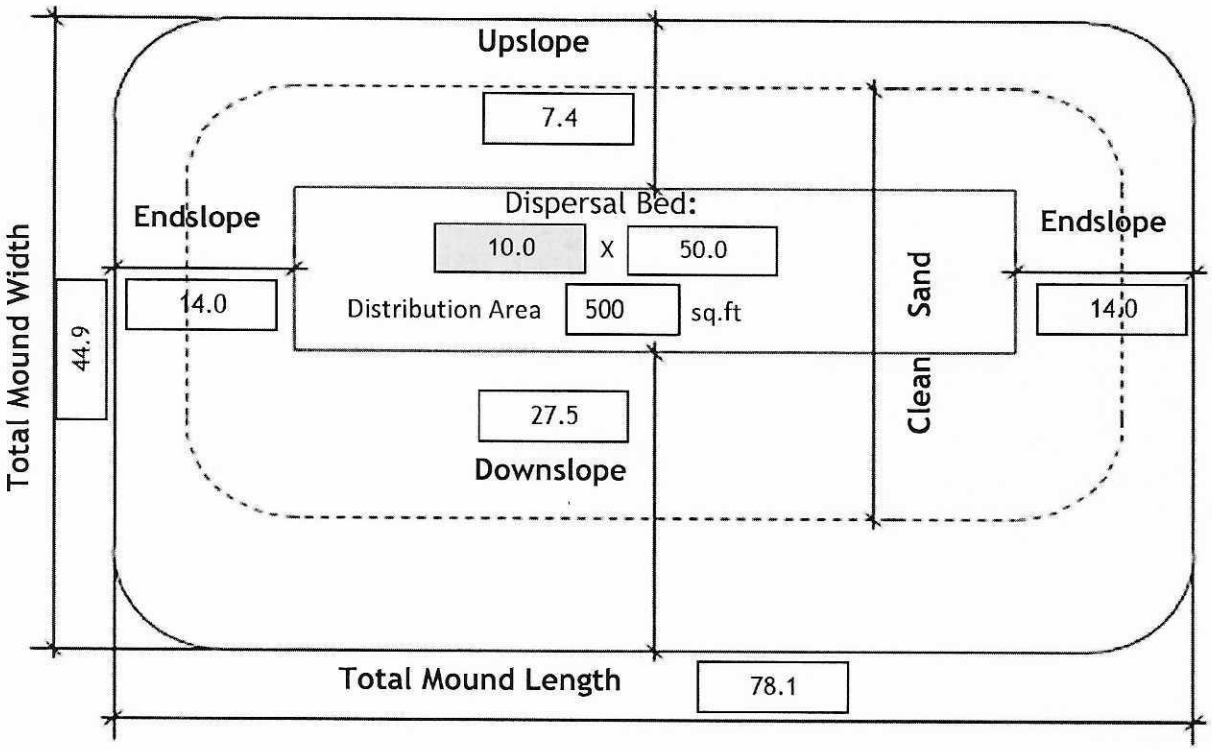
7.4 ft + 10.0 ft + 27.5 ft = 44.9 ft

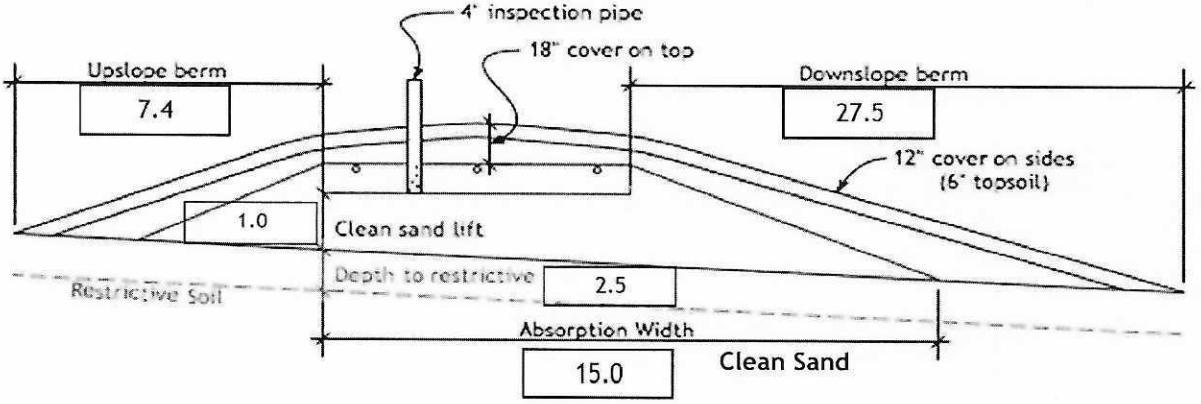
N. Calculate Mound Length: Endslope Berm Width (5L) + Bed Length(2D) + Endslope Berm Width(5L)

14.0 ft + 50.0 ft + 14.0 ft = 78.1 ft

6. MOUND DIMENSIONS (Feet)

Project ID:





			Elevation to Benchmark		
Required Separation:	36	(in)	Elevation Limiting Layer:	947.8	ft
Distribution Media:	Rock		Elevation required Separation:	950.8	ft
Media Depth:	9.0	(in)	Elevation Distribution Media Bottom:	951.3	ft
Manifold Connection:	End		Elevation Top of Media(min):	952.4	ft
Lateral Pipe Diameter:	2.00	(in)	Elevation Top of System(min):	953.4	ft
Perforation Size:	1/4	(in)	Perforation Spacing:	36.0	(in)

If Split and Non-Level Pressure Distribution Used: See Non-Level Pressure Distribution Form

Comments:

University of Minnesota Onsite Sewage Treatment Program

Mound Materials Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

v 03.15.2023

A. Rock *Volume*: (Rock Below Pipe + Rock to cover pipe (*pipe outside dia + ~2 inch*)) X *Bed Length* X *Bed Width* = *Volume*

(9 in + 0.3 in) ÷ 12 X 50.0 ft X 10.0 ft = 388.8 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 388.8 cu.ft ÷ 27 = 14.4 cu.yd

Add 30% for constructability: 14.4 cu.yd X 1.3 = 18.7 cu.yd

B. Calculate *Clean Sand Volume:*

Volume Under Rock bed: *Average Sand Depth* x *Media Width* x *Media Length* = cubic feet

1.8 ft X 10.0 ft X 50 ft = 900 cu.ft

For a Mound on a slope from 0-1%

Volume from Length = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Length)

ft - 1) X X ft =

Volume from Width = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Width)

ft - 1) X X ft =

Total Clean Sand Volume: *Volume from Length* + *Volume from Width* + *Volume Under Media*

cu.ft + cu.ft + cu.ft = cu.ft

For a Mound on a slope greater than 1%

Upslope Volume: ((*Upslope Mound Height - 1*) x 3 x *Bed Length*) ÷ 2 = cubic feet

((3.1 ft - 1) X 3.0 ft X 50.0) ÷ 2 = 156.0 cu.ft

Downslope Volume: ((*Downslope Height - 1)* x Downslope Absorption Width x *Media Length*) ÷ 2 = cubic feet

((4.7 ft - 1) X 5.0 ft X 50.0) ÷ 2 = 460.0 cu.ft

Endslope Volume: (*Downslope Mound Height - 1)* x 3 x *Media Width* = cubic feet

(4.7 ft - 1) X 3.0 ft X 10.0 ft = 110.4 cu.ft

Total Clean Sand Volume: *Upslope Volume* + *Downslope Volume* + *Endslope Volume* + *Volume Under Media*

156.0 cu.ft + 460.0 cu.ft + 110.4 cu.ft + 900.0 cu.ft = 1626.4 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1626.4 cu.ft ÷ 27 = 60.2 cu.yd

Add 30% for constructability: 60.2 cu.yd X 1.3 = 78.3 cu.yd

C. Calculate *Sandy Berm Volume:*

Total Berm Volume (approx.): ((Avg. Mound Height - 0.5 ft topsoil) x Mound Width x Mound Length) ÷ 2

(3.9 - 0.5)ft X 44.9 ft X 78.1) ÷ 2 = 5930.2 cu.ft

Total Mound Volume - Clean Sand volume -Rock Volume = cubic feet

5930.2 cu.ft - 1626.4 cu.ft - 388.8 cu.ft = 3915.1 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 3915.1 cu.ft ÷ 27 = 145.0 cu.yd

Add 30% for constructability: 145.0 yd^3 x 1.3 = 188.5 cu.yd

D. Calculate *Topsoil Material Volume: Total Mound Width X Total Mound Length X .5 ft*

44.9 ft X 78.1 ft X 0.5 ft = 1754.5 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1754.5 cu.ft ÷ 27 = 65.0 cu.yd

Add 30% for constructability: 65.0 cu.yd X 1.3 = 84.5 cu.yd

ONSITE SEWAGE TREATMENT PROGRAM

Mound Materials Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

v 03.15.2023

A. Rock *Volume* : (Rock Below Pipe + Rock to cover pipe (*pipe outside dia + ~2 inch)*) X *Bed Length* X *Bed Width* = *Volume*

(9 in + 0.3 in) ÷ 12 X 50.0 ft X 10.0 ft = 388.8 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 388.8 cu.ft ÷ 27 = 14.4 cu.yd

Add 30% for constructability: 14.4 cu.yd X 1.3 = 18.7 cu.yd

B. Calculate *Clean Sand Volume:*

Volume Under Rock bed : *Average Sand Depth* x *Media Width* x *Media Length* = cubic feet

1.8 ft X 10.0 ft X 50 ft = 900 cu.ft

For a Mound on a slope from 0-1%

Volume from Length = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Length)

ft - 1) X X ft =

Volume from Width = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Width)

ft - 1) X X ft =

Total Clean Sand Volume : *Volume from Length* + *Volume from Width* + *Volume Under Media*

cu.ft + cu.ft + cu.ft = cu.ft

For a Mound on a slope greater than 1%

Upslope Volume : ((*Upslope Mound Height - 1*) x 3 x *Bed Length*) ÷ 2 = cubic feet

((3.1 ft - 1) X 3.0 ft X 50.0) ÷ 2 = 156.0 cu.ft

Downslope Volume : ((*Downslope Height - 1)* x Downslope Absorption Width x *Media Length*) ÷ 2 = cubic feet

((4.7 ft - 1) X 5.0 ft X 50.0) ÷ 2 = 460.0 cu.ft

Endslope Volume : (*Downslope Mound Height - 1)* x 3 x *Media Width* = cubic feet

(4.7 ft - 1) X 3.0 ft X 10.0 ft = 110.4 cu.ft

Total Clean Sand Volume : *Upslope Volume* + *Downslope Volume* + *Endslope Volume* + *Volume Under Media*

156.0 cu.ft + 460.0 cu.ft + 110.4 cu.ft + 900.0 cu.ft = 1626.4 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1626.4 cu.ft ÷ 27 = 60.2 cu.yd

Add 30% for constructability: 60.2 cu.yd X 1.3 = 78.3 cu.yd

C. Calculate *Sandy Berm Volume:*

Total Berm Volume (approx.) : ((Avg. Mound Height - 0.5 ft topsoil) x Mound Width x Mound Length) ÷ 2

(3.9 - 0.5)ft X 44.9 ft X 87.4) ÷ 2 = 6641.1 cu.ft

Total Mound Volume - Clean Sand volume -Rock Volume = cubic feet

6641.1 cu.ft - 1626.4 cu.ft - 388.8 cu.ft = 4626.0 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 4626.0 cu.ft ÷ 27 = 171.3 cu.yd

Add 30% for constructability: 171.3 yd^3 x 1.3 = 222.7 cu.yd

D. Calculate *Topsoil Material Volume: Total Mound Width X Total Mound Length X .5 ft*

44.9 ft X 87.4 ft X 0.5 ft = 1964.8 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1964.8 cu.ft ÷ 27 = 72.8 cu.yd

Add 30% for constructability: 72.8 cu.yd X 1.3 = 94.6 cu.yd

ONSITE SEWAGE TREATMENT PROGRAM

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 03.15.2023

1. Media Bed Width: 10 ft

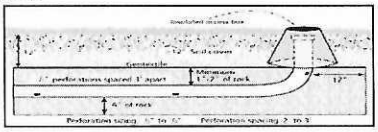
2. Minimum Number of Laterals in system/zone = Rounded up number of [(Media Bed Width - 4) ÷ 3] + 1.

[(10 - 4) ÷ 3] + 1 = 3 laterals *Does not apply to at-grades*

3. Designer Selected *Number of Laterals*: 3 laterals
Cannot be less than line 2 (Except in at-grades)

4. Select *Perforation Spacing*: 3.00 ft

5. Select *Perforation Diameter Size:* 1/4 in



6. *Length of Laterals* = Media Bed Length(1.) - 2 Feet.

50.0 - 2ft = 48.0 ft *Perforation can not be closer then 1 foot from edge.*

7. Determine the *Number of Perforation Spaces*. Divide the *Length of Laterals(6.)* by the *Perforation Spacing* (4.) and round down to the nearest whole number.

Number of Perforation Spaces = 48.0 ft ÷ 3.0 ft = 16 Spaces

8. *Number of Perforations per Lateral* is equal to 1.0 plus the *Number of Perforation Spaces(7.)*. Check table below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

Perforations Per Lateral = 16 Spaces + 1 = 17 Perfs. Per Lateral

Maximum Number of Perforations Per Lateral to Guarantee <10% Discharge Variation

1/4 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	10	13	18	30	60
2½	8	12	16	28	54
3	8	12	16	25	52

7/32 Inch Perforations

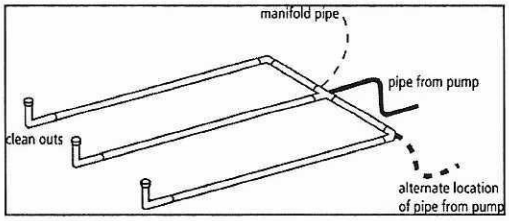
Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	11	16	21	34	68
2½	10	14	20	32	64
3	9	14	19	30	60

3/16 Inch Perforations

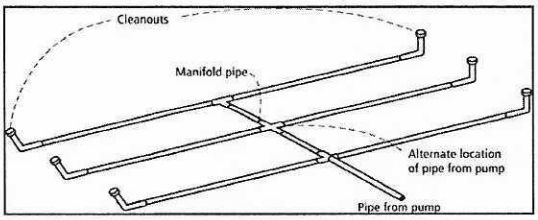
Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	12	18	26	46	87
2½	12	17	24	40	80
3	12	16	22	37	75

1/8 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	21	33	44	74	149
2½	20	30	41	69	135
3	20	29	38	64	128



END Connection



CENTER Connection

Perf Per Lateral: 17

Perf Per Lateral Equal Split: 9 | 8

OPTIONAL Perf Per Lateral Non-Equal Split*: ____ | ____

* must not exceed maximum number perfs per lateral in table

9. *Total Number of Perforations* equals the *Number of Perforations per Lateral (8.)* multiplied by the *Number of Perforated Laterals.(3.)*

17 Perf. Per Lat. X 3 Number of Perf. Lat. = 51 Total Number of Perf.

10. Spacing of laterals; Must be greater than 1 foot and no more than 3 feet: 3.0 ft

11. Select *Type of Manifold Connection* (End or Center): End

12. *Select Lateral Diameter (See Table)*: 2.00 in

If Center Manifold Connection the max number of perfs per lateral in the table can be doubled.

ONSITE SEWAGE TREATMENT PROGRAM

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

13. Calculate the *Square Feet per Perforation.*

Recommended value is 4-11 ft2 per perforation, Does not apply to At-Grades

a. *Bed Area* = Bed Width (ft) X Bed Length (ft)

10	ft X	50	ft =	500	sq.ft

b. *Square Foot per Perforation = Bed Area* ÷ by the *Total Number of Perfs*

500	sqft ÷	51	perf =	9.8	sq.ft/perf

14. Select *Minimum Average Head*: 1.0 ft

15. Select *Perforation Discharge* based on Table: 0.74 GPM per Perf

16. *Flow Rate = Total Number of Perfs(9.) X Perforation Discharge(15.)*

51	Perfs X	0.74	GPM per Perforation =	38	GPM

17. *Volume of Liquid Per Foot of Distribution Piping (Table II)*: 0.170 Gallons/ft

18. *Volume of Distribution Piping = Number of Perforated Laterals(3.) X Length of Laterals(6.) X Volume of Liquid Per Foot of Distribution Piping (17.)*

3	X	48	ft X	0.170	gal/ft	= 24.5	Gallons

19. Minimum Delivered Volume = Volume of Distribution Piping X 4

24.5	gals X	4	=	97.9 Gallons

20. Maximum Delivered Volume = Design flow x 25%

600.0	gpd X	25%	=	150.0 Gallons

21. Minimum Delivered vs Maximum Delivered evaluation: Volume ratio correct

Perforation Discharge (GPM)				
Head (ft)	Perforation Diameter			
	1/8	3/16	7/32	1/4
1.0[a]	0.18	0.41	0.56	0.74
1.5	0.22	0.51	0.69	0.9
2.0[b]	0.26	0.59	0.80	1.04
2.5	0.29	0.65	0.89	1.17
3.0	0.32	0.72	0.98	1.28
4.0	0.37	0.83	1.13	1.47
5.0[c]	0.41	0.93	1.26	1.65

1 foot	Dwellings with 3/16 inch to 1/4 inch perforations
2 feet	Dwellings with 1/8 inch perforations
	Other establishments and MSTS with 3/16 inch to 1/4 inch perforations
5 feet	Other establishments and MSTS with 1/8 inch perforations

Table II
Volume of Liquid in Pipe

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

Comments/Special Design Considerations:

Basic STA Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY

Project ID:

v 03.15.2023

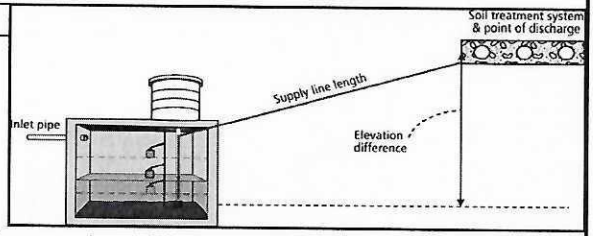
Pumping to Gravity or Pressure Distribution: Pressure

A. If pumping to gravity enter the gallon per minute of the pump: ____ GPM *(10 - 45 gpm)*

B. If pumping to a pressurized distribution system: 38.0 GPM

C. Enter pump description: Demand Dosing

2. HEAD REQUIREMENTS



A. Elevation Difference between pump and point of discharge: 10 ft

B. Distribution Head Loss: 5 ft

C. Additional Head Loss*: ____ ft (due to special equipment, etc.)

* Common additional head loss: gate valve = 1 ft each, globe valve = 1.5 ft each, splitter valve = see manufacturers details

Distribution Head Loss	
Gravity Distribution = 0ft	
Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet:	
Minimum Average Head	**Distribution Head Loss**
1ft	5ft
2ft	6ft
5ft	10ft

Table I. Friction Loss in Plastic Pipe per 100ft

Flow Rate (GPM)	Pipe Diameter (inches)			
	1	1.25	1.5	2
10	9.1	3.1	1.3	0.3
12	12.8	4.3	1.8	0.4
14	17.0	5.7	2.4	0.6
16	21.8	7.3	3.0	0.7
18		9.1	3.8	0.9
20		11.1	4.6	1.1
25		16.8	6.9	1.7
30		23.5	9.7	2.4
35			12.9	3.2
40			16.5	4.1
45			20.5	5.0
50				6.1
55				7.3
60				8.6
65				10.0
70				11.4
75				13.0
85				16.4
95				20.1

D. 1. Supply Pipe Diameter: 2.0 in

2. Supply Pipe Length: 40 ft

E. **Friction Loss in Plastic Pipe per 100ft** from Table I:

Friction Loss = 3.67 ft per 100ft of pipe

F. Determine *Equivalent Pipe Length* from pump discharge to soil dispersal area discharge point. Estimate by adding 25% to supply pipe length for fitting loss.
Supply Pipe Length X 1.25 = *Equivalent Pipe Length*

40 ft X 1.25 = 50.0 ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft(E.)* by the *Equivalent Pipe Length(F.)* and divide by 100.

Supply Friction Loss =

3.67 ft per 100ft X 50.0 ft ÷ 100 = 1.8 ft

H. *Total Head* requirement is the sum of the *Elevation Difference(2A)* + Distribution Head Loss(2B) + Additional Head Loss(2C) + Supply Friction Loss(2G)

10.0 ft + 5.0 ft + ____ ft + 1.8 ft = 16.8 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **38.0** GPM with at least **16.8** feet of total head.

Comments:

STA Dosing Pump Tank Design Worksheet (Demand Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS Project ID: v 03.15.2023

1. A. *Design Flow (Design Sum. 1A)*: 600 GPD C. Tank Use: Dosing
   B. Min. required pump tank capacity: 1000 Gal D. Recommended pump tank capacity: 1000 Gal

2. A. Tank Manufacturer: B. Tank Model:
   C. Capacity from manufacturer: 1000 Gallons
   D. Gallons per inch from manufacturer: 24.0 Gallons per inch
   E. Liquid depth of tank from manufacturer: 42.0 inches

Note: Design calculations are based on this specific tank. Substituting a different tank model will change the pump float or timer settings. Contact designer if changes are necessary.

DETERMINE DOSING VOLUME

3. Calculate *Volume to Cover Pump* (The inlet of the pump must be at least 4-inches from the bottom of the pump tank & 2 inches of water covering the pump is recommended)

   (Pump and block height + 2 inches) X *Gallons Per Inch* (2D)

   (10 in + 2 inches) X 24.0 Gallons Per Inch = 288 Gallons

4. ***Minimum*** *Delivered Volume* = 4 X Volume of Distribution Piping:

   -Item 19 of the Pressure Distribution STA or Item 11 of Non-level STA 98 **Gallons (Minimum dose)** 4.1 inches/dose

5. Calculate ***Maximum*** *Pumpout Volume* (25% of Design Flow(1A))

   Design Flow: 600 GPD X 0.25 = 150 **Gallons (Maximum dose)** 6.3 inches/dose

6. *Select a pumpout volume that meets both Minimum and Maximum:* 149 Gallons

7. Calculate *Doses Per Day* = Design Flow(1A) ÷ *Delivered Volume(6.)*

   600 gpd ÷ 149 gal = 4.03 *Doses**

   * Doses need to be equal to or greater than 4

8. Calculate Drainback:

   A. *Diameter of Supply Pipe* = 2 inches

   B. Length of Supply Pipe = 40 feet

   C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.170 Gallons/ft

   D. *Drainback = Length of Supply Pipe(8B) X Volume of Liquid Per Lineal Foot of Pipe(8C)*

   40 ft X 0.170 gal/ft = 6.8 Gallons

9. *Total Dosing Volume = Delivered Volume(6.) + Drainback* (8D)

   149 gal + 6.8 gal = 156 Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank(2D)

    2 in X 24.0 gal/in = 48.0 Gallons

11. Reserve Capacity Volume = [Tank Liquid Depth(2E) - Alarm Float Depth(10.)] x gallons per inch of tank(2D)

    [42.0 in - 20.5 in] X 24.0 gal/in = 516.2 Gallons

Volume of Liquid in Pipe	
Pipe Diameter (inches)	**Liquid Per Foot (Gallons)**
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

DEMAND DOSE FLOAT SETTINGS **Alarm and Pump are to be wired on separate circuits and inspected by the electrical inspector**

12. Calculate *Float Separation Distance* using *Dosing Volume*.

    Total Dosing Volume(9.) ÷ Gallons Per Inch(2D)

    156 gal ÷ 24.0 gal/in = 6.5 inches

13. Measuring from bottom of tank:

    A. *Distance to set Pump Off Float* = Pump + block height + 2 inches

    10 in + 2 in = 12 inches

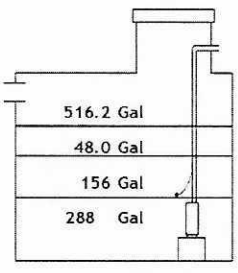
    B. *Distance to set Pump On Float=Distance to Set Pump-Off Float(13A) + Float Separation Distance(12.)*

    12 in + 6.5 in = 18 inches

    C. *Distance to set Alarm Float = Distance to set Pump-On Float(13B) + Alarm Depth* (2-3 inches)(10.)

    18 in + 2.0 in = 20 inches

Inches for Dose: 6.5 in
Alarm Depth 20.5 in
Pump On 18.5 in
Pump Off 12.0 in



Tank Buoyancy

www.SepticResource.com (vers 12.6)

Property Owner: Tom & Kim Romanko **Date:** 8/29/2023

Site Address: 6 Badger Lane, North Oaks **PID:**

Comments:

1250 gallon tank

instructions: [ ] = req'd input [ ] = self-calculated (DO NOT ADJUST)

1) Enter the empty weight of the tank.

9500 lbs

2) Enter the external dimensions of the tank.

Length	128	inches	if Round Tank enter here:		
Width	86	inches	Diameter	0	inches
Height	61	inches	Height	0	inches

3) Enter the number of risers on the tank, and the riser diameter.

# of risers	2	
riser diameter	24	inches (typically 24")

4) Enter the soil density. (Use 100 lbs/ft^3 for a conservative calculation.)

soil density 100 lbs/ft^3

70 lbs/ft^3 dry clay (rarely found)
100 lbs/ft^3 dry sand
115 lbs/ft^3 wet clay
120 lbs/ft^3 wet sand

Based on the information given, the following minimum soil cover amounts are required to avoid tank floatation.

Soil saturated up to the lid (top) of the tank	Soil saturated to grade or higher (flood conditions)
2.1 ft. of cover is req'd	**5.6** ft. of cover is req'd

For saturation levels between the tank lid and grade, interpolate as necessary between the two given amounts.

Calculations are deemed reliable for estimation purposes only.

Designer Signature	Company	License#	Date
	S-T TESTING INC.	394	8/29/2023

Tank Buoyancy

www.SepticResource.com (vers 12.6)

Property Owner: Tom & Kim Romanko **Date:** 8/29/2023

Site Address: 6 Badger Lane, North Oaks **PID:**

Comments:

instructions: [ ] = req'd input [ ] = self-calculated (DO NOT ADJUST)

1) Enter the empty weight of the tank.

8000 lbs

2) Enter the external dimensions of the tank.

Length	102	inches	if Round Tank enter here:		
Width	78	inches	Diameter	0	inches
Height	58	inches	Height	0	inches

3) Enter the number of risers on the tank, and the riser diameter.

# of risers	1	
riser diameter	24	inches (typically 24")

4) Enter the soil density. (Use 100 lbs/ft^3 for a conservative calculation.)

soil density 100 lbs/ft^3

70 lbs/ft^3 dry clay (rarely found)
100 lbs/ft^3 dry sand
115 lbs/ft^3 wet clay
120 lbs/ft^3 wet sand

Based on the information given, the following minimum soil cover amounts are required to avoid tank floatation.

Soil saturated up to the lid (top) of the tank	Soil saturated to grade or higher (flood conditions)
1.7 ft. of cover is req'd	**4.4** ft. of cover is req'd

For saturation levels between the tank lid and grade, interpolate as necessary between the two given amounts.

Calculations are deemed reliable for estimation purposes only.

Designer Signature	Company	License#	Date
	S-P TESTING INC	394	8/29/2023

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Tom Romanko	Location / Address:	6 Badger Lane, North Oaks

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill

Landscape Position:	Back/Side Slope	Slope %:	16.0	Slope shape:	Linear, Linear	Flooding/Run-On potential:	No
Vegetation:	Grass	Soil survey map units:	169D			Surface Elevation-Relative to benchmark:	944.5 ~~95.1~~
Date/Time of Day/Weather Conditions:		8/28/2023 12:00				Limiting Layer Elevation:	941.7
Observation #/Location:	1					Observation Type:	Pit

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)		Mottle Color(s)		Redox Kind(s)	Indicator(s)	Structure Shape	Structure Grade	Structure Consistence
0 - 6	Medium Sandy Loam		10YR	3/3					Granular	Weak	Friable
6 - 34	Medium Sandy Loam		10YR	4/3					Granular	Weak	Friable
34 - 46	Medium Sandy Loam		10YR	5/3	10YR	6/8	Concentrations	S1	Granular	Weak	Friable
46 - 60	Loam		7.5YR	5/4	10YR	6/8	Concentrations	S4	Prismatic	Weak	Friable

Comments: A PIT WAS DUG 18" DEEP

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Steven Schirmers	Steven B. Schirmers	394	9-11-23
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Tom Romanko	Location / Address:	6 Badger Lane, North Oaks

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill

Landscape Position:	Back/Side Slope	Slope %:	16.0	Slope shape:	Linear, Linear	Flooding/Run-On potential:	No
Vegetation:	Grass	Soil survey map units:	169D			Surface Elevation-Relative to benchmark:	943.4 ~~94.0~~
Date/Time of Day/Weather Conditions:		8/28/2023 0:00	12:00			Limiting Layer Elevation:	939.4
Observation #/Location:	2					Observation Type:	Pit

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)		Mottle Color(s)		Redox Kind(s)	Indicator(s)	Structure Shape	Structure Grade	Structure Consistence
0 - 8	Medium Sandy Loam		10YR	3/3					Granular	Weak	Friable
8 - 30	Medium Sandy Loam		10YR	5/3					Granular	Weak	Friable
30 - 36	Sandy Clay Loam		10YR	5/4					Prismatic	Moderate	Firm
36 - 48	Medium Sandy Loam		10YR	5/4					Granular	Weak	Friable
48 - 60	Medium Sandy Loam		10YR	5/4	10YR	6/8	Concentrations	S1	Granular	Weak	Friable

Comments: A PIT WAS DUG 18" DEEP

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Steven Schirmers	Steven B. Schirmers	394	9-11-23
(Designer/Inspector)	(Signature)	(License #)	(Date)

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(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Tom Romanko	Location / Address:	6 Badger Lane, North Oaks

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill

Landscape Position:	Back/Side Slope	Slope %:	16.0	Slope shape:	Linear, Linear
Flooding/Run-On potential:	No				
Vegetation:	Grass	Soil survey map units:	169D	Surface Elevation-Relative to benchmark:	948.2 ~~99.3~~
Date/Time of Day/Weather Conditions:	8/28/2023	12:00		Limiting Layer Elevation:	946.2
Observation #/Location:	3			Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0 - 6	Medium Sandy Loam		10YR 4/3				Granular	Weak	Friable
6 - 18	Medium Sandy Loam		10YR 3/3				Granular	Weak	Friable
18 - 30	Medium Sandy Loam		10YR 5/3				Granular	Weak	Friable
30 - 42	Medium Sandy Loam		10YR 5/4	10YR 6/8	Concentrations	S1	Granular	Weak	Friable
42 - 48	Clay Loam		10YR 5/4	10YR 6/8 10YR 7/1	Concentrations Depletions	S1	Prismatic	Moderate	Firm

Comments:

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Steven Schirmers	Steven B. Schirmers	394	9-11-23
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 03.15.2023

Client:	Tom Romanko			Location / Address:	6 Badger Lane, North Oaks
Soil parent material(s): (Check all that apply)	☐ Outwash	☐ Lacustrine	☐ Loess	☑ Till	☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill
Landscape Position:	Back/Side Slope	Slope %: 16.0	Slope shape:	Linear, Linear	Flooding/Run-On potential: No
Vegetation:	Grass	Soil survey map units:	169D		Surface Elevation-Relative to benchmark: 950.3 ~~100.9~~
Date/Time of Day/Weather Conditions:	8/28/2023	12:00			Limiting Layer Elevation: 949.6
Observation #/Location:	4			Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)		Mottle Color(s)		Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0 - 6	Medium Sandy Loam		10R	3/3					Granular	Weak	Friable
6 - 28	Medium Sandy Loam		10YR	5/3					Granular	Weak	Friable
28 - 32	Sandy Clay Loam		10YR	5/6					Prismatic	Moderate	Firm
32 - 42	sancy clay loam		10YR	5/6	10YR	6/8	Concentrations	S1	Prismatic	Moderate	Firm

Comments:

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Steven Schirmers	Steven B. Schirmers	394	9-11-23
(Designer/Inspector)	(Signature)	(License #)	(Date)

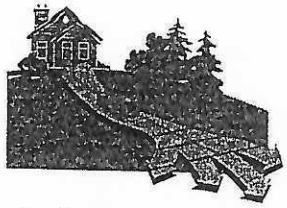
Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

ROMANKO

UNIVERSITY OF MINNESOTA

Septic System Best Management Practices



Septic systems protect human health and the environment by safely recycling wastewater and returning it to the natural environment. It is your job as the homeowner to be sure this happens effectively and safely. As with your car, regular maintenance and attention is needed to keep it operating efficiently in a cost effective manner.

Septic Tank

Functions:

- Separates into three layers: scum (stuff that floats), sludge (stuff that sinks), and the liquid.
- The solids and scum are held until removed by the maintainer. Anaerobic bacteria work to break down wastes, prepare the liquid for the drainfield.
- The liquid is delivered to the soil treatment area to complete the treatment process.
- If solids are not removed, they can end up in the soil treatment area, causing (often irreparable) damage.
- Factors that increase frequency of pumping: use of garbage disposal, water treatment unit that discharges into the septic system, in-home daycare or other reason a large number of people are present most of the time, laundry on the 2nd floor, excessive use of water and strong cleaning products.

Best management practices:

- Tanks need to be evaluated every two to three years and pumped if necessary. Some counties require pumping on a specified basis. New homes—pump within 3—12 months of occupancy the first time.
- Never allow a tank to be cleaned through the inspection pipe. This is not allowed by code, and it does not allow a good cleaning to occur. Scum can plug the baffle, baffles can be knocked off. Tanks should only be cleaned through the manhole or maintenance hole.
- Be sure baffles, effluent screen, pumps and other components are inspected when the tank is pumped.
- Install risers on the manhole covers to allow easier access. Insulate the cover and secure tightly.
- An effluent screen will prevent most solids from reaching the soil treatment area. Install and clean according to manufacturer recommendations.
- Never use additives. The cleaners are harmful to your system. They do not replace good management practices. Starters and feeders are not effective.
- **Warning:** NEVER go into a septic tank—there are dangerous gases and no oxygen!
- Do not ignore alarms—troubleshoot the problem.

Soil Treatment Area: Trench or Mound

Functions:

- Soil organisms destroy pathogens (bacteria, viruses).
- Remove phosphorus, reduce nitrogen content.
- Recycle clean water into the soil and ground water. Water and nutrients enter the ground water, evaporate through plants, and are used by plants.

Best management practices:

- Maintain vegetative cover (turf grass, native grasses, flowers). Mow, but do not fertilize, burn or over-water.
- Keep all vehicles, bikes, snowmobiles, etc. off.
- Do not plant trees or shrubs near drainfield.
- Inspect for cracked, missing inspection pipe covers.
- Follow practices to prevent freezing, including mulching the entire system if needed.

Household Best Management Practices

Manage water use:

- Repair all leaking faucets, toilets, fixtures.
- Change to low flow toilets, shower heads.
- Replace appliances with low water use models.
- Spread water uses evenly throughout the day and week..
- Re-route clean water sources: water softener, treatment unit recharge water, high efficiency furnace drip, sump pumps to separate drainage area.

Watch what goes down the drain:

- The toilet is not a garbage can—nothing should be flushed except human waste and toilet paper.
- Excess medications—return to pharmacy or land-fill.
- Limit or eliminate drain cleaner use.
- Do not use automatic toilet cleaners, disposable brushes.
- Do not use every-use or automatic shower cleaners.
- No hazardous waste, paints, solvents, chemicals. Use disposable paint brushes.
- Eliminate or limit use of garbage disposal.
- No chlorine treated water such as from hot tubs.

Manage product use:

- Minimize use of anti-bacterial soaps, cleansers.
- Detergents: measure accurately, use as little as possible.
- Limit use of bleach-based cleansers.

Septage—the solids from the tank are usually land-applied. Lime is added in the truck to destroy pathogens and help control odors. Septic pumpers must follow strict guidelines to protect public safety and water quality. Septage disposal is managed by the MN Pollution Control Agency (MPCA) and the Environmental Protection Agency (EPA).

For more information: Order the Septic System Owner's Guide. Call 800-876-8636 or go to http://shop.extension.umn.edu. Onsite Sewage Treatment Program web site: http://septic.umn.edu. University of Minnesota Extension http://www.extension.umn.edu.

Written by Valerie Prax, Regional Extension Educator, 6/07

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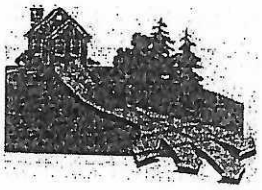


Septic System Management Plan for Below Grade Systems

The goal of a septic system is to protect human health and the environment by properly treating wastewater before returning it to the environment. Your septic system is designed to kill harmful organisms and remove pollutants before the water is recycled back into our lakes, streams and groundwater.

This **management plan** will identify the operation and maintenance activities necessary to ensure long-term performance of your septic system. Some of these activities must be performed by you, the homeowner. Other tasks must be performed by a licensed septic maintainer or service provider. However, it is YOUR responsibility to make sure all tasks get accomplished in a timely manner.

The University of Minnesota's *Septic System Owner's Guide* contains additional tips and recommendations designed to extend the effective life of your system and save you money over time.

Proper septic system design, installation, operation and maintenance means safe and clean water!

Property Owner JOAKIM ROMANKO

Property Address #6 BADGER LA., NO. OAKS Property ID

System Designer S-TESTING INC. Phone 763-497-3566

System Installer Phone

Service Provider/Maintainer Phone

Permitting Authority CITY OF NO. OAKS Phone 651-484-5111

Permit # Date Inspected

Keep this Management Plan with your Septic System Owner's Guide. The Septic System Owner's Guide includes a folder to hold maintenance records including pumping, inspection and evaluation reports. Ask your septic professional to also:

- Attach permit information, designer drawings and as-builts of your system, if they are available.
- Keep copies of all pumping records and other maintenance and repair invoices with this document.
- Review this document with your maintenance professional at each visit; discuss any changes in product use, activities, or water-use appliances.

For a copy of the *Septic System Owner's Guide*, call 1-800-876-8636 or go to http://shop.extension.umn.edu/

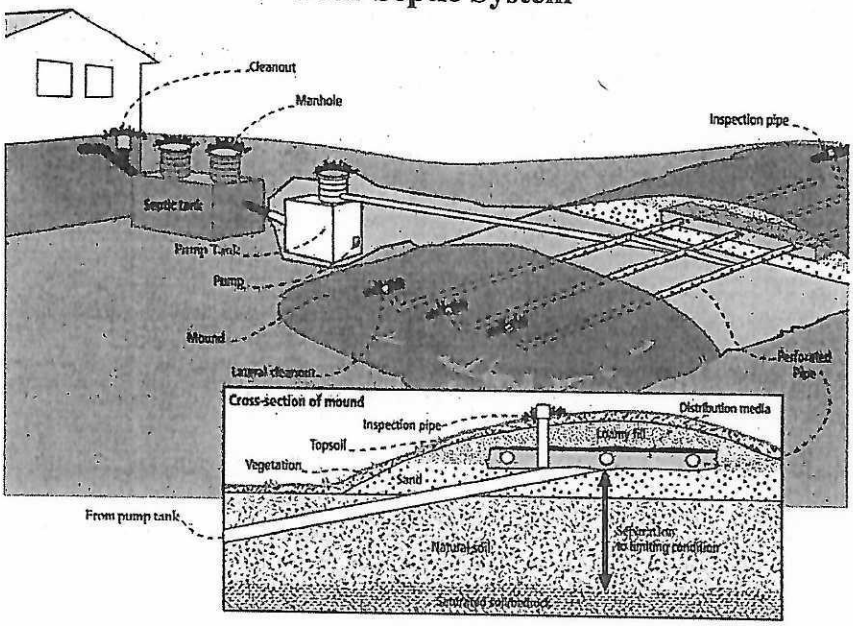
http://septic.umn.edu

Version 6/10/2010

UNIVERSITY OF MINNESOTA

Septic System Management Plan for Above Grade Systems

Your Septic System



Septic System Specifics

System Type: (●) I ( ) II ( ) III ( ) IV* ( ) V*

(Based on MN Rules Chapter 7080.2200 – 2400)

☐ System is subject to operating permit*

☐ System uses UV disinfection unit*

Type of advanced treatment unit _____

**Additional Management Plan required*

Dwelling Type

Number of bedrooms: 4

System capacity/ design flow (gpd): 600

Anticipated average daily flow (gpd): 425

Comments _____

Business? ____ What type? _____

Well Construction

Well depth (ft): _____

☐ Cased well Casing depth: _____

☐ Other (specify): _____

Distance from septic (ft): _____

Is the well on the design drawing? ( ) Y ( ) N

Septic Tank

☐ One tank *Tank volume:* _____ *gallons*

Does tank have two compartments? ( ) Y ( ) N

☑ Two tanks *Tank volume:* 1250 *gallons*

☐ Tank is constructed of CONCRETE

☐ Effluent Screen *type:* —

☑ Pump Tank 1000 gallons

☐ Effluent Pump *make/model:* 113HS

Pump capacity 36 GPM

TDH 13 Feet of head

☐ Alarm location _____

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 45 ft x 76 ft

Rock bed size (width x length): 10 ft x 50 ft

Location of additional STA: —

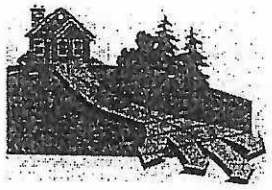
☑ Cleanouts or inspection ports

☑ Surface water diversions

☐ Additional STA not available

UNIVERSITY OF MINNESOTA

Septic System Management Plan for Below Grade Systems



Homeowner Management Tasks

These o*peration and maintenance a*ctivities are your responsibility. *Use the chart on page 6 to track your activities.*

Identify the service intervals recommended by your system designer and your local government. The tank assessment for your system will be the **shortest interval of these three intervals.** Your pumper/maintainer will determine if your tank needs to be pumped.

System Designer: check every 24 months
Local Government: check every _____ months
State Requirement: check every 36 months

My tank needs to be checked every 24 months

Seasonally or several times per year

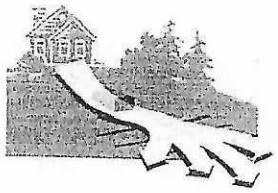
- *Leaks*. Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.
- *Surfacing sewage*. Regularly check for wet or spongy soil around your soil treatment area. If surfaced sewage or strong odors are not corrected by pumping the tank or fixing broken caps and leaks, call your service professional. *Untreated sewage may make humans and animals sick.*
- *Alarms*. Alarms signal when there is a problem; contact your maintainer any time the alarm signals.
- *Lint filter*. If you have a lint filter, check for lint buildup and clean when necessary. Consider adding one after washing machine.
- *Effluent screen*. If you do not have one, consider having one installed the next time the tank is cleaned.

Annually

- *Water usage rate*. A water meter can be used to monitor your average daily water use. Compare your water usage rate to the design flow of your system (listed on the next page). Contact your septic professional if your average daily flow over the course of a month exceeds 70% of the design flow for your system.
- *Caps*. Make sure that all caps and lids are intact and in place. Inspect for damaged caps at least every fall. Fix or replace damaged caps before winter to help prevent freezing issues.
- *Water conditioning devices*. See Page 5 for a list of devices. When possible, program the recharge frequency based on *water demand (gallons)* rather than *time (days)*. Recharging too frequently may negatively impact your septic system.
- *Review your water usage rate*. Review the Water Use Appliance chart on Page 5. Discuss any major changes with your pumper/maintainer.

During each visit by a pumper/maintainer

- Ask if your pumper/maintainer is licensed in Minnesota.
- Make sure that your pumper/maintainer services the tank through the manhole. (NOT though a 4" or 6" diameter inspection port.)
- Ask your pumper/maintainer to accomplish the tasks listed on the Professional Tasks on Page 4.



Professional Management Tasks

These are the operation and maintenance activities that a pumper/maintainer performs to help ensure long-term performance of your system. Professionals should refer to the O/M Manual for detailed checklists for tanks, pumps, alarms and other components. Call 800-322-8642 for more details.

- Written record provided to homeowner after each visit.

Plumbing/Source of Wastewater

- Review the Water Use Appliance Chart on Page 5 with homeowner. Discuss any changes in water use and the impact those changes may have on the septic system.
- Review water usage rates (if available) with homeowner.

Septic Tank/Pump Tanks

- *Manhole lid.* A riser is recommended if the lid is not accessible from the ground surface. Insulate the riser cover for frost protection.
- *Liquid level.* Check to make sure the tank is not leaking. The liquid level should be level with the bottom of the outlet pipe. (If the water level is below the bottom of the outlet pipe, the tank may not be watertight. If the water level is higher than the bottom of the outlet pipe of the tank, the effluent screen may need cleaning, or there may be ponding in the drainfield.)
- *Inspection pipes.* Replace damaged caps.
- *Baffles.* Check to make sure they are in place and attached, and that inlet/outlet baffles are clear of buildup or obstructions.
- *Effluent screen.* Check to make sure it is in place; clean per manufacturer recommendation. Recommend retrofitted installation if one is not present.
- *Alarm.* Verify that the alarm works.
- *Scum and sludge.* Measure scum and sludge in each compartment of each septic and pump tank, pump if needed.

Pump

- *Pump and controls.* Check to make sure the pump and controls are operating correctly.
- *Pump vault.* Check to make sure it is in place; clean per manufacturer recommendations.
- *Alarm.* Verify that the alarm works.
- *Drainback.* Check to make sure it is operating properly.
- *Event counter or run time.* Check to see if there is an event counter or run time log for the pump. If there is one, calculate the water usage rate and compare to the anticipated average daily flow listed on Page 2.

Soil Treatment Area

- *Inspection pipes.* Check to make sure they are properly capped. Replace caps that are damaged.
- *Surfacing of effluent.* Check for surfaced effluent or other signs of problems.
- *Gravity trenches and beds.* Check the number of gravity trenches with ponded effluent. Identify the percentage of the system in use. Determine if action is needed.
- *Pressure trenches and beds - Lateral flushing.* Check lateral distribution; if cleanouts exist, flush and clean as needed.

All other components – inspect as listed here:

_____

_____

_____

UNIVERSITY OF MINNESOTA

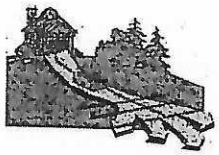
Septic System Management Plan for Below Grade Systems

Water-Use Appliances and Equipment in the Home

Appliance	Impacts on System	Management Tips
Garbage disposal	• Uses additional water. • Adds solids to the tank. • Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Use of a garbage disposal is not recommended. • Minimize garbage disposal use. Compost instead. • To prevent solids from exiting the tank, have your tank pumped more frequently. • Add an effluent screen to your tank.
Washing machine	• Washing several loads on one day uses a lot of water and may overload your system. • Overloading your system may prevent solids from settling out in the tank. Unsettled solids can exit the tank and enter the soil treatment area.	• Choose a front-loader or water-saving top-loader, these units use less water than older models. • Limit the addition of extra solids to your tank by using liquid or easily biodegradable detergents. • Install a lint filter after the washer and an effluent screen to your tank • Wash only full loads. • Limit use of bleach-based detergents. • Think even – spread your laundry loads throughout the week.
2nd floor laundry	• The rapid speed of water entering the tank may reduce performance.	• Install an effluent screen in the septic tank to prevent the release of excessive solids to the soil treatment area. • Be sure that you have adequate tank capacity.
Dishwasher	• Powdered and/or high-phosphorus detergents can negatively impact the performance of your tank and soil treatment area. • New models promote "no scraping". They have a garbage disposal inside.	• Use gel detergents. Powdered detergents may add solids to the tank. • Use detergents that are low or no-phosphorus. • Wash only full loads. • Scrape your dishes anyways to keep undigested solids out of your septic system.
Grinder pump (in home)	• Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Expand septic tank capacity by a factor of 1.5. • Include pump monitoring in your maintenance schedule to ensure that it is working properly. • Add an effluent screen.
Large bathtub (whirlpool)	• Large volume of water may overload your system. • Heavy use of bath oils and soaps can impact biological activity in your tank and soil treatment area.	• Avoid using other water-use appliances at the same time. For example, don't wash clothes and take a bath at the same time. • Use oils, soaps, and cleaners in the bath or shower sparingly.
Clean Water Uses	**Impacts on System**	**Management Tips**
High-efficiency furnace	• Drip may result in frozen pipes during cold weather.	• Re-route water into a sump pump or directly out of the house. Do not route furnace recharge to your septic system.
Water softener Iron filter Reverse osmosis	• Salt in recharge water may affect system performance. • Recharge water may hydraulically overload the system.	• These sources produce water that is not sewage and should not go into your septic system. • Reroute water from these sources to another outlet, such as a dry well, draintile or old drainfield. • When replacing, consider using a demand-based recharge vs. a time-based recharge. • Check valves to ensure proper operation; have unit serviced per manufacturer directions
Surface drainage Footing drains	• Water from these sources will likely overload the system.	

UNIVERSITY OF MINNESOTA

Septic System Management Plan for Above Grade Systems



Maintenance Log

Track maintenance activities here for easy reference. See list of management tasks on pages 3 and 4.

Activity	Date accomplished									
Check frequently:										
Leaks: check for plumbing leaks										
Soil treatment area check for surfacing										
Lint filter: check, clean if needed										
Effluent screen: if owner-maintained										
Check annually:										
Water usage rate (monitor frequency___)										
Caps: inspect, replace if needed										
Water use appliances – review use										
Other:										

Notes: _____

_____

Mitigation/corrective action plan: _____

_____

_____

_____

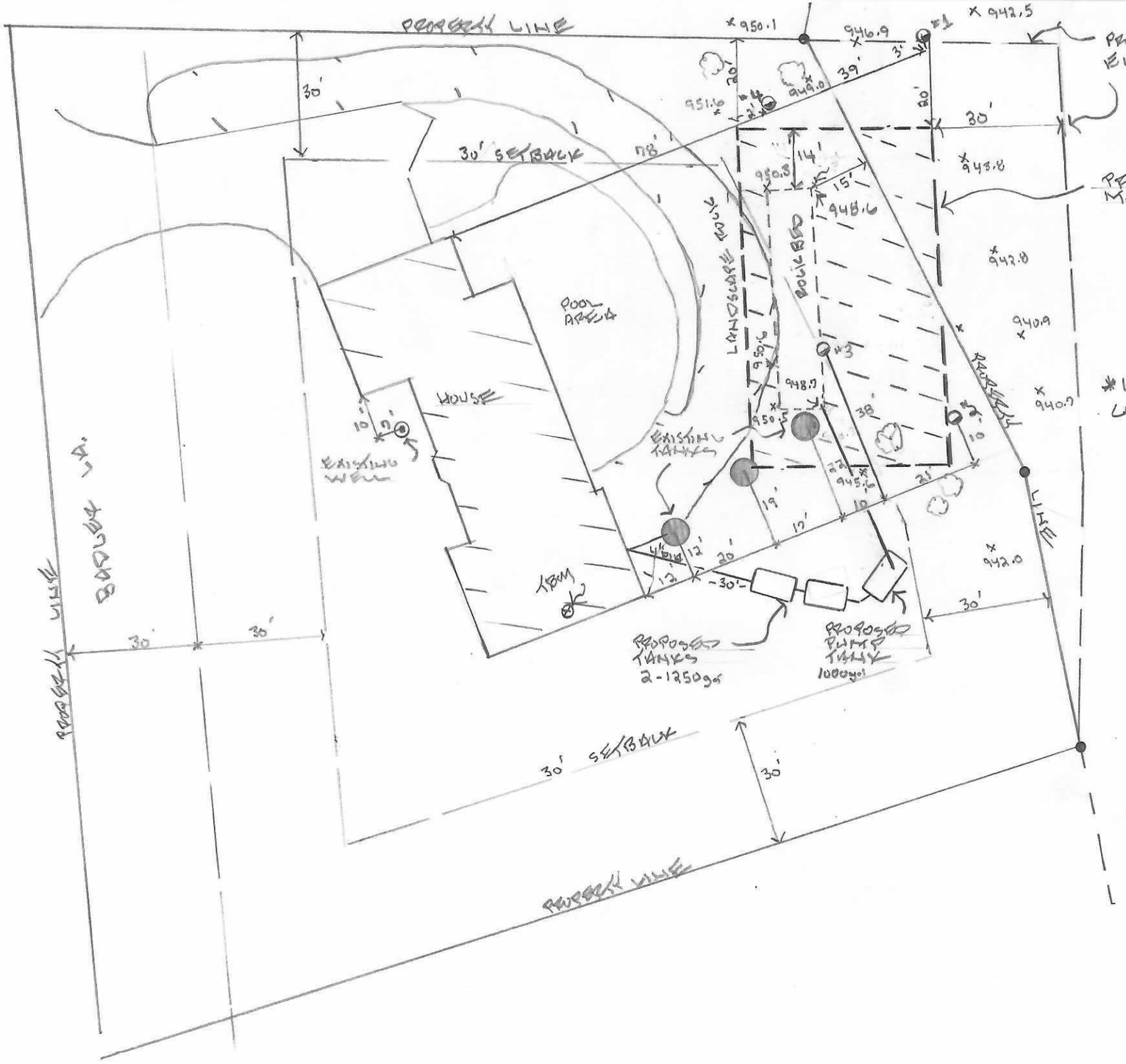
_____

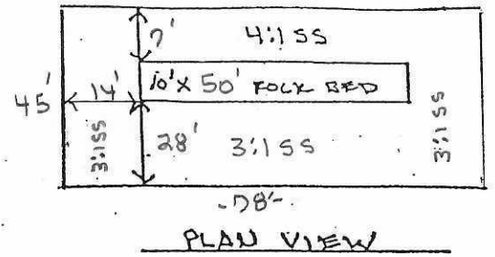
"As the owner of this SSTS, I understand it is my responsibility to properly operate and maintain the sewage treatment system on this property, utilizing the Management Plan. If requirements in this Management Plan are not met, I will promptly notify the permitting authority and take necessary corrective actions. If I have a new system, I agree to adequately protect the reserve area for future use as a soil treatment system."

Property Owner Signature: _____ Date _____

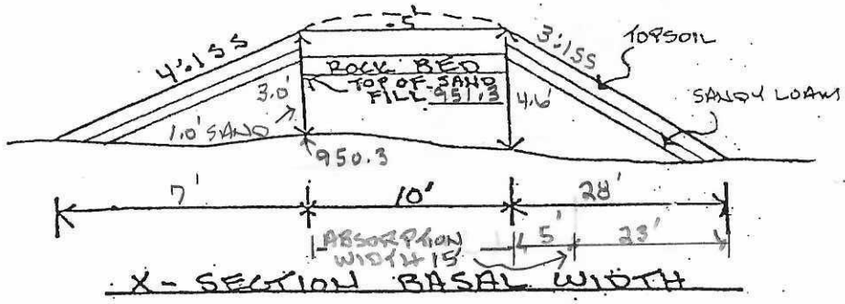
Management Plan Prepared By: S-P TESTING INC. STEVEN B. SCHIRMERS Certification # 627 LIC# 3914

Permitting Authority: _____


PROPERTY LINE
PROPOSED EASEMENT
PROPOSED MOUND SYSTEM
30' SETBACK
LANDSCAPE BOULDER
BOULDER
POOL AREA
HOUSE
EXISTING WELL
EXISTING TANKS
TBM
PROPOSED TANKS 2-1250 gal
PROPOSED PUMP TANK 1000 gal
BOULDER LN.
PROPERTY LINE
30' SETBACK
PROPERTY LINE
* KEEP ALL HEAVY EQUIPMENT OFF OF THE PROPOSED TREATMENT AREA
* GOLF COURSE
SURVEY BY: ELLO AND SONS INC.
TBM - LOW FLOOR
EL 949.4
Percolation Tests
Soil Borings
Bench Mark
Scale: 1" = 30'
Note: This system is to be constructed to meet the Minnesota Pollution Control Agency Chapter 7080 & Local Ordinance
Check all underground utilities
PROPERTY OF: TOM KAMANKO
#6 BADGER LANE
NO. OAKS MN RAMSEY CO.
S-P TESTING INC.
Designed By:
Date: 12/1/23 PH 763-497-3566



PLAN VIEW



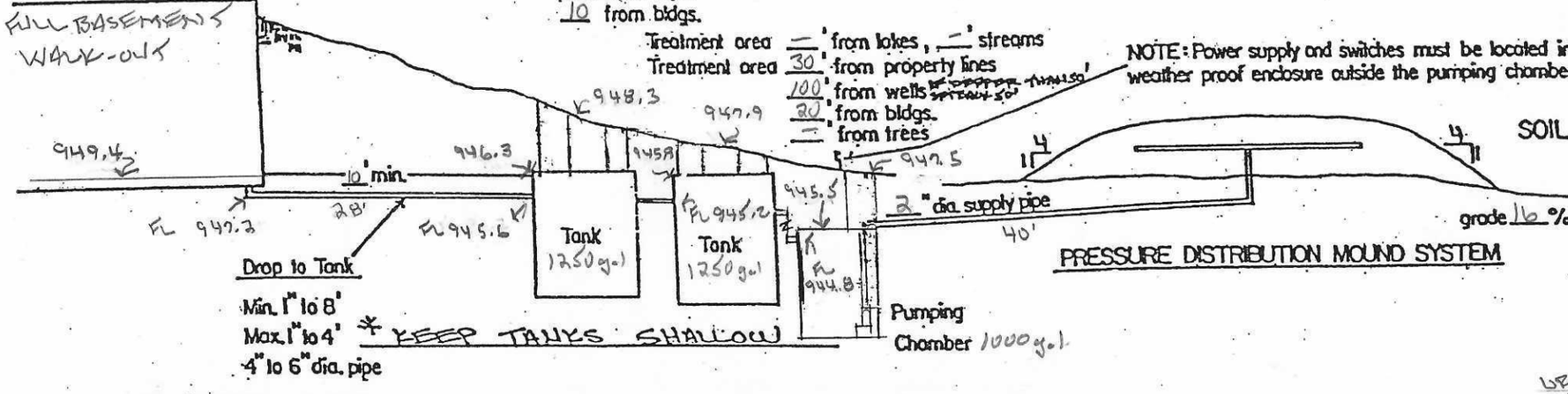
X-SECTION BASAL WIDTH

SET-BACKS

System must be:

Tank 30' from property lines
50' from wells
10' from bldgs.
Treatment area — ' from lakes, — ' streams
Treatment area 30' from property lines
100' from wells
20' from bldgs.
— ' from trees

NOTE: Power supply and switches must be located in a weather proof enclosure outside the pumping chamber and manhole



Min. 1" to 8'
Max. 1" to 4'
4" to 6" dia. pipe

* KEEP TANKS SHALLOW

PRESSURE DISTRIBUTION MOUND SYSTEM

SOIL BORING ELEVATIONS

TH. #1 EL.- 944.5
TH. #2 EL.- 943.4
TH. #3 EL.- 948.7
TH. #4 EL.- 950.3
TH. #5 EL.- ___

ELEVATION of PROPOSED PUMPING CHAMBER- 940.5, PUMP 941.0
GROUND AT 1ST EXISTING TANK 949.0
TOP OF " " " " 949.6

SYSTEM DESIGN – MOUND

TYPE– I, 4 BEDROOM, Average percolation rate ____ min./inch (design .83 sq.ft treatment area per gal. of daily sewage flow)

600 gal/day ÷ 1.2 gal/sq.ft. of treatment area 500 sq.ft. (÷ 10 ft width = 50 ft length of bed area + side slope run 4 to 1 (UPSLOPE, 3:1 DOWNSLOPE AVE) x 3.4 height = 45 ft x 78 ft lawn area needed) ADD,

*MATERIAL 20% ADDED

Clean rock needed – 500 sq.ft. treatment area x 1.0' depth of rock = 500 cu.ft ÷ 27 = 18 cuyds. (3/4" to 2 1/2" dia., includes 2" of rock above pipe) DUE. SAND DEPTH 1.4'

Clean sand fill below rock needed 78 cuyds. approx., sandy loam back fill 188 cuyds. approx., topsoil 6" 85 cuyd.

Number of tanks required 2, 1st tank 1250 gal., 2nd tank 1250 gal. minimums PLUS PUMPING CHAMBER

Pumping chamber capacity – 25% of daily sewage flow of 600 gal. = 150 gal. + reserve storage of 150 gal/BR 600 gal. + pipe back drainage –

of 17 gal./100 lin.ft. of 2" dia. supply pipe, lin.ft needed 40, 7 gal.

total capacity needed 757 gal. (plus area for pump) USE min. 1000 gal. cap.

Distribution pipe 2" dia., 144 lin.ft, 1/4" dia. perforations 36" apart

Pump size 1/3 hp. (pumpable capacity 152 gal. 4 cycles/day) USED 16.8' HEAD PRESS, DISCHARGE 38 gal/min.

Note: When constructing bed – , this area should be shaped to divert run-off from entering treatment area.

Note: Distance from treatment area to neighboring wells – GREATER THAN 100'

PROPERTY OF: TOM ROMANKO
#6 BADGER LANE
NO. OAKS MN, RAMSEY CO.

S-P TESTING INC.
Designed By: SL 03. SL
Date: 8/29/23, PH. 763-497-3566

175

DECLARATION OF GRANT OF EASEMENTS FOR INGRESS, EGRESS AND ENCROACHMENT

This Declaration of Grant of Easements for Ingress, Egress and Encroachment ("Declaration ") is made this ___ day of January, 2024, by North Oaks Golf Club, Inc., a Minnesota corporation, hereinafter referred to as Grantor.

WHEREAS, this Declaration involves certain real property located in the City of North Oaks, County of Ramsey, State of Minnesota, owned by the Grantor and legally described on Exhibit A attached hereto:

(the Burdened Parcel);

WHEREAS, Thomas and Kim Romanko (together, the "Grantee") own real property located in the City of North Oaks, County of Ramsey, State of Minnesota, legally described on Exhibit B attached hereto:

(the "Benefited Property," which together with the Burdened Property are each a "Lot" and together the "Lots");

WHEREAS, the Lots abut each other;

WHEREAS, the Grantee desires and intends to install on the Benefited Property a new septic system (the "System") to replace the existing septic system;

WHEREAS, current legal requirements related to the System require that it be located on the Benefited Property so that its drain field would extend into a portion of the Burdened Property;

WHEREAS, the Grantee desires to obtain and the Grantor is willing to grant an

easement to the Grantee over a portion of the Burdened Property to facilitate and allow for the installation, maintenance and repair of the System;

NOW, THEREFORE, subject to the terms and conditions hereof, this Declaration is hereby duly made, executed, and recorded.

ARTICLE I
DEFINITIONS

A. **Defined Terms**. Reference in this Declaration to the following terms shall mean:

1. Owner(s). For purposes of this Declaration, an "Owner" shall be the Grantor and its successors as the recorded fee simple owner of the Burdened Parcel and "Owner" shall be the Grantee and its successors as the recorded fee simple owner of the Benefited Parcel. In the event any Lot is owned or deemed to be owned by more than one Person, such Person shall constitute one Owner, but shall be jointly and severally obligated under this Declaration.

2. Permittee(s). Owners and their respective employees, agents, contractors, customers, vendors, suppliers, visitors, invitees and licensees, including but not limited to any person performing installation, maintenance or repair of the System.

3. Person(s). Individuals, partnerships, limited liability companies, corporations, trusts or any other form of business or government entity.

4. Easement Area. The Easement Area means that part of the Burdened Property legally described in Exhibit C and depicted on the attached Exhibit D.

5. Encroachment. The portion of the System drain field located within the Easement Area.

ARTICLE II
EASEMENT

2.1 **GRANT OF EASEMENT.** Subject to any express conditions, limitations or reservations contained herein, Grantor hereby declares that the Lots and all Owners, Occupants and Permittees of the Lots shall be benefited and burdened by the following nonexclusive, perpetual easements which are hereby imposed upon the Burdened Parcel and all present and future Owners, Occupants and Permittees of the Burdened Parcel:

A. **PEDESTRIAN INGRESS AND EGRESS EASEMENT**. As a benefit for the Benefited Parcel, Grantor hereby grants and conveys to each Owner of the Benefited Parcel for its use and for the use of its Permittees, a non-exclusive, perpetual easement for pedestrian traffic over and across the Easement Area for the purpose of installation, repair and maintenance of the System.

B. **ENCROACHMENT EASEMENT.** As a benefit for the Benefited Parcel, Grantor hereby grants and conveys to each Owner of the Benefited Parcel for its use a non-exclusive, perpetual easement to install and maintain the Encroachment on the Burdened Parcel. Such easement rights, if any, shall be subject to the following reservations as well as other provisions contained in this Declaration.

1. The Encroachment may be continued, repaired and maintained but may not under any circumstances be increased or expanded.

2.2. **REASONABLE USE OF EASEMENTS.** The easements herein granted shall be used and enjoyed by each Owner, Occupant and Permittee in such a manner as not to unreasonably interfere with, obstruct or delay the conduct and operations of the business at any time conducted on the Lot of the Grantor or any other Owner, Occupant or Permittee of the Burdened Property.

ARTICLE III
REMEDIES AND ENFORCEMENT

3.1. **EQUITABLE REMEDIES**. In the event of a breach or threatened breach by any Owner or its Permittees of any of the terms, covenants, restrictions or conditions of this Declaration, any Owner shall, in addition to any other available remedy, be entitled forthwith to full and adequate relief by injunction and/or all such other equitable remedies from the consequences of such breach, including specific performance. In addition to any and all other remedies, an Owner successfully enforcing this Declaration shall be entitled to recover from a breaching Owner the costs incurred to enforce the Declaration, including reasonable attorney fees.

ARTICLE IV
MISCELLANEOUS

4.1 **COVENANTS RUNNING WITH THE LAND.** It is intended that each of the easements, covenants, conditions and restrictions described and set forth in this Declaration shall run with the Lots and create equitable servitudes in favor of the real property benefited hereby, shall bind every Owner and/or other person or entity now or hereafter having any fee, leasehold or other interest therein and shall inure to the benefit of the respective parties and their successors, assigns, heirs and personal representatives.

4.2 **CONSTRUCTION AND INTERPRETATION.**

(A) This Declaration and any Exhibits hereto contain all the representations and the entire agreement between the parties executing the Declaration with respect to the subject matter thereof.

(B) Whenever required by the context of this Declaration, (i) the singular shall include the plural, and vice versa, and the masculine shall include the feminine and neuter genders, and vice versa and (ii) use the words "including," "such as" or words of similar import, when following any general items, whether or not language of non-limitation, such as "without limitation," or "but not limited to," are used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest scope of such statement, terms or matter.

(C) The captions preceding the text of each article and section are included only for convenience of reference. Captions shall be disregarded in the construction and interpretation of this Declaration. Capitalized terms are also selected only for convenience of reference and do not necessarily have any connection to the meaning that might otherwise be attached to such term in a context outside of this Declaration.

(D) Invalidation of any of the provisions contained in this Declaration, or of the application thereof to any person by judgment or court order shall in no way affect any of the other provisions hereof or the application thereof to any other person and the same shall remain in full force and effect.

(E) This Declaration may be amended by, and only by, a written agreement signed by the Owners and shall be effective only when recorded in the county and state where the Lots are located; provided, however, that no such amendment shall impose any materially greater obligation on, or materially impair any right of an Owner or its Lot without the consent of such Owner. No consent to the amendment of this Declaration shall ever be required of any Occupant or Person other than the Owners, nor shall any Occupant or Person other than the Owners have any right to enforce any of the provisions hereof.

4.3 **NO WAIVER**. The failure of any Owner to insist upon strict performance of any of the terms, covenants or conditions hereof shall not be deemed a waiver of any rights or remedies which that Owner may have hereunder, at law or in equity and shall not be deemed a waiver of any subsequent breach or default in any of such terms, covenants or conditions.

4.4 **GOVERNING LAW.** The laws of the State of Minnesota shall govern the interpretation, validity, performance and enforcement of this Declaration.

IN WITNESS WHEREOF, the undersigned has executed this Declaration.

North Oaks Golf Club, Inc.

By: _____
Morgan Donahue, President

STATE OF MINNESOTA)
) SS
COUNTY OF Ramsey)

The foregoing instrument was acknowledged before me this 25 day of January, 2024, by Morgan Donahue, President of North Oaks Golf Club, Inc., a Minnesota corporation on behalf of such company.

Jessica Ilene Bailey
Notary Public

JESSICA ILENE BAILEY
Notary Public
Minnesota
My Commission Expires
Jan 31, 2028

THIS INSTRUMENT WAS DRAFTED BY:

Chestnut Cambronne PA (wcc)
100 Washington Avenue South, Suite 1700
Minneapolis, MN 55401

EXHIBIT A – LEGAL DESCRIPTION OF BURDENED PARCEL

Tract A, Registered Land Survey No. 113

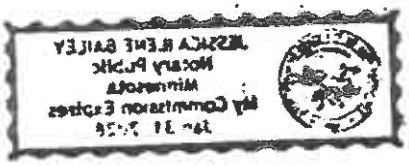


EXHIBIT B – LEGAL DESCRIPTION OF BENEFITED PARCEL

Tract D, Registered Land Survey No. 57

EXHIBIT C – LEGAL DESCRIPTION OF EASEMENT AREA

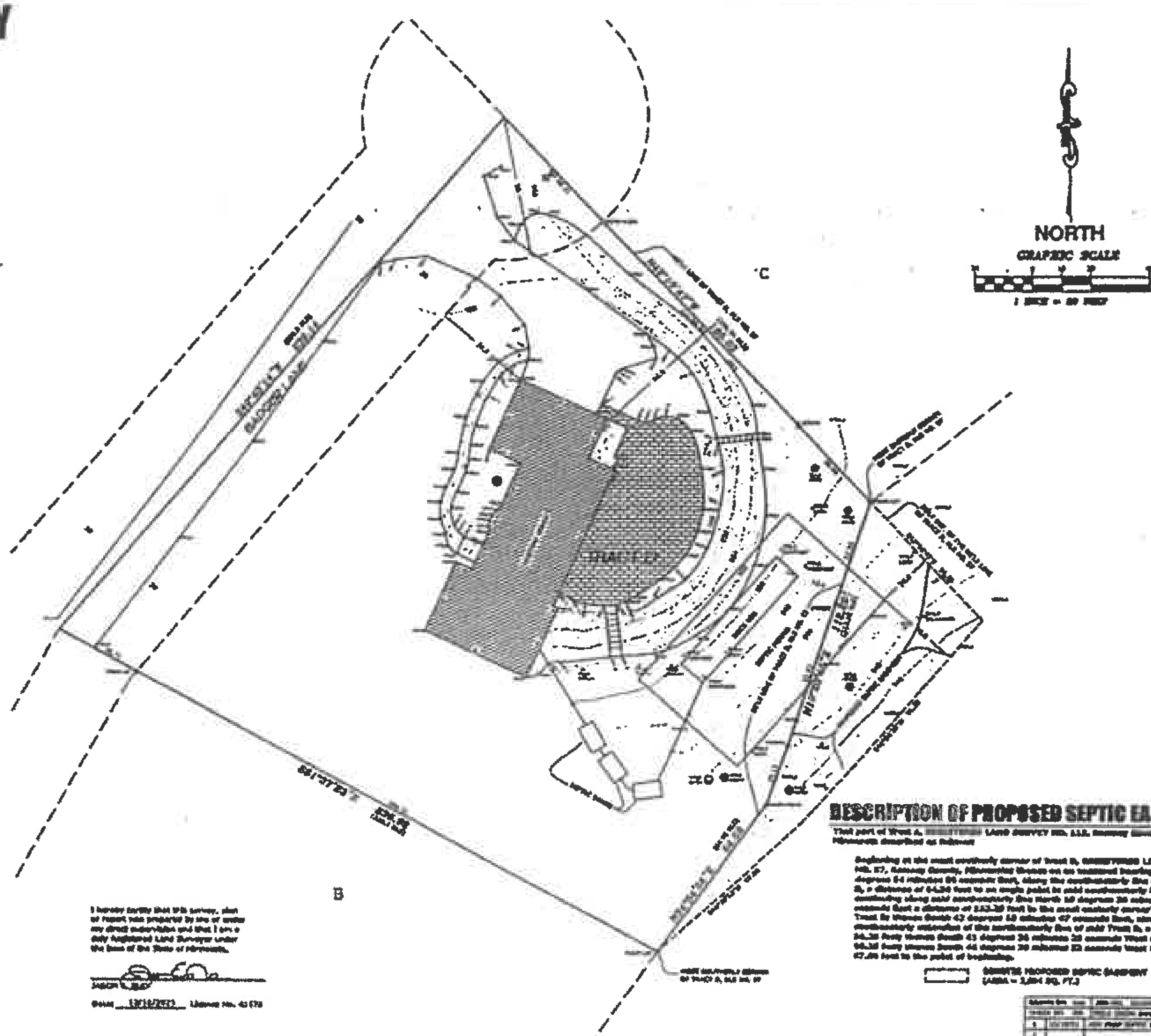
That part of Tract A, Registered Land Survey No. 113, Ramsey County, Minnesota described as follows:

Beginning at the most southerly corner of Tract D, Registered Land Survey No. 57, Ramsey County, Minnesota; thence on an assumed bearing of North 34 degrees 54 minutes 56 seconds East, along the southeasterly line of said Tract D, a distance of 64.59 feet to an angle point in said southeasterly line; then continuing along said southeasterly line North 19 degrees 20 minutes 45 seconds East a distance of 112.29 feet to the most easterly corner of said Tract D; then South 43 degrees 10 minutes 47 second East, along the southeasterly extension of the northeasterly line of said Tract D, a distance of 56.28 feet; then South 41 degrees 36 minutes 23 seconds West a distance of 95.35 feet; thence South 46 degrees 39 minutes 53 seconds West a distance of 67.88 feet to the point of beginning.

EXHIBIT D – DEPICTION OF EASEMENT AREA

CERTIFICATE OF SURVEY

~for~ TOM AND KIM ROMANKO
~of~ 6 BADGER LANE
NORTH OAKS, MN 55127



PROPERTY DESCRIPTION

NOTES

LEGEND

TREE DETAIL

DESCRIPTION OF PROPOSED SEPTIC EASEMENT

E.G. RUD & SONS, INC.
Professional Land Surveyors
6776 Lake Drive NE, Suite 110
Lino Lakes, MN 55014
Tel. (651) 361-8200 Fax (651) 361-8701

CITY OF
NorthOaks
Building on a tradition of innovation

PLANNING REPORT

TO: North Oaks City Council

FROM: Kendra Lindahl, City Planner
Kevin Kress, City Administrator
Bridget Nason, City Attorney

DATE: April 4, 2024

RE: An Ordinance Amending City Code Title XV, Chapter 151, Regarding Solar Energy Systems

PLANNING COMMISSION MEETING

The Planning Commission held a public hearing on September 28, 2023. There was no one present to speak on this item. The Commission had a robust discussion about the draft ordinance. There was some support from Commissioners to reduce the minimum lot size from 10 acres to 3.5 acres and expand the areas where ground mounted solar arrays are allowed to the RSL district, but the majority of the Commission felt that this was a good first step to allowing solar. The Commission voted 5-1 to recommend approval of the ordinance as drafted.

BACKGROUND

At the July 13, 2023 City Council meeting representatives from Incarnation Lutheran Church spoke about the potential of installing a solar array in the northeast corner of their existing parking lot at 4880 Hodgson Road. The property is zoned RSM.

A working group made up of Chair Cremons, Council member Azman and staff met to develop the ordinance amendments.

The Planning Commission reviewed a draft ordinance at the August 31st meeting. The Commission asked staff to provide additional information about how Gem Lake, Sunfish Lake and Grant address solar energy systems and staff has added those cities to the summary of other City standards attached to this report (Exhibit D). The Commission directed staff to change the draft ordinance to require a minimum of 10 acres for any site proposing ground mounted solar. The draft ordinance reflects this change.

The Planning Commission held a public hearing at their September 28th meeting and voted to recommend approval.

The City Council discussed the draft ordinance at its October 12th meeting. The Council tabled the item and directed staff to provide additional options at the November meeting. At the direction of the City Council, staff reached out to Cedar Creek Energy (the firm working with Incarnation church), but representatives were unable to attend the November meeting in person.

The Council tabled this item at the November 9th meeting and asked staff to ensure that the Cedar Creek Energy representative could attend in person rather than remotely.

At the January 11th Council meeting Cedar Creek Energy presented information and answered questions.

At the February 8th Council meeting, Brian Ross of Great Plains Institute was present to provide information and answer questions.

ISSUES AND ANALYSIS

Ground mounted solar arrays are not currently permitted in the City. Section 151.022 of the City Code states that “In any zoning district whenever a use is neither specifically permitted nor denied, the use shall be considered prohibited.”

Building mounted solar arrays have been permitted as part of a building with a building permit because such arrays are part of the structure. However, the Zoning Ordinance would need to be amended to allow a freestanding solar array.

At the July 13th meeting, Council directed staff to prepare an ordinance amendment for consideration in the RSM zoning district only. The Council indicated that they supported this type of use as a conditional use accessory to a principal use if adequate screening can be provided. While the City Council did not specify a minimum lot size, the Planning Commission wished to limit the application only to parcels at least 10 acres in size.

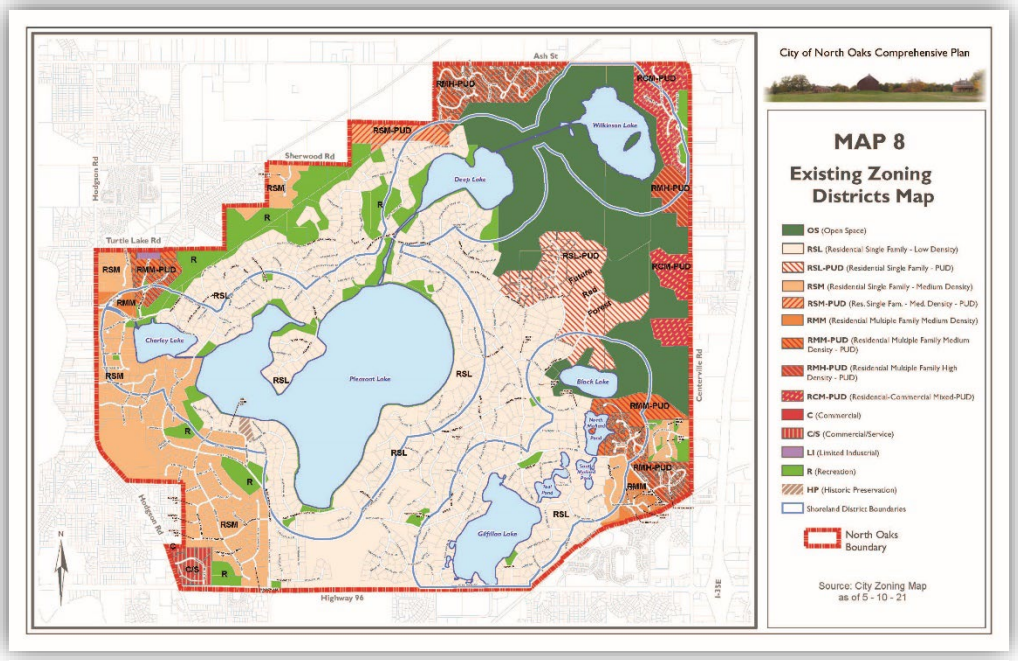


Figure 1 - Existing Zoning Map

The draft ordinance was prepared using information from the Minnesota Solar Model Ordinance and a number of individual cities. The model ordinance (Exhibit C) is attached for reference. The ordinance proposes to formalize the approval process for building-mount solar (which has been permitted) and add ground-mount solar arrays as a conditional use in the RSM zoning district.

Lot Size and Zoning Districts

The draft ordinance reviewed at the October 12th meeting allows accessory ground-mounted solar arrays as a conditional use in the RSM zoning district only in the side or rear yard on parcels at least 10 acres in size. The parcels zoned RSM are located on the perimeter of the City. The Planning Commission discussed whether the minimum lot size should be 10 acres or something smaller. There are only three parcels in the City that are zoned RSM and are at least 10 acres in size. Staff has provided a graphic (Exhibit F) showing parcels zoned RSM at least 3.5 acres in size.

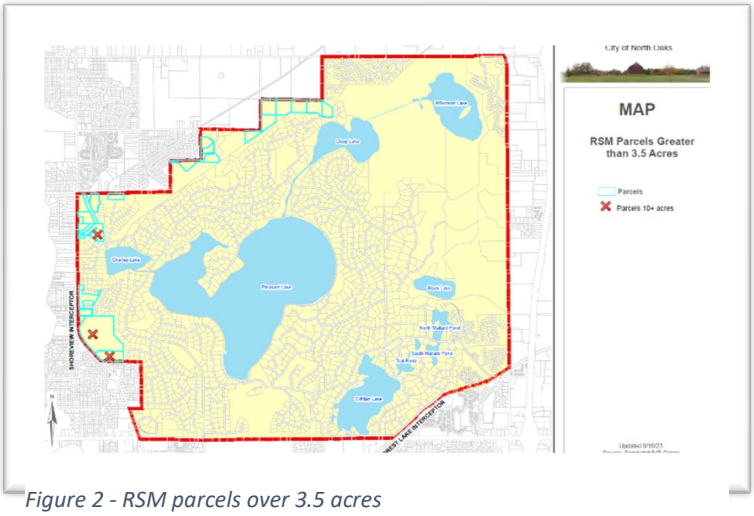


Figure 2 - RSM parcels over 3.5 acres

If the ordinance is modified to allow ground-mounted solar arrays on all parcels at least 3.5 acres in size and zoned RSM, RSM-PUD, RSL and RSL-PUD, 46 parcels within the City would meet the eligibility requirements for a ground mounted solar array However, several of those lots are in Red Forest Way South (only one of the lots proposed in Red Forest Way South phase 2 exceeds 3.5 acres).

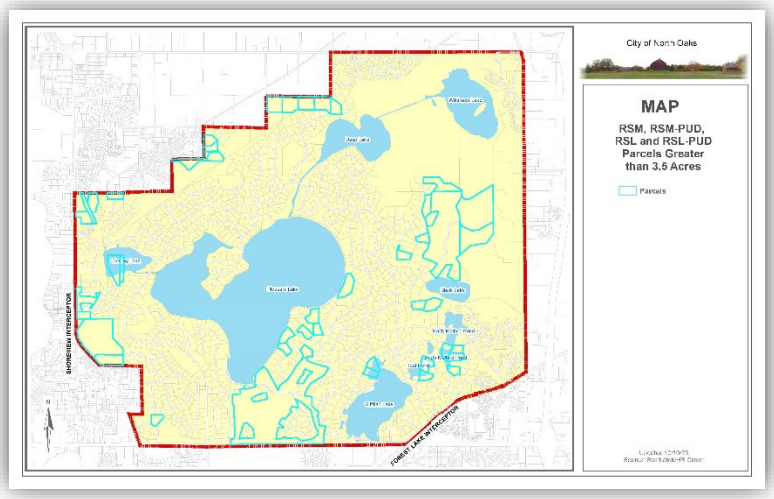


Figure 3 - RSM and RSL parcels over 3.5 acres

If the Council reduced the minimum lot size to 2 acres, 279 parcels would meet the eligibility requirements for a ground mounted solar array.

1. The Council should first determine which zoning districts where a ground mounted solar array should be a conditional use.
    - The October 12th draft as recommended by the Planning Commission would only allow ground mounted solar arrays in the RSM zoning district.
    - The Council could allow in the RSM and RSL districts or could allow in RSM, RSL, RSM-PUD and RSL-PUD or any other districts.
    - Council should provide direction to staff.

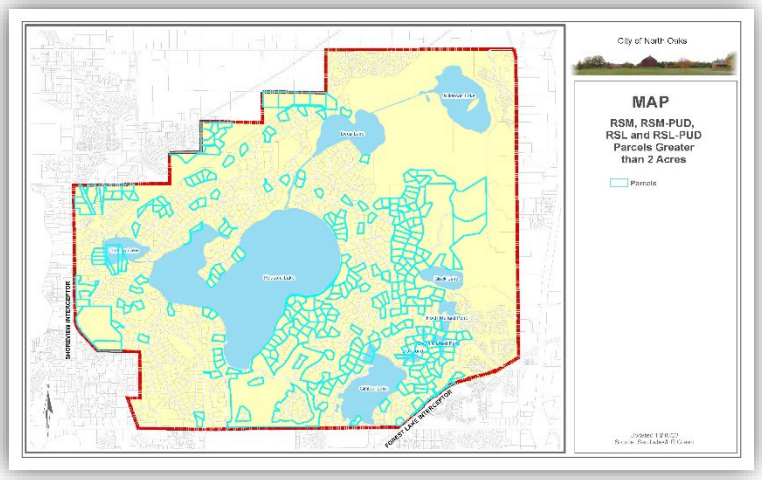


Figure 4 - RSM and RSL parcels over 2 acres

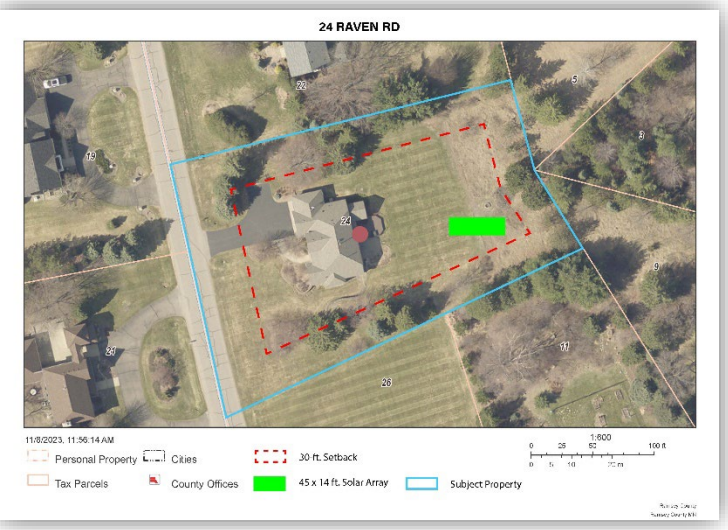


Figure 5 - RSL residential lot example

2. The Council should determine the appropriate minimum lot size.
    - Staff originally proposed a 3.5-acre minimum lot size.
    - Planning Commission recommended a 10-acre minimum lot size.

- This is a policy issue for the City Council. Research shows that the two cities that do have minimum lot size requirements are at 3 acres and 5 acres. However, most cities used performance standards not lot size to manage this accessory use.

3. The Council should discuss whether ground-mounted solar should be allowed in the front yard of lots. The current draft limits them to side or rear yards.

Landscaping

The working group intentionally left the landscape requirements less prescriptive so that the screening and buffering requirements could be evaluated on a case-by-case basis as part of the conditional use permit application.

There was some discussion at the October City Council meeting about a desire to limit tree removal. The current draft does not include such language, however, language discouraging or prohibiting large-scale removal of mature trees on the site could be added or a requirement to mitigate for removal of large trees for installation of ground-mounted solar.

- Council should provide direction.

Next Steps

The request from Incarnation church was to amend the ordinance to allow ground-mounted solar arrays as a conditional use within the RSM zoning district. The Incarnation parcel exceeds 10 acres in size. If the ordinance is approved, Incarnation Lutheran Church could apply for a conditional use permit. The conditional use permit would require a public hearing at the Planning Commission and City Council action and would not be able to work through that project until June/July at the earliest making it a fall construction project.

Attached for reference:

Exhibit A:	Zoning Map
Exhibit B:	Transportation Map
Exhibit C:	MN Solar Model Ordinance
Exhibit D:	Summary of Other City Standards
Exhibit E:	Concept from Incarnation Lutheran Church
Exhibit F:	Parcels in the RSM district 3.5 acres or more
Exhibit G:	Three site plan examples
Exhibit H:	Ordinance amending Chapter 151 as recommended by Planning Commission
Exhibit I:	Ordinance for Summary Publication

ACTION REQUESTED

The Council has two options:

1. Move to adopt the Ordinance Amendment, as recommended by the Planning Commission. If the Council choose this option, they would:
    a. Approve the ordinance (requires a 3/5 vote) and
    b. Approve the ordinance for summary publication (requires a 4/5 vote)

    This would allow ground-mounted solar arrays only in the RSM district, subject to several performance standards. The Council could adopt this ordinance and continue discussion of allowing ground-mounted solar in other districts as a separate item. This would allow Incarnation Lutheran Church to proceed with their project.

Or

2. Continue the item and direct staff to revise the draft ordinance and bring it back to the next City Council meeting for consideration/adoption.

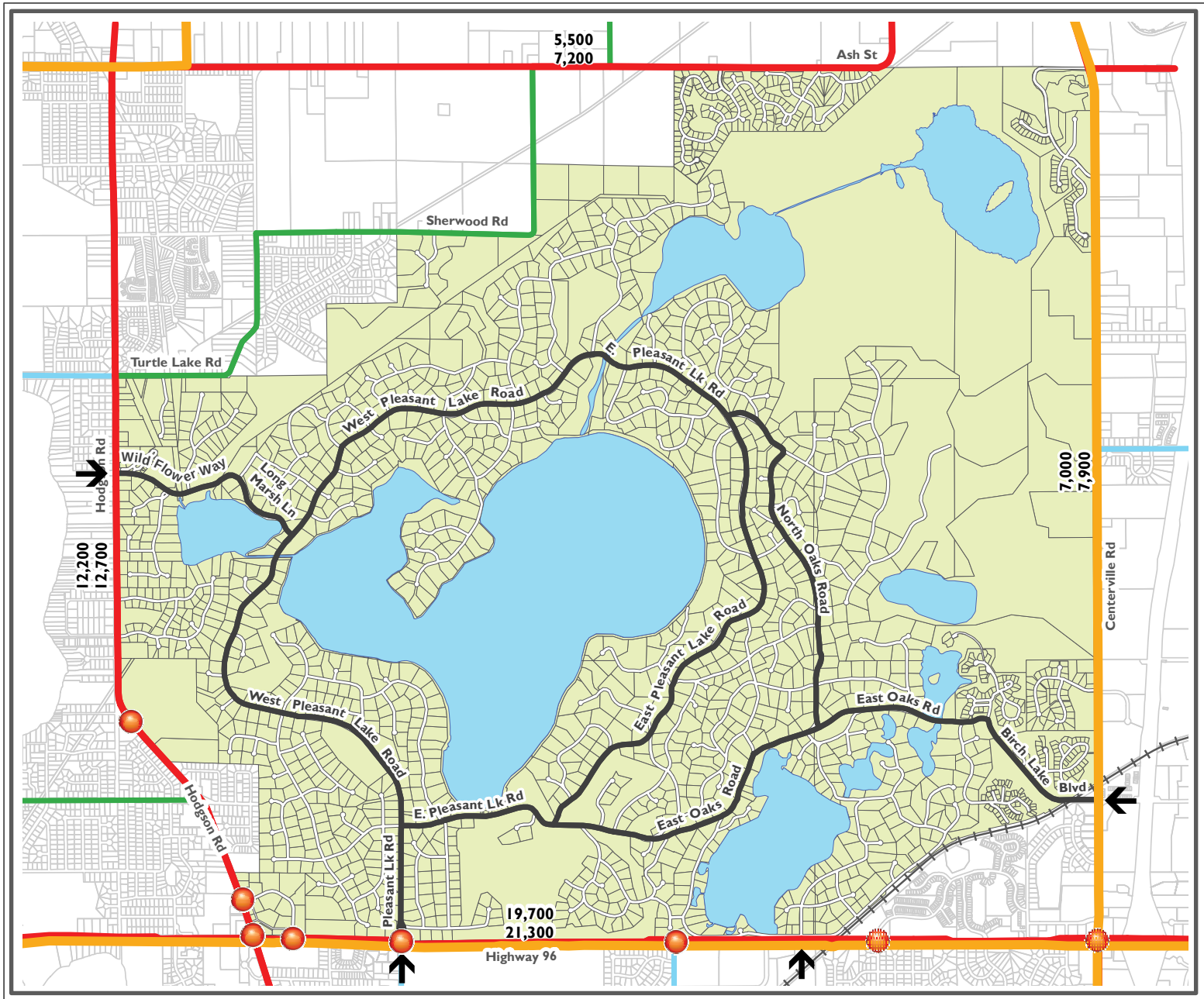
MAP 8

Existing Zoning Districts Map

- **OS** (Open Space)
- **RSL** (Residential Single Family - Low Density)
- **RSL-PUD** (Residential Single Family - PUD)
- **RSM** (Residential Single Family - Medium Density)
- **RSM-PUD** (Res. Single Fam. - Med. Density - PUD)
- **RMM** (Residential Multiple Family Medium Density)
- **RMM-PUD** (Residential Multiple Family Medium Density - PUD)
- **RMH-PUD** (Residential Multiple Family High Density - PUD)
- **RCM-PUD** (Residential-Commercial Mixed-PUD)
- **C** (Commercial)
- **C/S** (Commercial/Service)
- **LI** (Limited Industrial)
- **R** (Recreation)
- **HP** (Historic Preservation)
- Shoreland District Boundaries

North Oaks Boundary

Source: City Zoning Map as of 5 - 10 - 21



City of North Oaks

MAP 14

Transportation Features

- 'A' Minor Expander
- Collector
- Minor Collector
- Other Arterial
- Regional Bicycle Transportation Network (RBTN) Tier 2
- Rail Lines (Freight)
- Signalized Intersection
- Primary City Access Points

2040 Traffic Volumes

Top number = current volumes
Bottom number = 2040 projections

N

5-10-21

Minnesota Solar Model Ordinance

Photo by Katharine Chute

Prepared by Great Plains Institute with support from Sunshot and the Energy Foundation

GREAT PLAINS INSTITUTE | Better Energy. Better World.

Model Solar Ordinance – Minnesota

Introduction

Minnesota's solar energy resources are high quality and cost effective—as good as many states to our south and consistently available across the entire state. As solar energy system components have become more efficient and less costly, an increasing number of solar energy systems have been installed in Minnesota. Market opportunities for solar development have dramatically increased in Minnesota over the last five years, such that communities must now address solar installations as land use and development issues. Solar energy components continue to improve in efficiency and decline in price; large-scale solar energy is expected to become the least expensive form of electric energy generation within a few years, surpassing wind energy and natural gas in levelized cost of energy.

Model Solar Energy Standards

This ordinance is based on the model solar energy ordinance originally created for Solar Minnesota, under a Million Solar Roofs grant from the U.S. Department of Energy. It has been substantially updated several times to reflect address additional issues and opportunities for Minnesota communities and the evolving solar industry, last updated May 2020

But solar energy is much more than just low-cost energy generation. Households and businesses seeking to reduce their carbon footprint see solar energy as a strong complement to energy efficiency. Agricultural producers see their solar energy as an economic hedge against price volatility in commodity crops. Utilities see solar's declining cost, high reliability, and free fuel as a means to put downward pressure on electric rates. Corporate, institutional, and municipal buyers are actively acquiring carbon-free solar generation to meet climate and clean energy goals. And innovative solar site designs are capturing habitat and water quality co-benefits by using solar with habitat-friendly ground cover to restore eco-system functions.

Solar Energy Issues

Local governments in Minnesota are seeing increasing interest by property owners in solar energy installations and are having to address a variety of solar land uses in their development regulation. Given the continuing cost reductions and growing value of clean energy, solar development will increasingly be a local development opportunity, from the rooftop to the large-scale solar farm. Three primary issues tie solar energy to development regulations:

1. *Land use conflicts and synergies.* Solar energy systems have few nuisances. But solar development can compete for land with other development options, and visual impacts and perceived safety concerns sometimes create opposition to solar installations. Good design and attention to aesthetics can address most concerns for rooftop or accessory use systems. Good siting and site design standards for large- and community-scale solar can similarly resolve conflicts and create co-benefits from solar development, such as restoring habitat, diversifying agricultural businesses, and improving surface and ground waters.

2. *Protecting access to solar resources.* Solar resources are a valuable component of property ownership. Development regulations can inadvertently limit a property owner's ability to access their solar resource. Communities should consider how to protect and develop solar resources in zoning, subdivision, and other development regulations or standards.

3. *Encouraging appropriate solar development.* Local government can go beyond simply removing regulatory barriers and encourage solar development that provides economic development, climate protection, and natural resources co-benefits. Local governments have a variety of tools to encourage appropriately sited and designed solar development to meet local goals.

Components of a Solar Standards Ordinance

Solar energy standards should:

1. *Create an as-of-right solar installation path for property-owners.* Create a clear regulatory path (an as-of-right installation) to solar development for accessory uses and - if appropriate - for principal uses such as large-scale solar and ground-mount community shared solar installations.

2. *Enable principal solar uses.* Define where community- and large-solar energy land uses are appropriate as a principal or primary use, set development standards and procedures to guide development, and capture co-benefit opportunities for water quality, habitat, agriculture.

3. *Limit regulatory barriers to developing solar resources.* Ensure that access to solar resources is not unduly limited by height, setback, or coverage standards, recognizing the distinct design and function of solar technologies and land uses for both accessory and principal uses.

4. *Define appropriate aesthetic standards.* Retain an as-of-right installation pathway for accessory uses while balancing design concerns in urban neighborhoods and historic districts. Set reasonable aesthetic standards for solar principal uses that are consistent with other principal uses that have visual impacts.

5. *Address cross-property solar access issues.* Consider options for protecting access across property lines in the subdivision process and in zoning districts that allow taller buildings on smaller (urban density) lots.

6. *Promote "solar-ready" design.* Every building that has a solar resource should be built to seamlessly use it. Encourage builders to use solar-ready subdivision and building design.

7. *Include solar in regulatory incentives.* Encourage desired solar development by including it in regulatory incentives: density bonuses, parking standards, flexible zoning standards, financing/grant programs, promotional efforts.

Different Community Types and Settings

The model ordinance language addresses land use concerns for both urban and rural areas, and thus not all the provisions may be appropriate for every community. Issues of solar access and nuisances associated with small or accessory use solar energy systems are of less consequence in rural areas, where lot sizes are almost always greater than one acre. Large-scale and community- scale solar (principal solar land uses) are much more likely to be proposed in rural areas rather than developed cities. However, urban areas should consider where community- or large-scale solar can add value to the community and enable economic development of a valuable local resource. Rural communities should address rooftop and accessory ground-mount development, although the standards used in this model are designed more for the urban circumstances.

Solar development is not one thing

Communities would not apply the same development and land use standards to an industrial facility and a single family home, merely because both are buildings. Community and large-scale solar development is a completely different land use than rooftop or backyard solar. Standards that are appropriate for large-scale solar may well be wholly inappropriate for rooftop solar and may unnecessarily restrict or stymie solar development opportunities of homes and business owners.

This ordinance includes language addressing solar energy as an accessory use to the primary residential or commercial use in an urban area and language for principal solar uses more typically seen in rural communities. Communities should address both types of solar development.

Model Ordinance

I. Scope - This article applies to all solar energy installations in Model Community.

II. Purpose - Model Community has adopted this regulation for the following purposes:

A. Comprehensive Plan Goals - To meet the goals of the Comprehensive Plan and preserve the health, safety and welfare of the community by promoting the safe, effective and efficient use of solar energy systems. The solar energy standards specifically implement the following goals from the Comprehensive Plan:

1. **Goal** – Encourage the use of local renewable energy resources, including appropriate applications for wind, solar, and biomass energy.
2. **Goal** – Promote sustainable building design and management practices to serve current and future generations.
3. **Goal** – Assist local businesses to lower financial and regulatory risks and improve their economic, community, and environmental sustainability.
4. **Goal** – Implement the solar resource protection element required under the Metropolitan Land Planning Act.

Comprehensive Plan Goals

Tying the solar energy ordinance to Comprehensive Plan goals is particularly important for helping users (both Planning Commission and community members) understand why the community is developing and administering regulation.

The language here provides examples of different types of Comprehensive Plan goals, and other policy goals that the community may have that are served by enabling and encouraging solar development. The community should substitute its policy goals for these examples.

If the Comprehensive Plan does not include goals supporting local solar development), the community should consider creating a local energy plan or similar policy document to provide a policy foundation for solar development regulation (as noted in II.B) .

B. Climate Change Goals - Model Community has committed to reducing carbon and other greenhouse gas emissions. Solar energy is an abundant, renewable, and nonpolluting energy resource and its conversion to electricity or heat reduces dependence on nonrenewable energy resources and decreases the air and water pollution that results from the use of conventional energy sources.

C. Infrastructure - Distributed solar photovoltaic systems will enhance the reliability and power quality of the power grid and make more efficient use of Model Community's electric distribution infrastructure.

D. Local Resource - Solar energy is an underused local energy resource and encouraging the use of solar energy will diversify the community's energy supply portfolio and reduce exposure to fiscal risks associated with fossil fuels.

Metropolitan Land Planning Act

Minnesota local governments subject to the Metropolitan Land Planning Act are required in their comprehensive plans to plan for the protection and development of solar resources. Communities must then incorporate Plan goals in their local controls. This ordinance implements that required Comprehensive Plan element.

E. Improve Competitive Markets - Solar energy systems offer additional energy choice to consumers and will improve competition in the electricity and natural gas supply market.

III. Definitions

Solar Definitions

Not all these terms are used in this model ordinance, nor is this a complete list of solar definitions. As a community develops its own development standards for solar technology, many of the concepts defined here may be helpful in meeting local goals. For instance, solar daylighting devices may change the exterior appearance of the building, and the community may choose to distinguish between these devices and other architectural changes.

Agrivoltaics – A solar energy system co-located on the same parcel of land as agricultural production, including crop production, grazing, apiaries, or other agricultural products or services.

Building-integrated Solar Energy Systems – A solar energy system that is an integral part of a principal or accessory building, rather than a separate mechanical device, replacing or substituting for an architectural or structural component of the building. Building-integrated systems include, but are not limited to, photovoltaic or hot water solar energy systems that are contained within roofing materials, windows, skylights, and awnings.

Differentiating Solar Uses by Size

Community-scale and Large-scale systems are defined here as occupying less than 20 acres and greater than 20 acres respectively. Some communities will use a lower number (ten acres) and some a higher number (up to 50 acres). An ex-urban city would use a lower number and a rural county could use a higher number. Community-scale is generally a size that can fit into the land use fabric of the community without assembly of separate parcels. Some communities have chosen not to distinguish between community- and large-scale, but use a single large-scale designation.

Community-Scale Solar Energy System – A commercial solar energy system that converts sunlight into electricity for the primary purpose of serving electric demands off-site from the facility, either retail or wholesale. Community-scale systems are principal uses and projects typically cover less than 20 acres.

Community Solar Garden – A solar energy system that provides retail electric power (or a financial proxy for retail power) to multiple community members or businesses residing or located off-site from the location of the solar energy system, consistent with Minn. Statutes 216B.1641 or successor statute. A community solar garden may be either an accessory or a principal use.

Grid-intertie Solar Energy System – A photovoltaic solar energy system that is connected to an electric circuit served by an electric utility company.

Ground-mount – A solar energy system mounted on a rack or pole that rests or is attached to the ground. Ground-mount systems can be either accessory or principal uses.

Large-Scale Solar Energy System – A commercial solar energy system that converts sunlight into electricity for the primary purpose of wholesale sales of generated electricity. A large-scale solar energy system will have a project size greater than 20 acres and is the principal land use for the parcel(s) on which it is located.

Off-grid Solar Energy System – A photovoltaic solar energy system in which the circuits energized by the solar energy system are not electrically connected in any way to electric circuits that are served by an electric utility company.

Passive Solar Energy System – A solar energy system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger.

Photovoltaic System – A solar energy system that converts solar energy directly into electricity.

Renewable Energy Easement, Solar Energy Easement – An easement that limits the height or location, or both, of permissible development on the burdened land in terms of a structure or vegetation, or both, for the purpose of providing access for the benefited land to wind or sunlight passing over the burdened land, as defined in Minn. Stat. 500.30 Subd. 3 or successor statute.

Roof-mount – A solar energy system mounted on a rack that is fastened to or ballasted on a structure roof. Roof-mount systems are accessory to the principal use.

Roof Pitch – The final exterior slope of a roof calculated by the rise over the run, typically but not exclusively expressed in twelfths such as 3/12, 9/12, 12/12.

Solar Access – Unobstructed access to direct sunlight on a lot or building through the entire year, including access across adjacent parcel air rights, for the purpose of capturing direct sunlight to operate a solar energy system.

Solar Carport – A solar energy system of any size that is installed on a carport structure that is accessory to a parking area, and which may include electric vehicle supply equipment or energy storage facilities.

Solar Collector – The panel or device in a solar energy system that collects solar radiant energy and transforms it into thermal, mechanical, chemical, or electrical energy. The collector does not include frames, supports, or mounting hardware.

Solar Daylighting – Capturing and directing the visible light spectrum for use in illuminating interior building spaces in lieu of artificial lighting, usually by adding a device or design element to the building envelope.

Solar Energy – Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

Solar Energy System – A device, array of devices, or structural design feature, the purpose of which is to provide for generation or storage of electricity from sunlight, or the collection, storage and distribution of solar energy for space heating or cooling, daylight for interior lighting, or water heating.

Solar Hot Air System (also referred to as Solar Air Heat or Solar Furnace) – A solar energy system that includes a solar collector to provide direct supplemental space heating by heating and re-circulating conditioned building air. The most efficient performance includes a solar collector to preheat air or supplement building space heating, typically using a vertically-mounted collector on a south-facing wall.

Solar Hot Water System – A system that includes a solar collector and a heat exchanger that heats or preheats water for building heating systems or other hot water needs, including residential domestic hot water and hot water for commercial processes.

Solar Mounting Devices – Racking, frames, or other devices that allow the mounting of a solar collector onto a roof surface or the ground.

Solar Resource – A view of the sun from a specific point on a lot or building that is not obscured by any vegetation, building, or object for a minimum of four hours between the hours of 9:00 AM and 3:00 PM Standard time on all days of the year, and can be measured in annual watts per square meter.

Solar Resource

Understanding what defines a "solar resource" is foundational to how land use regulation affects solar development. Solar energy resources are not simply where sunlight falls. A solar resource has minimum spatial and temporal characteristics, and needs to be considered not only today but also into the future. Solar energy systems are economic only if the annual solar resource (measured in annual watts per square meter) are sufficiently high to justify the cost of installation. The resource is affected by the amount of annual shading, orientation of the panel, and typical atmospheric conditions. Solar resources on a particular site can be mapped and quantified, similar to quantifying other site resources that enhance property value; mineral resources, prime soils for agriculture, water, timber, habitat.

IV. Permitted Accessory Use - Solar energy systems are a permitted accessory use in all zoning districts where structures of any sort are allowed, subject to certain requirements as set forth below. Solar carports and associated electric vehicle charging equipment are a permitted accessory use on surface parking lots in all districts regardless of the existence of another building. Solar energy systems that do not meet the following design standards will require a conditional use permit.

A. Height - Solar energy systems must meet the following height requirements:

1. Building- or roof- mounted solar energy systems shall not exceed the maximum allowed height in any zoning district. For purposes for height measurement, solar energy systems other than building-integrated systems shall be given an equivalent exception to height standards as building-mounted mechanical devices or equipment.

2. Ground- or pole-mounted solar energy systems shall not exceed 15 feet in height when oriented at maximum tilt.

3. Solar carports in non-residential districts shall not exceed 20 feet in height.

Height - Rooftop System

This ordinance notes exceptions to the height standard when other exceptions for rooftop equipment are granted in the ordinance. Communities should directly reference the exception language rather than use the placeholder language here.

Height - Ground or Pole Mounted System

This ordinance sets a 15-foot height limit, which is typical for residential accessory uses. Some communities allow solar to be higher than other accessory uses in order to enable capture of the lot's solar resource when lots and buildings are closer together. An alternative is to balance height with setback, allowing taller systems if set back farther– for instance, an extra foot of height for every extra two feet of setback. In rural (or large lot) areas, solar resources are unlikely to be constrained by trees or buildings on adjacent lots and the lot is likely to have adequate solar resource for a lower (10-15 foot) ground-mount application.

B. Set-back - Solar energy systems must meet the accessory structure setback for the zoning district and primary land use associated with the lot on which the system is located, except as allowed below.

1. **Roof- or Building-mounted Solar Energy Systems** – The collector surface and mounting devices for roof-mounted solar energy systems shall not extend beyond the exterior perimeter of the building on which the system is mounted or built, unless the collector and mounting system has been explicitly engineered to safely extend beyond the edge, and setback standards are not violated. Exterior piping for solar hot water systems shall be allowed to extend beyond the perimeter of the building on a side-yard exposure. Solar collectors mounted on the sides of buildings and serving as awnings are considered to be building-integrated systems and are regulated as awnings.

2. **Ground-mounted Solar Energy Systems** - Ground-mounted solar energy systems may not extend into the side-yard or rear setback when oriented at minimum design tilt, except as otherwise allowed for building mechanical systems.

C. Visibility - Solar energy systems in residential districts shall be designed to minimize visual impacts from the public right-of-way, as described in C.1-3, to the extent that doing so does not affect the cost or efficacy of the system. Visibility standards do not apply to systems in non-residential districts, except for historic building or district review as described in E. below.

Visibility and Aesthetics

Aesthetic regulation should be tied to design principles rather than targeted at a specific land use. If the community already regulates aesthetics in residential districts, this model language provides guidance for balancing between interests of property owners who want to use their on-site solar resources and neighbors concerned with neighborhood character. Substantial evidence demonstrates that solar installations have no effect on property values of adjacent properties. But where aesthetic regulation is used to protect community character, these standards provide balance between competing goals.

1. **Building Integrated Photovoltaic Systems** - Building integrated photovoltaic solar energy systems shall be allowed regardless of whether the system is visible from the public right-of-way, provided the building component in which the system is integrated meets all required setback, land use, or performance standards for the district in which the building is located.

2. **Aesthetic restrictions** – Roof-mount or ground-mount solar energy systems shall not be restricted for aesthetic reasons if the system is not visible from the closest edge of any public right-of-way other than an alley, or if the system meets the following standards.

   a. Roof-mounted systems on pitched roofs that are visible from the nearest edge of the front right-of-way shall have the same finished pitch as the roof and be no more than ten inches above the roof.

   b. Roof-mount systems on flat roofs that are visible from the nearest edge of the front right-of-way shall not be more than five feet above the finished roof and are exempt from any rooftop equipment or mechanical system screening.

3. **Reflectors** - All solar energy systems using a reflector to enhance solar production shall minimize glare from the reflector affecting adjacent or nearby properties.

D. Lot Coverage - Ground-mount systems total collector area shall not exceed half the building footprint of the principal structure.

1. Ground-mount systems shall be exempt from lot coverage or impervious surface standards if the soil under the collector is maintained in vegetation and not compacted.

2. Ground-mounted systems shall not count toward accessory structure limitations.

3. Solar carports in non-residential districts ar exempt from lot coverage limitations.

E. Historic Buildings - Solar energy systems on buildings within designated historic districts or on locally designated historic buildings (exclusive of State or Federal historic designation) must receive approval of the community Heritage Preservation Commission, consistent with the standards for solar energy systems on historically designated buildings published by the U.S. Department of Interior.

F. Plan Approval Required - All solar energy systems requiring a building permit or other permit from Model Community shall provide a site plan for review.

Building Integrated PV

Building integrated solar energy systems can include solar energy systems built into roofing (existing technology includes both solar shingles and solar roofing tiles), into awnings, skylights, and walls.

Roof-Mounted Solar Energy Systems

This ordinance sets a threshold for pitched roof installations that they not be steeper than the finished roof pitch. Mounted systems steeper than the finished roof pitch change the appearance of the roof, and create additional considerations in regard to the wind and drift load on structural roof components. If the aesthetic impacts are not a concern to the community, the structural issues can be addressed in the building permit, as described in this Toolkit.

Reflectors

Unlike a solar collector, reflector systems do create a potential glare nuisance. While reflector systems are unusual, communities may want to include this reference as a precaution.

Impervious Surface Coverage

Rather than consider the solar panel for a ground-mount system as a roof, this provision recognizes that the ground under the panel can mitigate stormwater risks if it is kept in vegetation so that rain water can infiltrate. Any effects are deminimus for a small array if the lot is otherwise within coverage ratios.

Roof Coverage

National Fire Code standards recommend keeping solar arrays well away from roof edges and peak in order to enable some fire fighting access. Different fire departments have addressed this in different ways. Recommendations for solar friendly permitting that accommodate Fire Code recommendations can be found in the Solar America Board of Codes and Standards.

Plan Approval

This process is generally part of the process for obtaining a building permit. If the community does not issue building permits, it can be tied to a land use permit instead. For rural areas or cities without standards for rooftop systems, the plan approval section may be eliminated.

1. **Plan Applications** - Plan applications for solar energy systems shall be accompanied by to-scale horizontal and vertical (elevation) drawings. The drawings must show the location of the system on the building or on the property for a ground-mount system, including the property lines.

2. **Plan Approvals** - Applications that meet the design requirements of this ordinance shall be granted administrative approval by the zoning official and shall not require Planning Commission review. Plan approval does not indicate compliance with Building Code or Electric Code.

G. Approved Solar Components - Electric solar energy system components must have a UL or equivalent listing and solar hot water systems must have an SRCC rating.

H. Compliance with Building Code - All solar energy systems shall meet approval of local building code officials, consistent with the State of Minnesota Building Code, and solar thermal systems shall comply with HVAC-related requirements of the Energy Code.

I. Compliance with State Electric Code - All photovoltaic systems shall comply with the Minnesota State Electric Code.

J. Compliance with State Plumbing Code - Solar thermal systems shall comply with applicable Minnesota State Plumbing Code requirements.

K. Utility Notification - All grid-intertie solar energy systems shall comply with the interconnection requirements of the electric utility. Off-grid systems are exempt from this requirement.

V. Principal Uses – Model Community encourages the development of commercial or utility scale solar energy systems where such systems present few land use conflicts with current and future development patterns. Ground-mounted solar energy systems that are the principal use on the development lot or lots are conditional uses in selected districts.

A. Principal Use General Standards

1. Site Design

a. **Set-backs** – Community- and large-scale solar arrays must meet the following setbacks:

1. Property line setback for buildings or structures in the district in which the system is located, except as other determined in 1.a.5 below.

2. Roadway setback of 150 feet from the ROW centerline of State highways and CSAHs, 100 feet for other roads, except as other determined in 1.a.5 below.

3. Housing unit setback of 150 feet from any existing dwelling unit, except as other determined in 1.a.5 below.

4. Setback distance should be measured from the edge of the solar energy system array, excluding security fencing, screening, or berm.

5. All setbacks can be reduced by 50% if the array is fully screened from the setback point of measurement.

b. **Screening** – Community- and large-scale solar shall be screened from existing residential dwellings.

1. A screening plan shall be submitted that identifies the type and extent of screening.

2. Screening shall be consistent with Model Community's screening ordinance or standards typically applied for other land uses requiring screening.

3. Screening shall not be required along property lines within the same zoning district, except where the adjoining lot has an existing residential use.

4. Model Community may require screening where it determines there is a clear community interest in maintaining a viewshed.

Community-Scale Solar or Solar Gardens

Community solar systems differ from rooftop or solar farm installations primarily in regards to system ownership and disposition of the electricity generated, rather than land use considerations. There is, however, a somewhat greater community interest in community solar, and thus communities should consider creating a separate land use category.

This language limits the size of the garden to ten acres, which is an installation of no more than one MW of solar capacity. Communities should tailor this size limit to community standards, which may be smaller or larger.

Appropriate Setbacks

The community should consider balancing set-back requirements and screening requirements for principal use solar. Since the primary impact to neighbors of large-scale solar is visual, screening becomes less useful, as the setbacks get larger (and vice versa).

The setback distances provided here are general examples that should be modified to be consistent with other setbacks already in the ordinance. Excessive setbacks that are unique to solar land uses, or that are similar to high nuisance land uses such as industrial uses or animal agriculture, are unjustified given the low level of risk or nuisance posed by the system.

Screening

The community should consider limiting screening of community- or large-scale solar to where there is a visual impact from an existing use, such as adjacent residential districts or uses. Solar energy systems may not need to be screened from adjacent lots if those lots are in agricultural use, are non-residential, or have low-intensity commercial use.

c. **Ground cover and buffer areas** - The following provisions shall be met related to the clearing of existing vegetation and establishment of vegetated ground cover. Additional requirements may apply as required by Model Community.

1. Large-scale removal of mature trees on the site is discouraged. Model Community may set additional restrictions on tree clearing or require mitigation for cleared trees.

2. The project site design shall include the installation and establishment of ground cover meeting the beneficial habitat standard consistent with Minnesota Statutes, section 216B.1642, or successor statutes and guidance as set by the Minnesota Board of Water and Soil Resources (BWSR).

3. The applicant shall submit a planting plan accompanied by a completed "Project Planning Assessment Form" provided by BWSR for review by BWSR or the County SWCD.

4. Beneficial habitat standards shall be maintained on the site for the duration of operation, until the site is decommissioned. The owner of the solar array shall complete BWSR's "Established Project Assessment Form" at year 4 and every 3 years after that, and allow the County SWCD to conduct a site visit to verify compliance.

5. Model Community may require submittal of inspection fee at the time of the initial permit application to support ongoing inspection of the beneficial habitat ground cover.

6. The applicant shall submit a financial guarantee in the form of a letter of credit, cash deposit or bond in favor of the Community equal to one hundred twenty-five (125) percent of the costs to meet the beneficial habitat standard. The financial guarantee shall remain in effect until vegetation is sufficiently established.

d. Foundations - A qualified engineer shall certify that the foundation and design of the solar panel racking and support is within accepted professional standards, given local soil and climate conditions.

e. Power and communication lines - Power and communication lines running between banks of solar panels and to nearby electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by Model Community in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines, or distance makes undergrounding infeasible, at the discretion of the zoning administrator.

Ground Cover Standards

Minnesota has created a "beneficial habitat" certification, administered by the Board of Soil and Water Resources (BWSR) to enable local governments and solar developers to certify principal use solar as having achieved the co-benefits of using the site as pollinator habitat.

Establishing and maintaining native ground cover creates important co-benefits to the community or the property owner. Native grasses can be harvested for forage and wildflowers and blooming plants can create pollinator and bird habitat, and maintaining the site in native vegetation will build soils that can be turned back into agriculture at the end of the solar farm's life.

Site Design in Conditional Use Permit

Certain site design elements may be included in a community's conditional use permit for community- and large-scale solar. Best practices for habitat-friendly solar site design include, for instance, that:

• panels be at least 36 inches off the ground to allow mowing and other maintenance,

• panels be spaced to allow vegetation to be self-sustaining,

• maintenance standards limit or prevent pesticide use.

Financial Surety

Communities frequently require bonds or similar financial guarantees when infrastructure improvements are required for a development project. The beneficial habitat installation can be considered in a similar light. Establishing a self-sustaining pollinator or native habitat ground cover requires maintenance over the first 2-3 years, and some maintenance over the life of the project.

2. **Stormwater and NPDES** - Solar farms are subject to Model Community's stormwater management and erosion and sediment control provisions and NPDES permit requirements. Solar collectors shall not be considered impervious surfaces if the project is certified as beneficial habitat solar, as described in A.1.c.2. of this ordinance.

3. **Other standards and codes** - All solar farms shall be in compliance with all applicable local, state and federal regulatory codes, including the State of Minnesota Uniform Building Code, as amended; and the National Electric Code, as amended.

4. **Site Plan Required** - A detailed site plan for both existing and proposed conditions must be submitted, showing location of all solar arrays, other structures, property lines, rights-of-way, service roads, floodplains, wetlands and other protected natural resources, topography, electric equipment, and all other characteristics requested by Model Community. The site plan should show all zoning districts and overlay districts.

5. **Aviation Protection** - For solar farms located within 500 feet of an airport or within approach zones of an airport, the applicant must complete and provide the results of the Solar Glare Hazard Analysis Tool (SGHAT) for the Airport Traffic Control Tower cab and final approach paths, consistent with the Interim Policy, FAA Review of Solar Energy Projects on Federally Obligated Airports, or most recent version adopted by the FAA.

6. **Agricultural Protection** - Solar farms must comply with site assessment or soil identification standards that are intended to identify agricultural soils. Model Community may require mitigation for use of prime soils for solar array placement, including the following:

   a. Demonstrating co-location of agricultural uses (agrivoltaics) on the project site.

   b. Using an interim use or time-limited CUP that allows the site to be returned to agriculture at the end of life of the solar installation.

   c. Placing agricultural conservation easements on an equivalent number of prime soil acres adjacent to or surrounding the project site.

   d. Locating the project in a Drinking Water Supply Management Area or wellhead protection area.

Stormwater and Water Quality Standards

Perennial grasses and wildflowers planted under the panels, between arrays, and in setback or buffer areas will substantially mitigate the stormwater risks associated with solar arrays, and result in less runoff than typically seen from many types of agriculture. The ground cover standards in Section A.3. will mitigate many stormwater risks, although soil type and slope can still affect the need for additional stormwater mitigation.

Solar with native perennial ground cover can provide multiple water quality benefits when converting from most agricultural crop uses. Both groundwater (limiting nitrate contamination) and surface waters (reducing phosphorus and sediment loading) can benefit if the system is appropriately designed.

Site Plan

Solar farm developers should provide a site plan similar to that required by the community for any other development. Refer to your existing ordinance to guide site plan submittal requirements.

Aviation Standards, Glare

This standard was developed for the FAA for solar installations on airport grounds. It can also be used for solar farm and garden development in areas adjacent to airports. This standard is not appropriate for areas where reflected light is not a safety concern.

Agricultural Protection

If the community has ordinances that protect agricultural soils, this provision applies those same standards to solar development. Communities should understand, however, that solar farms do not pose the same level or type of risk to agricultural practices as does housing or commercial development. Solar farms can be considered an interim use that can be easily turned back to agriculture at the end of the solar farm's life (usually 25 years.)

7. **Decommissioning** - A decommissioning plan shall be required to ensure that facilities are properly removed after their useful life.

   a. Decommissioning of the system must occur in the event the project is not in use for 12 consecutive months.

   b. The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and assurances that financial resources will be available to fully decommission the site.

   c. Disposal of structures and/or foundations shall meet the provisions of the Model Community Solid Waste Ordinance.

   d. Model Community may require the posting of a bond, letter of credit or the establishment of an escrow account to ensure proper decommissioning.

Prime Farmland and Agrivoltaics

Minnesota Admin. 7850.4400 Subd. 4 has provisions for the protection of prime farmland when large electric power generating plants are located on lands designated as prime farmland.

There are a number of mitigation opportunities for solar sited on prime farmland, such as co-locating agricultural uses within solar arrays (also called agrivoltaics). Groundcover that includes pollinator-friendly plantings may enhance surrounding agricultural opportunities, or in the case of protecting drinking water or wellhead protection areas as described below.

B. Community-Scale Solar – Model Community permits the development of community-scale solar, subject to the following standards and requirements:

1. **Rooftop gardens permitted** - Rooftop community systems are permitted in all districts where buildings are permitted.
2. **Community-scale uses -** Ground-mount community solar energy systems must cover no more than ten acres (project boundaries), and are a permitted use in industrial and agricultural districts, and permitted with standards or conditional in all other non-residential districts. Ground-mount solar developments covering more than ten acres shall be considered large-scale solar.
3. **Dimensional standards** - All structures must comply with setback, height, and coverage limitations for the district in which the system is located.
4. **Other standards** - Ground-mount systems must comply with all required standards for structures in the district in which the system is located.

Defining Community-Scale Solar

The acreage size for community-scale solar garden written here (10 acres) is the high end of project size for a one megawatt system, which is the maximum size of community solar gardens within Xcel Energy's program. But other utilities have other size limitations, and community-scale could be defined as high as 10 megawatts (100 acre project size). Community-scale solar is the size that can fit in to the landscape.

Drinking Water Protection

In identifying preferred sites for solar principal uses the community should consider co-benefits of solar energy development. One such potential co-benefit is protection of drinking water supplies. Solar energy development may be intentionally sited within vulnerable portions of Drinking Water Supply Management Areas (DWSMAs)as a best management practice to restore and protect native perennial groundcover that reduces nitrate contamination of ground water supplies.

C. **Large-Scale Solar** - Ground-mount solar energy arrays that are the primary use on the lot, designed for providing energy to off-site uses or export to the wholesale market, are permitted under the following standards:

1. **Conditional use permit** – Solar farms are conditional uses in agricultural districts, industrial districts, shoreland and floodplain overlay districts, airport safety zones subject to A.1.5. of this ordinance, and in the landfill/brownfield overlay district for sites that have completed remediation.

Large-Scale Solar Conditional Uses

Large -scale solar should require a conditional use or interim use permit in order for the community to consider the site-specific conditions. The districts listed here are examples. Each community needs to consider where large scale solar is suitable in the context of its zoning districts and priorities.

Example Use Table

Use Type	Residential	Mixed Use	Business	Industrial	Agricultural, Rural, Landfill	Shoreland	Floodplain	Special (Conservation, Historic Districts)
Large-scale solar				C	C	C	C	C
Community-scale solar	C	C	C	P	P	PS	PS	PS
Accessory use ground-mounted solar	P	P	P	P	P	P	C	C
Rooftop solar	P	P	P	P	P	P	P	PS

P = Permitted

PS = Permitted Special (additional separate permit or review)

C = Conditional

Blank Cell = Prohibited

Solar as a Land Use

The above use table shows four types of solar development that are distinct types of land uses (two kinds of accessory uses, two principal uses), and a group of districts or overlays that are commonly used in Minnesota.

• Rooftop system are permitted in all districts where buildings are permitted, with recognition that historic districts will have special standards or permits separate from the zoning permits.

• Accessory use ground-mount are conditional where potentially in conflict with the primary district or overlay goal.

• Community-scale solar principal uses are conditional where land use conflicts or opportunity conflicts are high, permitted where a 10 acre development can be integrated into the landscape, and requiring special consideration in shoreland and floodplain overlay districts.

• Large-scale is prohibited in higher density districts and conditional in all other districts.

Both community- and large-scale solar is allowed in shoreland and floodplain overlay districts, because the site design standards requiring beneficial habitat ground cover not only ensure a low-impact development but in most cases result in a restoration of ecosystem services from the previous (usually agricultural) use.

VI. Restrictions on Solar Energy Systems Limited – As of (adoption date for this ordinance) new homeowners' agreements, covenant, common interest community standards, or other contract between multiple property owners within a subdivision of Model Community shall not restrict or limit solar energy systems to a greater extent than Model Community' solar energy standards.

VII. Solar Access - Model Community encourages protection of solar access in all new subdivisions.

A. Solar Easements Allowed - Model Community allows solar easements to be filed, consistent with Minnesota State Code 500. Any property owner can purchase an easement across neighboring properties to protect access to sunlight. The easement can apply to buildings, trees, or other structures that would diminish solar access.

B. Easements within Subdivision Process - Model Community requires new subdivisions to identify and create solar easements when solar energy systems are implemented as a condition of a PUD, subdivision, conditional use, or other permit, as specified in Section 8 of this ordinance.

Solar Easements

Minnesota allows the purchase and holding of easements protecting access to solar and wind energy. The easement must specify the following information:

Required Contents - Any deed, will, or other instrument that creates a solar or wind easement shall include, but the contents are not limited to:

(a) A description of the real property subject to the easement and a description of the real property benefiting from the solar or wind easement; and

(b) For solar easements, a description of the vertical and horizontal angles, expressed in degrees and measured from the site of the solar energy system, at which the solar easement extends over the real property subject to the easement, or any other description which defines the three dimensional space, or the place and times of day in which an obstruction to direct sunlight is prohibited or limited;

(more provisions, see Statute)

Source: Minnesota Stat. 500.30 Subd. 3.

VIII. Renewable Energy Condition for Certain Permits

A. **Condition for Planned Unit Development (PUD) Approval** - Model Community may require on-site renewable energy systems, zero-net-energy (ZNE) or zero-net-carbon (ZNC) building designs, solar-synchronized electric vehicle charging or other clean energy systems as a condition for approval of a PUD permit to mitigate for:

1. Impacts on the performance of the electric distribution system,

2. Increased local emissions of greenhouse gases associated with the proposal,

3. Need for electric vehicle charging infrastructure to offset transportation-related emissions for trips generated by the new development,

4. Other impacts of the proposed development that are inconsistent with the Model Community Comprehensive Plan.

B. **Condition for Conditional Use Permit** - Model Community may require on-site renewable energy systems or zero net energy construction as a condition for a rezoning or a conditional use permit.

Renewable Energy Conditions, Incentives

The community can use traditional development tools such as conditional use permits, PUDs, or other discretionary permits to encourage private investment in solar energy systems as part of new development or redevelopment. This model ordinance notes these opportunities for consideration by local governments. In most cases, additional ordinance language would need to be tailored to the community's ordinances.

For instance, a provision that PUDs (or other special district or flexible design standard) incorporate solar energy should be incorporated into the community's PUD ordinance rather than being a provision of the solar standards.

Conditional use permits generally include conditions, and those conditions can include renewable energy or zero net energy design, but only if the conditions are clearly given preference in adopted policy or plans. Explicit reference to climate or energy independence goals in the ordinance and explicit preference for such conditions will set a foundation for including such conditions in the permit.

IX. Solar Roof Incentives - Model Community encourages incorporating on-site renewable energy system or zero net energy construction for new construction and redevelopment. Model Community may require on-site renewable energy or zero-net-energy construction when issuing a conditional use permit where the project has access to local energy resources, in order to ensure consistency with Model Community's Climate Action Plan.

A. **Density Bonus** - Any application for subdivision of land in the ___ Districts that will allow the development of at least four new lots of record shall be allowed to increase the maximum number of lots by 10% or one lot, whichever is greater, provided all building and wastewater setbacks can be met with the increased density, if the applicant enters into a development agreement guaranteeing at least three (3) kilowatts of PV for each new residence that has a solar resource.

Solar Roof Incentives

This section of the model ordinance includes a series of incentives that can be incorporated into development regulation. Most cities and many counties use incentives to encourage public amenities or preferred design. These same tools and incentives can be used to encourage private investment in solar energy. Communities should use incentives that are already offered, and simply extend that incentive to appropriate solar development.

Some of the incentives noted here are not zoning incentives, but fit more readily into incentive programs offered by the community (such as financing or incentive-based design standards).

B. **Financial Assistance** – Model Community provides financial assistance to certain types of development and redevelopment. All projects that receive financial assistance of $_____ or greater, and that have a solar resource shall incorporate on-site renewable energy systems.

C. **Solar-Ready Buildings** – Model Community encourages builders to use solar-ready design in buildings. Buildings that submit a completed U.S. EPA Renewable Energy Ready Home Solar Photovoltaic Checklist (or other approved solar-ready standard) and associated documentation will be certified as a Model Community solar ready home, and are eligible for low-cost financing through Model Community's Economic Development Authority. A designation that will be included in the permit home's permit history.

D. **Solar Access Variance** – When a developer requests a variance from Model Community's subdivision solar access standards, the zoning administrator may grant an administrative exception from the solar access standards provided the applicant meets the conditions of 1. and 2. below:

1. **Solar Access Lots Identified** - At least __% of the lots, or a minimum of __ lots, are identified as solar development lots.

2. **Covenant Assigned** - Solar access lots are assigned a covenant that homes built upon these lots must include a solar energy system. Photovoltaic systems must be at least three (3) KW in capacity.

3. **Additional Fees Waived** - Model Community will waive any additional fees for filing of the covenant.

Solar Ready Buildings

New buildings can be built "solar-ready" at very low cost (in some cases the marginal cost is zero). Solar energy installation costs continue to decline in both real and absolute terms, and are already competitive with retail electric costs in many areas. If new buildings have a rooftop solar resource, it is likely that someone will want to put a solar energy system on the building in the future. A solar ready building greatly reduces the installation cost, both in terms of reducing labor costs of retrofits and by "pre-approving" most of the installation relative to building codes.

A community's housing and building stock is a form of infrastructure that, although built by the private sector, remains in the community when the homeowner or business leaves the community. Encouraging solar-ready construction ensures that current and future owners can take economic advantage of their solar resource when doing so makes the most sense for them.

Solar Access Subdivision Design

Some communities will require solar orientation in the subdivision ordinance, such as requiring an east-west street orientation within 20 degrees in order to maximize lot exposure to solar resources. However, many such requirements are difficult to meet due to site constraints or inconsistency with other requirements (such as connectivity with surrounding street networks). Rather than simply grant a variance, the community can add a condition that lots with good solar access actually be developed as solar homes.

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SOLAR STANDARDS RESEARCH

DATE	9/5/23
PROJECT NAME	Ordinance Amendments - Solar Research
PROJECT NUMBER	CNO23005
PROJECT LOCATION	North Oaks, MN
PREPARED BY	Nicholas Ouellette

	RESIDENTIAL DISTRICTS				COMMERCIAL/INDUSTRIAL DISTRICTS				STANDARDS		NOTES
CITY	ROOF MOUNTED		GROUND MOUNTED		ROOF MOUNTED		GROUND MOUNTED		ROOF MOUNTED	GROUND MOUNTED	
Andover	R1, R2, R3, R4, R5, RR, M1, M2, M3	Permitted Accessory Use	RR, R-1	Permitted Accessory Use	NB, SC, GB, I	Permitted Accessory Use	NB, SC, GB, I	Prohibited Use	Comply with maximum height standards. Panels and equipment flush with roof. May not extend beyond perimeter of exterior walls. Visibility to commercial/industrial solar on flat roofs should be limited.	Not permitted in front yard. 30 ft. setback to interior side/rear lot lines. 15 ft. maximum height. Max. ground coverage limited based on parcel/lot area. Lots less than 3 acres may not exceed 400 sq. ft. ground cover. Lots 3 acres or more the max. coverage may not exceed the foundation area of the residence or 1,200 sq. ft. whichever is less.	
Chanhassen	A2, RR, RSF, R4, RLM, R8, R12, R16	Permitted Accessory Use	A2, RR, RSF, R4, RLM, R8, R12, R16	Accessory	BN, BH, CBD, CC, BG, BF, OI, IOP	Permitted Accessory Use	BN, BH, CBD, CC, BG, BF, OI, IOP	Permitted Accessory Use	Comply with district height standards. Orient glare away from neighboring windows. Mounted flush to roofs. Not to extend beyond perimeter of walls. Colors should be dark or blend with the building.	Comply with accessory structure height standards for district. Exterior lines shall be underground. Screen with walls, fences or landscaping. Setbacks: - Non-residential comply with district setbacks. - Residential only permitted in rear yards with a min. 10 ft. setback.	
Cottage Grove	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	Pitched roof panels must be flush, flat roof panels may be angled. Colors shall blend with building. Comply with max. height for zoning district. Glare away from neighboring windows. Systems may not extend beyond perimeter of building.	Only permitted on properties 5 or more acres in size. Not to exceed 15 ft. Prohibited in front yard of properties in MUSA. Comply with district setback standards.	Standards for decommissioning. Wall-mounted systems permitted. Heliostats prohibited.
Eagan	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	Must comply with zoning district regulations. Residential setback up to 1 ft. from edge of roof. Commercial/Ind./Inst. setback 10 ft. from edge of roof. Subject to district height standards. Reduce glare to other structures, screening may be required. Max 80% roof-surface coverage on south facing roof or entire surface of flat roof.	Must comply with zoning district regulations. Must comply with accessory structure standards. Ground coverage not to exceed: - 30% of residential lot area. - 70% of commercial/ind./inst. lot area. Landscape screening from ROW's and adjacent lots to soften view. Height limited to 12 ft. and may extend an addition 1 ft. in height for every additional 2 ft. of setback (up to 15 ft. total height).	Community solar standards. Color does not need to match.
Gem Lake											Solar not permitted
Grant	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	None specified	None specified	None specified	None specified	Must comply with structure setback (attached to principal or accessory buildings). Height not to extend 5 ft. above roof. Maximum 80% roof coverage. Reduce glare to adjacent properties and ROWs. Solar on pitched roofs facing roadways shall not have a pitch greater than 5% steeper than the roof.	Only allowed use on parcel with existing principal structure. Setback 100 ft. from property line with an adjacent home. Must meet all other applicable structure setbacks for district. Not allowed in wetland or shoreland overlay. Footprint not to exceed 1,000 sq. ft. Landscaping screening may be required. Minimize glare to traffic and other properties.	Certificate of compliance required. No commercial/industrial solar energy system standards are provided.

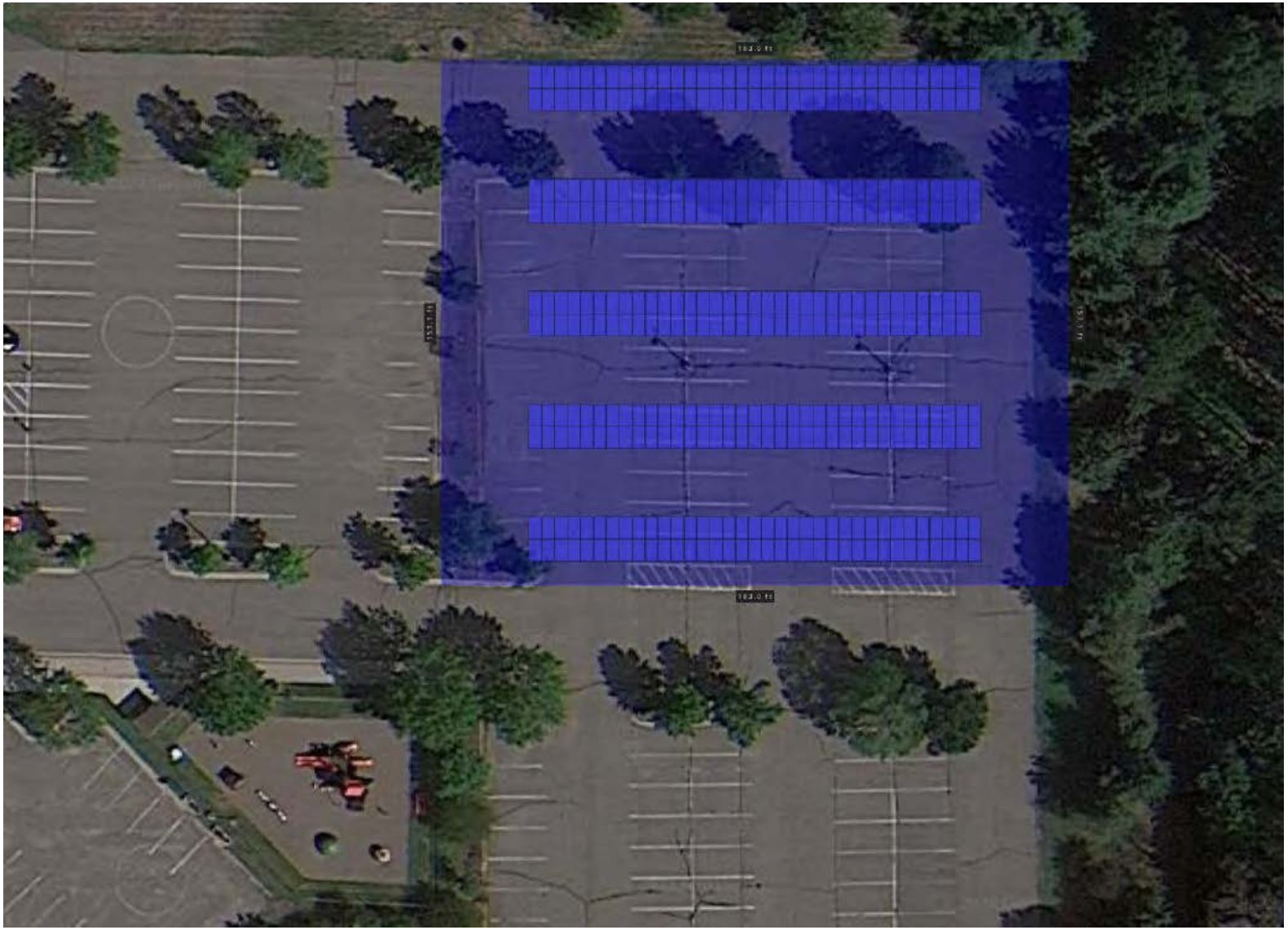
	RESIDENTIAL DISTRICTS				COMMERCIAL/INDUSTRIAL DISTRICTS				STANDARDS		NOTES
CITY	ROOF MOUNTED		GROUND MOUNTED		ROOF MOUNTED		GROUND MOUNTED		ROOF MOUNTED	GROUND MOUNTED	
Lake Elmo	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	All districts	Permitted Accessory Use	Permitted in all districts where buildings are permitted. Commercial rooftop solar shall be placed to limit visibility from the ROW or blend into roof design.	Permitted in all districts where buildings are permitted. Comply with accessory setback, height and lot coverage restrictions. Any foundation, compacted soil or component of solar resting on ground counts to impervious surface coverage. Solar systems 6 sq. ft. or less are exempt from zoning district setback requirements.	
Minnetonka	All districts	Permitted Accessory Use	All districts	Conditional Use Permit	All districts	Permitted Accessory Use	B1, B2, B3, I-1, PID	Permitted Accessory Use in parking lot	Must comply with all location, setback, size and height requirements of the attached structure.	Must follow parking lot setback requirements and not disrupt required parking lot design. Height: drive aisle clearance of 13.5 ft. not to exceed 20 ft. in height or the principal structure height. Structures may not have enclosed walls.	Glare should be minimized, may required plant materials. City owned solar may be installed within the ROW and are exempt from other standards in solar section. Abandonment standards.
St. Louis Park	All districts	Permitted Accessory Use	All districts	Permitted Accessory Structure	All districts	Permitted Accessory Use	All districts	Permitted Accessory Structure	Must comply with dimensional standards applicable to the attached structure. May extend no more than 3 ft. beyond height of roof. (10 ft. for flat roof). Setback 1 ft. from perimeter of roof (3 ft. for flat roof with no parapet).	Not permitted in front yard or side yard abutting public street, unless situated over parking areas. Setback 3 ft. from non-residential lot lines. Max. 20 ft. in height. Area for solar system to be included in max. allowed size for accessory structures. Frame shall be constructed of permanent materials.	Abandonment standards. Minimize glare to adjacent/nearby properties.

Cedar Creek Energy
3155 104th Ln NE
Blaine, MN 55449
763-432-5261

DATE.REV

Cedar Creek Energy
3155 104th Ln NE
Blaine, MN 55449
763-432-5261

DATE.REV



Cedar Creek Energy
3155 104th Ln NE
Blaine, MN 55449
763-432-5261

DATE.REV

City of North Oaks

MAP

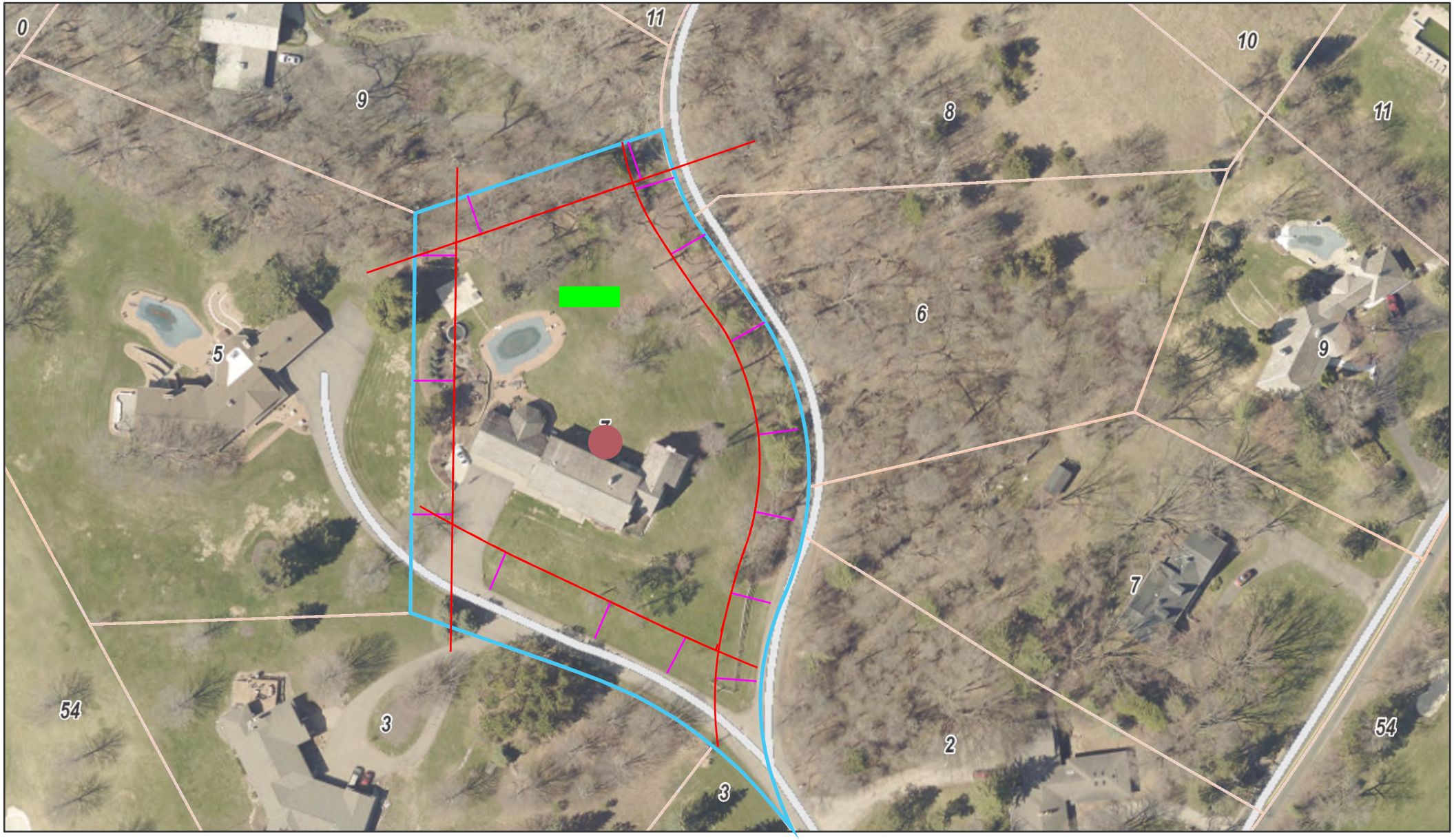
RSM Parcels Greater than 3.5 Acres

Parcels

Wilkinson Lake
Deep Lake
Charley Lake
Pleasant Lake
Black Lake
North Mallard Pond
South Mallard Pond
Teal Pond
Gilfillan Lake
SHOREVIEW INTERCEPTOR
FOREST LAKE INTERCEPTOR
N

Updated 9/19/23
Source: Sambatek/HR Green

7 SKILLMAN LN



11/8/2023, 2:02:50 PM

1:1,200

0 55 110 220 ft

0 15 30 60 m

Personal Property

Cities

30-ft. Setback

Tax Parcels

County Offices

45 x 14 ft. Solar Array

Subject Property

24 RAVEN RD

11/8/2023, 11:56:14 AM

1:600

0 25 50 100 ft

0 5 10 20 m

Personal Property

Cities

30-ft. Setback

Tax Parcels

County Offices

45 x 14 ft. Solar Array

Subject Property

4880 Hodgson

11/9/2023, 3:27:59 PM

Personal Property

Tax Parcels

Cities

County Offices

Subject Property (11.10-acres)

150 x 140 ft. Solar Array

1:1,200

0 55 110 220 ft

0 15 30 60 m

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA

ORDINANCE NO. ____

AN ORDINANCE AMENDING CITY CODE TITLE XV, CHAPTER 151, REGARDING SOLAR ENERGY SYSTEMS

THE CITY COUNCIL OF THE CITY OF NORTH OAKS ORDAINS AS FOLLOWS:

Section One. Title XV, Chapter 151, Section 151.051 Amendment: Title XV, Chapter 151, Section 151.051 of the North Oaks City Code is hereby amended to add Section 151.051(D)(3) as follows. The underlined text shows the added language:

§ 151.051 RSM - RESIDENTIAL SINGLE-FAMILY MEDIUM DENSITY DISTRICT. (D) Conditional uses. The following conditional uses may be permitted, but only after securing a conditional use permit in accordance with § 151.076:

(3) Ground Mounted Solar Energy Systems that meet the performance standards found in § 151.035.

Section Two. Title XV, Chapter 151, Section 151.052 Amendment: Title XV, Chapter 151, Section 151.052 of the North Oaks City Code is hereby amended as follows. The underlined text shows the added language:

(D) Conditional uses. The following conditional uses may be permitted, but only after securing a conditional use permit in accordance with § 151.076: all uses that are permitted conditional uses in the Residential Single-Family Medium Density District in § 151.051(D), except for Ground Mounted Solar Energy Systems.

Section Three. Title XV, Chapter 151 Amendment Adding Section 151.035: Title XV, Chapter 151, of the North Oaks City Code is hereby amended to add § 151.035 as follows. The underlined text shows the added language:

§151.035 Solar Energy Systems

(A) **Purpose.** The purpose of this section is to regulate the placement, construction and modification of solar energy systems in order to protect the health, safety and welfare of the public, while not unreasonably interfering with the development of solar energy systems in the City. Specifically, the purposes of this section are:

(1) To meet the goals of the Comprehensive Plan and preserve the health, safety and welfare of the community by promoting the safe, effective and efficient use of solar energy systems.

(2) To regulate the location of solar energy systems.

(3) To protect residential areas and land uses from potential adverse impacts of solar energy systems.

(4) To minimize adverse visual impacts of solar energy systems and facilities through design, siting, landscaping, and screening.

(5) To avoid adverse impacts to adjacent properties caused by solar energy systems by ensuring that those structures are soundly and carefully designed, constructed, modified, maintained and promptly removed when no longer used.

(6) To ensure that solar energy systems are compatible with surrounding land uses.

(B) **Definitions.**

BUILDING-INTEGRATED SOLAR ENERGY SYSTEM. A solar energy system that is an integral part of a principal or accessory building, rather than a separate mechanical device, replacing or substituting for an architectural or structural component of the building. Building-integrated systems include, but are not limited to, photovoltaic or hot water solar energy systems that are contained within roofing materials, windows, skylights, and awnings.

GRID-INTERTIE SOLAR ENERGY SYSTEM. A photovoltaic solar energy system that is connected to an electric circuit served by an electric utility company.

GROUND MOUNTED SOLAR ENERGY SYSTEM. A solar energy system mounted on a rack or pole that rests on or is attached to the ground. Ground-mount systems are accessory to the principal use and allowed only with a conditional use permit.

PHOTOVOLTAIC SYSTEM. A solar energy system that converts solar energy directly into electricity.

ROOF MOUNTED SOLAR ENERGY SYSTEM. A solar energy system mounted on a rack that is fastened to or ballasted on the roof of a structure.

SOLAR ACCESS. Unobstructed access to direct sunlight on a lot or building through the entire year, including access across adjacent parcel air rights, for the purpose of capturing direct sunlight to operate a solar energy system.

SOLAR COLLECTOR. The panel or device in a solar energy system that collects solar radiant energy and transforms it into thermal, mechanical, chemical, or electrical energy. The collector does not include frames, supports, or mounting hardware.

SOLAR ENERGY. Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

SOLAR ENERGY SYSTEM. A device, array of devices, or structural design feature, the purpose of which is to provide for generation or storage of electricity from sunlight, or the collection, storage and distribution of solar energy for space heating or cooling, daylight for interior lighting, or water heating.

(C) **Permitted Accessory Use.**

(1) Roof Mounted and Building-Integrated Solar Energy Systems are a permitted accessory use in all zoning districts where structures of any sort are allowed subject to the following standards:

(a) Such systems must comply with the building code and current City ordinances and regulations.

(b) Building-Integrated or Roof Mounted Solar Energy Systems shall not exceed the maximum allowed height for a building or roof in any zoning district.

(2) Solar Collector devices less than two (2) square feet in area and generally used for garden decoration, exterior accent lighting, lawns, and flagpoles, are allowed in all zoning districts.

(D) **Ground-Mounted Solar Energy Systems.** Ground Mounted Solar Energy Systems are a conditional use in the RSM zoning district, subject to the following standards:

1. **Location and Lot Size Requirements.**

(a) The lot is a minimum of 10 acres in size.

(b) Ground Mounted Solar Systems must be located entirely in the side or rear yard of the lot.

(c) Ground Mounted Solar Systems may be located within a parking lot provided the applicant can provide evidence that adequate on-site parking is available to serve the property and the structure will not disrupt required parking lot spaces or drive aisles.

2. **Setbacks.** Ground Mounted Solar Energy Systems must comply with the required 30-foot minimum structure setback from all property lines. Ground Mounted Solar Energy Systems may not extend into the side or rear yard setback when oriented at minimum design tilt.

3. **Height.** Ground Mounted Solar Energy Systems shall not exceed 12 feet in height. Height shall be measured from the top of the grade to the highest point of the structure at its maximum designed height.

4. **Visibility.** Ground Mounted Solar Energy Systems shall be designed to minimize visual impacts from the public right-of-way and adjacent property.

5. **Glare.** All solar energy systems shall minimize glare affecting adjacent or nearby properties. Where necessary, screening may be required to address glare.

6. **System Size.** The total collector area of Ground Mounted Solar Energy Systems shall not be larger than half the building footprint of the principal structure.

7. **Lot Coverage.** Ground Mounted Solar Energy Systems shall be exempt from lot coverage limitations if the soil under the Solar Collector is maintained in vegetation.

8. **Accessory Structure Exemption.** Ground Mounted Solar Energy Systems shall not be considered an accessory structure for the purpose of accessory structures size and number limitations.

9. **Landscaping**.
    (a) Where possible, a mix of pollinator and native groundcover mix should be provided beneath the solar collectors to provide native perennial vegetation and foraging habitat beneficial to gamebirds, songbirds, and pollinators and reduce stormwater runoff and erosion at the solar generation site, subject to the standards of Minnesota State Statutes §216B.1642.

    (b) A mix of deciduous and evergreen trees and shrubs shall be provided to buffer the panels from adjacent properties. Natural looking and effective screening is desired, however, as part of the conditional use permit, the City may permit fences in addition to or in lieu of landscaping to provide appropriate screening from adjacent public rights-of-way and neighboring properties.

10. **Conditional Use**. The conditional use permit shall be subject to the procedures and standards in Section 151.076 (Conditional Use Permits) of the City Code.

(E) **Plan Approval Required.** All Building-Integrated or Roof Mounted Solar Energy Systems shall require a building permit and electrical permit. All Ground Mounted Solar Energy Systems shall require a conditional use permit, building permit and electrical permit.

(1) **Plan Applications.** Plan applications for solar energy systems shall be accompanied by to-scale horizontal and vertical (elevation) drawings. The drawings must show the location of the system on the building for Building-Integrated or Roof Mounted Solar Energy Systems and a site plan showing all property lines and setbacks must be provided for Ground Mounted Solar Energy Systems.

(2) **Plan Approvals.** Applications for Building-Integrated or Roof Mounted systems that meet the design requirements of this section are permitted subject to all requirements of this section. A building permit is still required for all such systems.

(3) **Approved Solar Components.** Electric solar energy system components must have a UL or equivalent listing and solar hot water systems must have an SRCC rating.

(4) **Compliance with Building Code.** All solar energy systems shall comply with the State of Minnesota Building Code, as applicable, and solar thermal systems shall comply with HVAC-related requirements of the Energy Code.

(5) **Compliance with State Electric Code.** All photovoltaic systems shall comply with the Minnesota State Electric Code.

(6) **Compliance with State Plumbing Code.** Solar thermal systems shall comply with applicable Minnesota State Plumbing Code requirements.

(7) **Utility Notification.** All grid-intertie solar energy systems shall comply with the interconnection requirements of the electric utility. Off-grid systems are exempt from this requirement.

(8) **Expiration.** If any solar energy system remains nonfunctional or inoperative for a continuous period of twelve (12) months, the system shall be deemed to be abandoned and shall constitute a public nuisance. The owner must remove the abandoned system at their expense. Removal shall include the entire structure, including transmission equipment and footings.

Section Four. Effective Date. This Ordinance shall be in full force and effect upon its adoption and publication as provided by law.

Passed in regular session of the City Council on the 11th day of April, 2024.

CITY OF NORTH OAKS

By: _____

Krista Wolter, Mayor

Attested:

By: _____

Kevin Kress
City Administrator/City Clerk

(Published in the Shoreview Press on _____, 2024)

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA
RESOLUTION NO. _____

A RESOLUTION APPROVING THE PUBLICATION OF A SUMMARY OF ORDINANCE NO. 2024-___ , AN ORDINANCE AMENDING NORTH OAKS CITY CODE TITLE XV, CHAPTER 151, REGARDING SOLAR ENERGY SYSTEMS

WHEREAS, on April 11, 2024, the City Council of the City of North Oaks, Ramsey County, Minnesota ("City") adopted Ordinance No. 2024-_____, an Ordinance Amending City Code Title XV, Chapter 151, Regarding Solar Energy Systems; and

WHEREAS, pursuant to Minn. Stat. Sec. 412.191, subd. 4, the Council may, by a 4/5ths vote, direct that only the title and a summary of the ordinance be published; and

WHEREAS, the City Council for the City of North Oaks has reviewed the summary of Ordinance No. 2024-____ which is attached hereto as **Exhibit A**; and

WHEREAS, the City Council for the City of North Oaks has determined that publication of the title and a summary of Ordinance No. 2024-___ would clearly inform the public of the intent of the ordinance; and

WHEREAS, due to the length of Ordinance No. 2024-____ the City Council desires to publish a summary of the Ordinance.

NOW THEREFORE BE IT RESOLVED, by a vote of at least 4/5ths of its members, that the City Council of the City of North Oaks hereby:

1. Approves the text of the summary of Ordinance No. 2024-__ attached as **Exhibit A** and authorizes the publication of the summary shown in **Exhibit A** in lieu of publication of the entirety of Ordinance No. 2024-___ in the City's official newspaper.

2. Directs the City Clerk to ensure that a full and complete printed copy of Ordinance No. 2024-___is available for inspection during regular business hours at the office of the North Oaks City Clerk, by standard mail, or by electronic mail.

3. Directs the City Clerk to file the executed Ordinance No. 2024-____ upon the books and records of the City along with proof of publication.

This resolution is passed and adopted by the City Council of the City of North Oaks, Ramsey County, Minnesota this 11th day of April, 2024.

CITY OF NORTH OAKS

By:_____
Krista Wolter
Its: Mayor

Attested:

By:_____
Kevin Kress
Its: City Administrator/City Clerk

EXHIBIT A

SUMMARY PUBLICATION
ORDINANCE NO. 2024-___

ORDINANCE NO. 2024- AN ORDINANCE AMENDING CITY CODE TITLE XV, CHAPTER 151, REGARDING SOLAR ENERGY SYSTEMS

On April 11, 2024, the City Council of the City of North Oaks ("City") adopted Ordinance No. 2024-_____, ("Ordinance") an Ordinance Amending City Code Title XV, Chapter 151, Regarding Solar Energy Systems.

The Ordinance adds ground mounted solar energy systems as a conditional use within the RSM zoning district and adds section 151.035, Solar Energy Systems, to the zoning ordinance. Section 151.035 adds various definitions and performance standards for a variety of solar energy systems.

It is hereby determined that publication of this title and summary will clearly inform the public of the intent and effect of Ordinance No. 2024-___ and it is directed that only the above title and summary of Ordinance No. 2024-___conforming to Minn. Stat. Sec. 331A.01 be published, with the following:

NOTICE

A printed copy of the full text of Ordinance No. 2024-___ is available for public inspection by any person during regular office hours at the office of the North Oaks City Clerk, 100 Village Center Drive, # 230, North Oaks MN 55127, by standard mail, or by electronic mail, and at any other public location which the Council designates.

CITY OF
NorthOaks
Building on a tradition of innovation

PLANNING REPORT

TO: North Oaks Planning Commission

FROM: Kendra Lindahl, City Planner
Kevin Kress, City Administrator
Bridget Nason, City Attorney

DATE: April 4, 2024

RE: Amending City Code Title XV, Chapter 151, Regarding Building Height and Setback Standards In The RSL- Residential Single-Family Low Density District

PLANNING COMMISSION MEETING

The planning commission meeting held a public hearing at their February 29, 2024 meeting. There was no one present to speak on this item.

The Commission discussed the draft language. Two Commissioners felt that the 6 foot limit in 7(c)iii was too restrictive and supported 8 feet. After discussion, the Commission voted 6-1 to recommend approval of the ordinance amendment as drafted.

BACKGROUND

A working group made up of Chair Cremons, Council member Azman and staff is meeting monthly to address a number of provisions in the City's existing zoning ordinance that have been identified by staff, the Planning Commission and City Council as areas where revisions to the existing language may be beneficial. Staff will bring individual items to the Planning Commission on a regular basis to present amendments for consideration. This item relates to building height, setbacks and topographical conditions.

The City has been challenged on the existing language related to these items and how to interpret the existing code language. One of the areas the working group has been reviewing is the current requirement for houses with a height greater than 35 feet to obtain a conditional use permit (CUP). Staff believes that this is something that could be moved into development standards rather than requiring a conditional use permit. If the application meets the standards, staff would approve the building permit. However, the Planning Commission directed staff to keep the CUP requirement but modify the standards to raise the threshold for a CUP.

Deb Breen gathered the CUPs for building height and found 59 CUPs for building height were submitted since 2000. Many of these CUPs were tied to new developments where streets and grading were done

prior to home construction. In 2006, an application from 8 Mink Lake was submitted and denied. The application was then revised, resubmitted and approved. Also, it appears that some blanket approvals were granted for Rapp Farms and Red Forest Way as part of the East Oaks PDA so that individual CUPs were not required.

The Planning Commission discussed this issue at length at the October 26th meeting and at the November 30th meeting. This language was developed by the working group based on those discussions.

ISSUES AND ANALYSIS

Section 151.050 (D)(7) of the City Code requires a conditional use permit for buildings with a height greater than 35 feet and establishes the following standards:

(a) The front elevation of the building does not exceed 35 feet in height at any point;
(b) The building height at any other elevation does not exceed 45 feet;
(c) The environmental and topographical conditions of the lot prior to building development are naturally suited to the design of a building with an egress or walkout level;
(d) Buildings shall be limited to a basement and 2 full stories. Finished areas within the roof structure will be considered a full story;
(e) Any time the side or rear elevations of a building exceeds 35 feet in height within 50 feet of adjacent lot lines, the building line shall be setback an additional 2 feet from the adjacent setback line for each foot in height above 35 feet; and
(f) Section 151.083 is complied with.

There has been debate about both items c and e in the standards.

The Commission noted that item (c) was adopted based on the historic North Oaks vision that homes be designed to be part of the land rather than grading a lot to fit a desired home. Staff researched other cities to review how they deal with this issue and found that most cities have general language similar to North Oaks, but the working group did recommend including some language from the City of Gem Lake.

The issue of setbacks has become a source of concern in recent years. Administrator Kress noted that when he speaks with landowners with home taller than 35 feet, most simply design the home to meet the 50-foot setback regardless of which portion of the home exceeds 35 feet. However, in 2022 a landowner challenged the City ordinance interpretation that when any portion of the home exceeds 35 feet, the home must comply with the 50-foot setback on the side and rear. The working group felt that the more liberal interpretation was reasonable and directed staff to prepare language that would clarify the intent to only require the larger setback for those portions of the structure that exceed 35 feet in height.

The working group recommended that the language be modified as follows:

(7) Buildings with a height greater than 35 feet, provided that:

(a) The front elevation of the building does not exceed 35 feet in height at any point;

(b) The building height at any other elevation does not exceed 45 feet. Chimneys, weather vanes and the like shall not be counted as an element of building height;

(c) The environmental and topographical conditions of the lot prior to building development or grading are naturally suited to the design of a building with an egress or walkout level. "Naturally suited" shall be defined as applying to lots that meet at least the following criteria:~~;~~

i. A lot shall meet all current stormwater regulations;

ii. A house should have a 3-foot minimum elevation difference from the basement finished floor elevation to the groundwater elevation, as determined by a geotechnical engineer by a soils investigation;

iii. A natural slope in the topography exists prior to any construction, grading or improvements that organically accommodates a home design with an egress or walkout level and no artificial topographical grade change in excess of 6 feet in total is required or created; and

~~i.~~iv. Any other factors exist that demonstrate the proposed building is compatible with the natural condition of the land prior to any construction, grading or improvements;

~~(c)~~(d) Buildings shall be limited to a basement and 2 full stories. Finished areas within the roof structure will be considered a full story;

~~(d)~~(e) Any time any portion of a building exceeds 35 feet in height and that portion is within 50 feet of an adjacent side or rear lot line, the setback requirement applicable to that portion of the building relative to that lot line shall be increased by 2 feet for each foot in height (or portion thereof) above 35 feet. For example, if a portion of a planned building is 44 feet in height and that portion is less than 50 feet from a side or rear lot line, the typical 30 foot setback requirement for that portion of the building would be increased by 18 feet to a minimum 48 foot setback~~Any time the side or rear elevations of a building exceeds 35 feet in height within 50 feet of adjacent lot lines, the building line shall be setback an additional 2 feet from the adjacent setback line for each foot in height above 35 feet~~; and

~~(e)~~(f) Section 151.083 is complied with.

Attached for reference:

Exhibit A: Draft Ordinance amending Chapter 151

Exhibit B: Zoning Map

Exhibit C: Setback Exhibits

CITY OF
NorthOaks
Building on a tradition of innovation

Action

Move to adopt the Ordinance amending City Code Title XV, Chapter 151, regarding building height and setback standards in the RSL- Residential Single-Family Low Density District

p 651-792-7750
f 651-792-7751
northoaks@northoaksmn.gov
www.northoaksmn.gov
100 Village Center Drive, Suite 230
North Oaks, MN 55127

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA

ORDINANCE NO. ____

AN ORDINANCE AMENDING CITY CODE TITLE XV, CHAPTER 151, REGARDING BUILDING HEIGHT

THE CITY COUNCIL OF THE CITY OF NORTH OAKS ORDAINS AS FOLLOWS:

Section One. Title XV, Chapter 151 Amendment: Title XV, Chapter 151, Section 151.050(D)(7) of the North Oaks City Code is hereby amended as follows. The underlined text shows the proposed additions to the City Code and the ~~struck through~~ text shows the deletions:

(7) Buildings with a height greater than 35 feet, provided that:

(a) The front elevation of the building does not exceed 35 feet in height at any point;

(b) The building height at any other elevation does not exceed 45 feet. Chimneys, weather vanes and the like shall not be counted as an element of building height;

(c) The environmental and topographical conditions of the lot prior to building development or grading are naturally suited to the design of a building with an egress or walkout level. "Naturally suited" shall be defined as applying to lots that meet at least the following criteria:~~;~~

i. A lot shall meet all current stormwater regulations;

ii. A building should have a 3-foot minimum elevation difference from the basement finished floor elevation to the groundwater elevation, as determined by a geotechnical engineer by a soils investigation;

iii. A natural slope in the topography exists prior to any construction, grading or improvements that organically accommodates a home design with an egress or walkout level and no artificial topographical grade change in excess of 6 feet in total is required or created; and

~~i.~~iv. Any other factors exist that demonstrate the proposed building is compatible with the natural condition of the land prior to any construction, grading or improvements.~~;~~

~~(c)~~(d) Buildings shall be limited to a basement and 2 full stories. Finished areas within the roof structure will be considered a full story;

~~(d)~~(e) Any time any portion of a building exceeds 35 feet in height and that portion is within 50 feet of an adjacent side or rear lot line, the setback requirement applicable to that portion of the building relative to that lot line shall be increased by 2 feet for each foot in height (or portion thereof) above 35 feet. For example, if a portion of a planned building is 44 feet in height and that portion is less than 50 feet from a side or rear lot line, the typical 30 foot setback requirement for that portion of the building would be increased by 18 feet to a minimum 48 foot setback~~Any time the side or rear elevations of a building exceeds 35 feet in height within 50 feet of adjacent lot lines, the building~~

~~line shall be setback an additional 2 feet from the adjacent setback line for each foot in height above 35 feet~~; and

~~(e)~~(f) Section 151.083 is complied with.

Section Two. Effective Date. This Ordinance shall be in full force and effect upon its adoption and publication as provided by law.

Passed in regular session of the City Council on the ____day of _____, 2024.

CITY OF NORTH OAKS

By: _____

Krista Wolter, Mayor

Attested:

By: _____

Kevin Kress
City Administrator/City Clerk

(Published in the Shoreview Press on _____, 2024)

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA
RESOLUTION NO. _____

A RESOLUTION APPROVING THE PUBLICATION OF A SUMMARY OF ORDINANCE NO. 2024-___ , AN ORDINANCE AMENDING CITY CODE TITLE XV, CHAPTER 151, REGARDING BUILDING HEIGHT

WHEREAS, on April 11, 2024, the City Council of the City of North Oaks, Ramsey County, Minnesota ("City") adopted Ordinance No. 2024-_____, an Ordinance Amending City Code Title XV, Chapter 151, Regarding Building Height; and

WHEREAS, pursuant to Minn. Stat. Sec. 412.191, subd. 4, the Council may, by a 4/5ths vote, direct that only the title and a summary of the ordinance be published; and

WHEREAS, the City Council for the City of North Oaks has reviewed the summary of Ordinance No. 2024-____ which is attached hereto as **Exhibit A**; and

WHEREAS, the City Council for the City of North Oaks has determined that publication of the title and a summary of Ordinance No. 2024-___ would clearly inform the public of the intent of the ordinance; and

WHEREAS, due to the length of Ordinance No. 2024-____ the City Council desires to publish a summary of the Ordinance.

NOW THEREFORE BE IT RESOLVED, by a vote of at least 4/5ths of its members, that the City Council of the City of North Oaks hereby:

1. Approves the text of the summary of Ordinance No. 2024-__ attached as **Exhibit A** and authorizes the publication of the summary shown in **Exhibit A** in lieu of publication of the entirety of Ordinance No. 2024-___ in the City's official newspaper.

2. Directs the City Clerk to ensure that a full and complete printed copy of Ordinance No. 2024-___is available for inspection during regular business hours at the office of the North Oaks City Clerk, by standard mail, or by electronic mail.

3. Directs the City Clerk to file the executed Ordinance No. 2024-____ upon the books and records of the City along with proof of publication.

This resolution is passed and adopted by the City Council of the City of North Oaks, Ramsey County, Minnesota this 11th day of April, 2024.

CITY OF NORTH OAKS

By:_____
Krista Wolter
Its: Mayor

Attested:

By:_____
Kevin Kress
Its: City Administrator/City Clerk

EXHIBIT A

SUMMARY PUBLICATION
ORDINANCE NO. 2024-___

ORDINANCE NO. 2024- AN ORDINANCE AMENDING CITY CODE TITLE XV, CHAPTER 151, REGARDING BUILDING HEIGHT

On April 11, 2024, the City Council of the City of North Oaks ("City") adopted Ordinance No. 2024-_____, ("Ordinance") an Ordinance Amending City Code Title XV, Chapter 151, Regarding Building Height.

The Ordinance modifies the conditional use permit standards for buildings with a height greater than 35 feet in Section 151.050(D)(7).

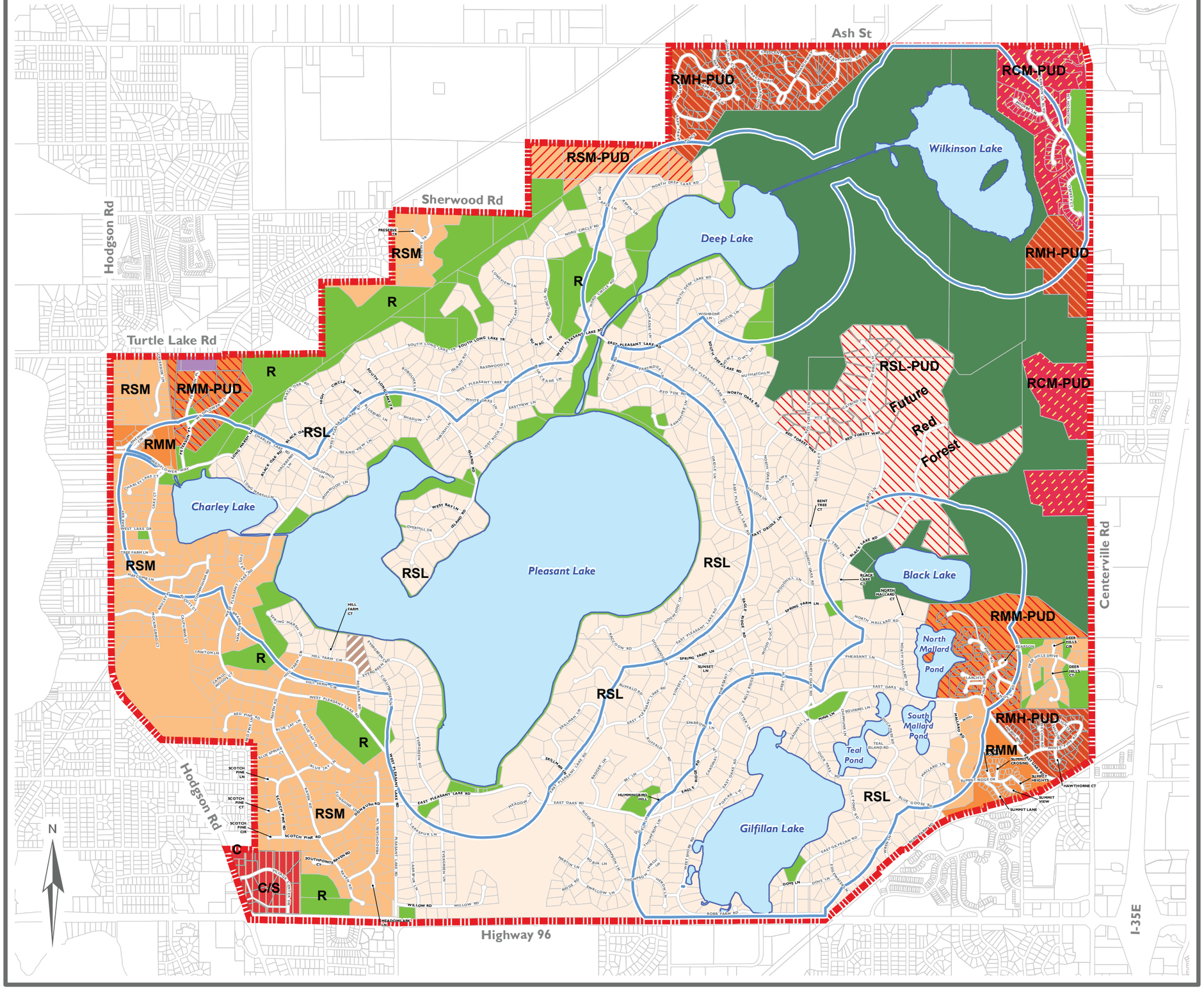
It is hereby determined that publication of this title and summary will clearly inform the public of the intent and effect of Ordinance No. 2024-___ and it is directed that only the above title and summary of Ordinance No. 2024-___conforming to Minn. Stat. Sec. 331A.01 be published, with the following:

NOTICE

A printed copy of the full text of Ordinance No. 2024-___ is available for public inspection by any person during regular office hours at the office of the North Oaks City Clerk, 100 Village Center Drive, # 230, North Oaks MN 55127, by standard mail, or by electronic mail, and at any other public location which the Council designates.

MAP 8

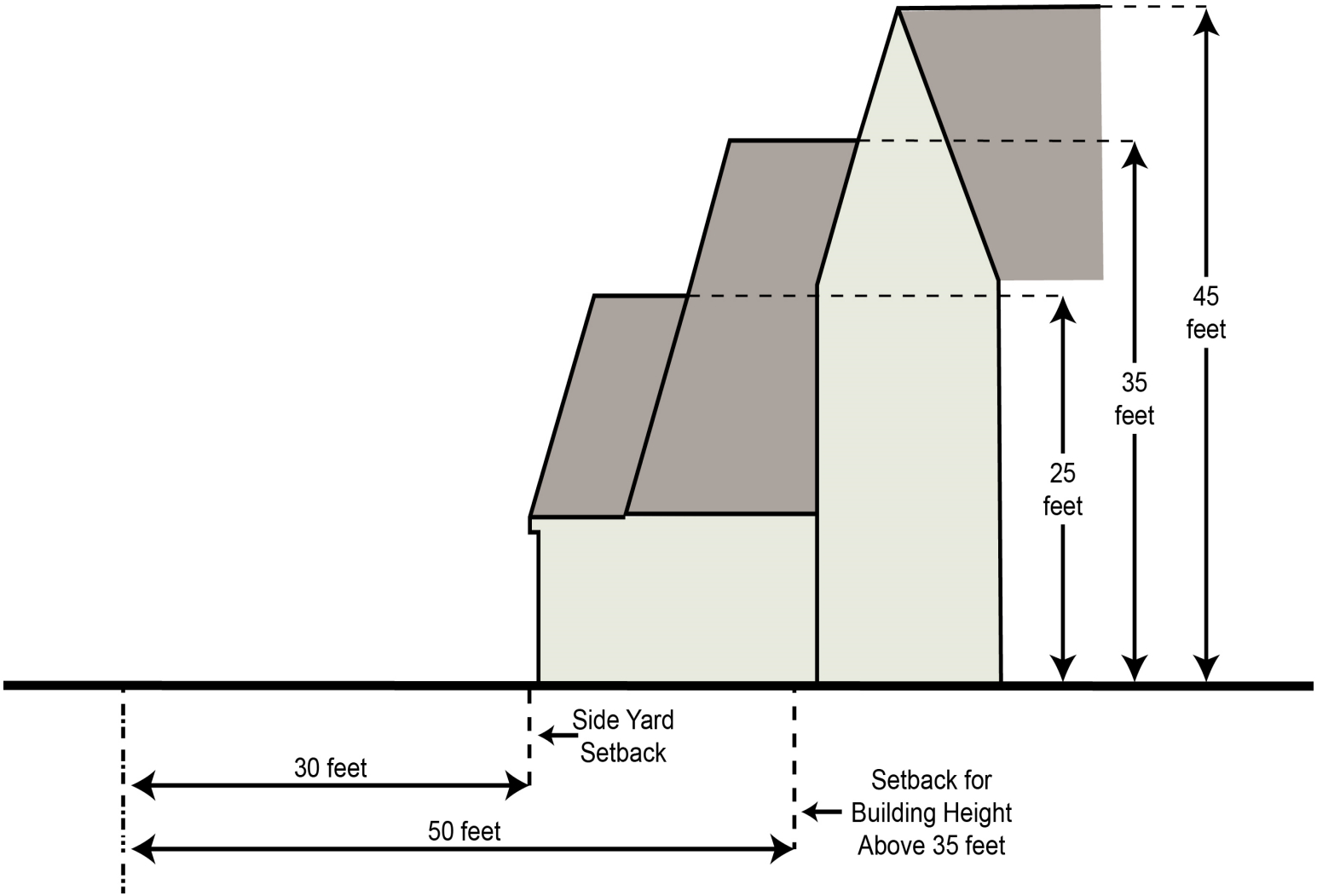
Existing Zoning Districts Map



- **OS** (Open Space)
- **RSL** (Residential Single Family - Low Density)
- **RSL-PUD** (Residential Single Family - PUD)
- **RSM** (Residential Single Family - Medium Density)
- **RSM-PUD** (Res. Single Fam. - Med. Density - PUD)
- **RMM** (Residential Multiple Family Medium Density)
- **RMM-PUD** (Residential Multiple Family Medium Density - PUD)
- **RMH-PUD** (Residential Multiple Family High Density - PUD)
- **RCM-PUD** (Residential-Commercial Mixed-PUD)
- **C** (Commercial)
- **C/S** (Commercial/Service)
- **LI** (Limited Industrial)
- **R** (Recreation)
- **HP** (Historic Preservation)
- Shoreland District Boundaries

North Oaks Boundary

Source: City Zoning Map as of 5 - 10 - 21



LANDFORM
From Site to Finish

Building Height and Setbacks Exhibit

Ordinance Amendments • North Oaks, MN

11.30

CITY OF NORTH OAKS
RAMSEY COUNTY, MINNESOTA
RESOLUTION NO. _____

A RESOLUTION SUPPORTING RETENTION OF CITY ZONING AUTHORITY

WHEREAS, decisions about local zoning and land use that best fit community needs are best left to city residents and officials;

WHEREAS, cities use zoning and land use regulations to balance property usage, plan for community growth, and preserve natural resources among others;

WHEREAS, the Minnesota State Legislature, in an attempt to address housing availability and affordability challenges, is considering measures that would preempt city authority to regulate land use and zoning and assign that authority to state government;

WHEREAS, passage of those measures would inadequately address housing availability and affordability challenges;

WHEREAS, a rigid framework for land use and zoning mandated by the state makes little sense and cities require flexibility to address their own unique circumstances;

WHEREAS, while some of the objectional provisions have been removed from the pending legislation, other concerning measure remain;

WHEREAS, cities across the state have already put in years of work to address zoning issues, and continue to do so, with the help of community engagement, and cities should not be preempted from exercising appropriate local control over zoning matters.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTH OAKS MINNESOTA AS FOLLOWS:

The City Council of the City of North Oaks hereby:

1. Opposes state proposals that seek to preempt local zoning and land use decision-making when it comes to residential development.

2. Urges the legislature to take into consideration the many concerns raised by the League of Minnesota Cities and numerous other Minnesota cities with respect to currently proposed zoning-related legislation.

3. Supports constructive policy alternatives to incentivize and bolster city efforts for addressing housing challenges.

This Resolution is passed and adopted by the North Oaks City Council this 11th day of April, 2024.

_____
Krista Wolter, Mayor

ATTEST:

_____
Kevin Kress, City Administrator/City Clerk

Kennedy & Graven
Fifth Street Towers
150 South Fifth Street, Suite 700
Minneapolis, MN 55402

(612) 337-9245 direct
bnason@kennedy-graven.com

MEMORANDUM

TO: Mayor and Members of the North Oaks City Council

FROM: Bridget Nason, City Attorney

DATE: April 5, 2024

RE: Zoning Preemption Legislation

---

1. Background

This legislative session, several bills were introduced that would significantly impact cities' traditional zoning authority. Since their introduction, the bills have been amended to address some of the concerns raised by the League of Minnesota Cities as well as a number of other groups and individual cities with the language in the legislation. The most recent update from the League regarding the changes to House File 4010, and remaining concerns with language still remaining in the bill, is attached to this memo. Additionally, House File 4010 was substantially amended recently, and the current version of that bill is also attached to this memo. While the legislation addresses city zoning authority, and does not appear to impact private restrictions and covenants like those that most properties in the City of North Oaks are subject to, the various bills introduced during the legislative session would curtail the city's own zoning authority in an unprecedented manner.

At its March 28th meeting, the North Oaks Planning Commission voted to recommend that the City Council consider adoption of the attached resolution supporting retention of City zoning authority and local control related to land use decisions.

2. Requested City Council Action

The City Council is asked to review the attached draft resolution opposing legislative changes that would restrict local zoning authority.

State of Minnesota

HOUSE OF REPRESENTATIVES

NINETY-THIRD SESSION

H. F. No. 4010

02/19/2024 Authored by Kozlowski, Howard, Agbaje, Hollins, Wolgamott and others
The bill was read for the first time and referred to the Committee on Housing Finance and Policy
04/02/2024 Adoption of Report: Amended and re-referred to the Committee on State and Local Government Finance and Policy

A bill for an act

relating to local government; establishing requirements for multifamily residential developments in cities; proposing coding for new law in Minnesota Statutes, chapter 462.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. **[462.3571] MULTIFAMILY RESIDENTIAL DEVELOPMENTS.**

Subdivision 1. **Definitions.** (a) For the purposes of this section, the following terms have the meanings given.

(b) "Affordable housing development" means a multifamily residential development in which:

(1) at least 20 percent of the residential units are for households whose incomes do not exceed 50 percent of the greater of the statewide or area median income; or

(2) at least 40 percent of the residential units are for households whose incomes do not exceed 60 percent of the greater of the statewide or area median income.

The deed or declaration for an affordable residential unit must also contain a restrictive covenant requiring the property to remain affordable housing for at least 30 years.

(c) "City" means a home rule charter or statutory city.

(d) "Commercial use" means the use of land or buildings, in whole or in part, for the sale, lease, rental, or trade of products, goods, and services.

(e) "Cottage housing" means residential dwelling units on a lot with a common open space that either:

(1) is owned in common; or

(2) has units owned as condominium units with property owned in common and a minimum of 20 percent of the lot size as open space.

(f) "Courtyard apartment" means a building with up to four attached residential dwelling units arranged on two or three sides of a yard or garden.

(g) "Duplex" means a two-family home, classified as an IRC-2 in the State Building Code and not meeting the definition of townhouse.

(h) "Environmental justice area" has the meaning given in section 116.065, subdivision 1.

(i) "Fiveplex" means a building containing five residential dwelling units intended for nontransient occupancy and not meeting the definition of townhouse.

(j) "Fourplex" means a building containing four residential dwelling units intended for nontransient occupancy and not meeting the definition of townhouse.

(k) "Metropolitan area" has the meaning given in section 473.121, subdivision 2.

(l) "Multifamily residential development" means a single residential building with at least 13 units or a mixed-use building with commercial use on the ground floor and at least half of the usable square footage is for residential use. Multifamily residential development does not include the following housing types:

(1) duplexes;

(2) triplexes;

(3) fourplexes;

(4) fiveplexes;

(5) sixplexes;

(6) townhouses;

(7) stacked flats;

(8) courtyard apartments;

(9) cottage housing; and

(10) single-family detached homes.

(m) "Residential unit" means a residential dwelling for the use of a single owner or tenant.

(n) "Single-family detached home" means any building that contains one residential dwelling unit used, intended, or designed to be built, used, rented, leased, let, or hired out to be occupied, or occupied for living purposes that is not attached to another structure.

(o) "Sixplex" means a building containing six residential dwelling units intended for nontransient occupancy and not meeting the definition of townhouse.

(p) "Stacked flat" means a nontransient residential building of no more than three stories on a lot zoned for residential development in which each floor is a residential dwelling unit.

(q) "Structure" means anything constructed or installed for residential or commercial use that requires a location on a parcel of land. Structure does not include nonconformities.

(r) "Townhouse" means a single-family residential dwelling unit constructed in a group of three or more attached units in which each unit extends from the foundation to the roof and with open space on at least two sides. Each single-family residential dwelling unit shall be considered to be a separate building. Separate building service utilities shall be provided to each single-family residential dwelling unit when required by the Minnesota State Building Code.

(s) "Triplex" means a building containing three residential dwelling units intended for nontransient occupancy and not meeting the definition of townhouse.

Subd. 2. **Multifamily residential developments.** (a) Subject to compliance with all municipal zoning standards, multifamily residential developments shall be a permitted use in any zoning district that allows for a commercial use, except for:

(1) industrial zoning districts where a commercial use is not allowed; or

(2) industrial zoning districts that are located in environmental justice areas.

(b) A multifamily residential development may not be constructed on a lot zoned for a single-family detached home unless otherwise authorized by law, rule, or ordinance.

(c) A city may require a conditional use permit for a multifamily residential development only if the specific circumstances of the development raise concerns related to the public health, safety, and general welfare.

Subd. 3. **Applicable zoning standards.** (a) A multifamily residential development must comply with any standards, performance conditions, or requirements, including the adequacy of existing public infrastructure, imposed by a city to promote the public health, safety, and general welfare.

(b) A city must not impose a height requirement on a multifamily residential development that is less than the following:

(1) in a city of the first class, 75 feet;

(2) in a city of the second class, 45 feet;

(3) in a city of the third class in the metropolitan area, 45 feet; or

(4) in a city of the third class outside of the metropolitan area, 35 feet.

(c) A city must not impose a setback requirement on a multifamily residential development that is greater than the smallest required minimum setback distance of any other structure in the same zoning district of the parcel on which the development will be built.

(d) A city may impose a height or setback requirement that is different from the requirements in this subdivision if such requirements would result in a multifamily residential development that would substantially vary in compatibility and scale with surrounding properties.

(e) This subdivision does not apply to a city of the fourth class.

Subd. 4. **Parking requirements limited.** A city may not require more than one off-street parking space per residential unit, except that additional disability parking spaces may be required to meet the requirements of the Americans with Disabilities Act.

Subd. 5. **Affordable housing development; height and mass requirements.** An affordable housing development must be permitted to exceed one or more maximum dimensional standards imposed by city official zoning controls as a zoning density bonus. A zoning density bonus offered by a city for an affordable housing development may include one or more of the following dimensional standards above the maximum base zoning regulations:

(1) a building height increase of at least 35 feet;

(2) an increased floor area ratio;

(3) an increased number of units per acre;

(4) an increased total number of units;

(5) a higher percentage of lot coverage; or

(6) other dimensional standards that increase building size by at least 30 percent more than what is allowed for market-rate multifamily residential developments.

Subd. 6. **Administrative review process.** (a) Notwithstanding any law, rule, or ordinance to the contrary, a city must establish an administrative review process subject to the procedures in section 15.99 for a multifamily residential development meeting the requirements of this section.

(b) An application reviewed through an administrative review process or other process may not be approved contingent on factors not related to the protection of the public health, safety, and welfare; the completion of a study; or the development being a part of a planned unit development if the multifamily residential development complies with this section.

Subd. 7. **Exceptions.** (a) Nothing in this section authorizes a multifamily residential development that is prohibited by state or federal law or rule, or is prohibited under an ordinance adopted pursuant to such a state or federal law or rule, that protects floodplains, areas of critical or historic concern, wild and scenic rivers, shore land, or that otherwise restrict residential units to protect and preserve the public health, the environment, or scenic areas.

(b) A multifamily residential development may not be inconsistent with approved plans under chapter 103B.

EFFECTIVE DATE. This section is effective January 1, 2025.

House Committee Advances Amended Multifamily Housing Development Bill

March 25, 2024

Several concerning provisions were either removed from the bill or modified based on the League's feedback and city leaders' advocacy.

On March 20, the House Housing Finance and Policy Committee considered and amended HF 4010 (Rep. Alicia "Liish" Kozlowski, DFL-Duluth) before advancing it by voice vote onto the House State and Local Government Finance and Policy Committee.

Changes to the bill

The House housing committee adopted a delete everything amendment (pdf) that replaced the existing bill's language. The amendment eliminated several concerning provisions based on League advocacy, and includes new provisions that are supported by the League and city stakeholders. Changes made by the delete-everything amendment include:

- Removal of the prohibition of multifamily development being located less than 500 feet from highways, airports, or rail lines.
- Removal of the requirement that cities must approve multifamily development if it is consistent with a city's comprehensive plan.
- Allowing cities to permit multifamily residential development, subject to the bill, to be permitted via a conditional use permit to preserve public health, safety, and general welfare.
- Removal of the 150-foot height requirement, with language that creates more reasonable height requirement restrictions, and the inclusion of language to allow cities to impose other height or setback requirements to ensure compatibility and scale with surrounding properties.
- Replacement of the previously required administrative review process with a process that is consistent with existing Minnesota Statutes, section 15.99.
- Requirements that multifamily residential development containing 13 units or more be allowed as a permitted use in any zoning district that allows for commercial use except for industrial zoning districts where commercial use is not allowed, single-family zoned areas, or any industrial-zoned areas located in an environmental justice area.

Testimony on the bill

The League provided testimony during the hearing, along with City of Eagan Community Development Director Jill Hutmacher, that shared appreciation for the authors of the bill and their willingness to continue to working with the League and cities to address concerns.

While changes in the language based on conversations with the League are appreciated, city testimony continues to focus on concerns that remain with some provisions in the bill, as well as the overarching concern with state preemption of city zoning and land use authority.

Cities are encouraged to review the legislation and provide feedback to the League as well as reach out directly to their legislators.

Read more news articles.

Your LMC Resource

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February Month in Review

Rehder Forestry Consulting

February 2024

- Oak wilt re-inspections are continuing. The removal deadline was Feb 1 and we still have some diseased oaks standing as the tree care companies are very busy and the weather has not been cooperative. Most have arranged for the work but are just waiting for it to be done. Road restrictions are also currently in place adding to the challenge.
- Ash tree inspections/notifications are in full effect, and we are working with residents to educate and inform on their options as Emerald Ash Borer continues to impact the community. We have marked well over 1000 trees just this winter. We are prioritizing ash tree removals based on the extent of the infestation, as well as the location of the trees (i.e. near streets, homes, powerlines, etc.).
- I met with the builder at Gate Hill to discuss the preservation and removal of trees along the berm on Centerville Rd.
- We responded to a homeowner call at 3 Evergreen Rd with regards to tree concerns and provided tree care advice
- We have provided copies to City Hall and NOHOA of the spreadsheets we use to document diseased trees so that they are available to staff as needed.
- We provided an arborist workshop for a few tree care companies that were unable to attend in January and/or February. We have a lot more tree care companies in town mostly due to the high number of Emerald Ash Borer trees.
- We continue to mark hazard trees as we see them.

March Month in Review

March 2024

Rehder Forestry Consulting

- The last two oak wilt sites are having their trees removed soon. That makes for a total of 101 oak wilt trees removed, helping to preserve the oak canopy.
- Made recommendations on appropriate species to plant on the Gate Hill berm project for Cudd Homes and provided field verification of berm work to city staff.
- We responded to homeowner calls at 7 Overhill, 23 Pheasant Ln, 13 Lake Bay, and Charley Lake Park small trees, with regards to tree concerns and provided tree care advice.
- Coordinated brush pick-up program for the end of May. Requested bids from local vendors and selected the lowest bid. Program was awarded to Budget Tree.
- Emerald Ash Borer inspections continue year-round.