CITY OF NORTH OAKS

Regular Planning Commission Meeting
Thursday, July 30, 2020
7 PM, Via Teleconference or Other Electronic Means Only

The meeting can be viewed live via the web broadcast on the City website. Those wishing to provide comment during the Citizen Comments portion, click the link below to join the meeting: https://us02web.zoom.us/j/82978289659? or Telephone: US: +1 312 626 6799, Meeting ID: 829 7828 9659. Due to the existing COVID-19 Health Pandemic, no more than five (5) members of the public may be in Council Chambers (Community Room, 100 Village Center Drive, MN) during the meeting. Once room capacity is met, anyone wishing to attend the meeting above the five (5) members of the public who may be present in the room during the meeting will be required to monitor the meeting remotely as noted above.

MEETING AGENDA

1. Call To Order

2. Roll Call

3. Pledge

4. Approval of Agenda

5. Citizen Comments - *Individuals may address the Planning Commission about any item not included on the agenda. Speakers are requested to come to the podium, state name and address for the clerk's record, and limit their remarks to three minutes. During the pandemic, when meetings are held virtually, speakers will be able to call in to the meetings to make remarks, or request that submitted comments are read by a member of Commission or the City Staff. Generally, the Commission will not take official action on items discussed during the citizen comment period, but Commissioners may refer the matter to City Staff for a future report or direct that the matter be scheduled on an upcoming agenda.*

6. Approval of Previous Month's Minutes

6a.Previous Month's Minutes (May)

Planning Commission Minutes 05.28. 2020 Special Mtg.docx

6b.Approval of June 9, 2020 Planning Commission Special Meeting Minutes

6.9.2020 PC Minutes Special Meeting_Nord.docx

6.9.20 PC Minutes Special Meeting_7 Eagle Ridge CUP.docx

6.9.20 PC Minutes Special Meeting.docx

7. Business Action Items

7a.Review Septic Variance #20-07 for 31 South Long Lake Trail

31 South Long Lake Trail Application.pdf

Staff report - Variance PC 31 South Long Lake Trl.doc

7b.Review Septic Variance Application #20-06 for 33 Eagle Ridge Road

33 Eagle Ridge Application.pdf

Staff Report - Variance PC 33 Eagle Ridge Rd.doc

7c.Review Septic Variance Application #20-08 for 2 Island Road

2 Island Road Septic Variance Application.pdf

Staff Report - Variance PC 2 Island Rd.doc

7d.Review Septic Variance Application #20-09 for 4 Buffalo Road

4 Buffalo Road Septic Variance Application.pdf

Staff Report - Variance PC 4 Buffalo Rd.doc

8. Commissioner Report(s)

9. Adjourn

North Oaks Planning Commission
Special Meeting Minutes
City of North Oaks Community Meeting Room
May 28, 2020

CALL TO ORDER

Chair Azman called the special meeting of May 28, 2020, to order at 5:30 p.m.

In compliance with Governor Walz's Stay-at-Home Order and pursuant to Minnesota Statute 13D.021, the meeting was conducted via Zoom.

ROLL CALL

Present: Chair Mark Azman, Commissioners David Cremons, Jim Hara, Stig Hauge, Nick Sandell, Sara Shah, and Joyce Yoshimura-Rank. City Council Liaison Rick Kingston.
Staff Present: Administrator Kevin Kress, City Planner Bob Kirmis, City Attorney Bridget Nason, Engineer Larina DeWalt.
Others Present: Videographer Maureen Anderson.
A quorum was declared present.

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

MOTION by Hauge, seconded by Sandell, to approve the agenda as submitted. Motion carried unanimously by roll call.

Chair Azman said there was a slight possibility the Commission might need to take a short recess. In the event that happens, he would let everyone know. He stated if there are any members of the public that would like to speak in person, the podium is available, and they are welcoming of anyone. He noted there are directions on the outside of the door and people will be asked to follow appropriate social-distancing and other precautions in light of COVID-19. If anyone is participating via Zoom and would like to make comments, they will need to use the "raise your hand" function and then he can allow that person to speak. If anyone has a presentation, that can be managed as well. Everyone should generally follow the three-minute rule to give presentations. In the event someone feels they need additional time, as the Chair he cannot unilaterally allow that, but he can ask the Planning Commission to take a vote to allow persons to have additional time.

CITIZEN COMMENTS

None.

BUSINESS ACTION ITEMS

a. Review of Anderson Woods Parcel - Subdivision Application

Chair Azman called the continued public hearing to order at 5:42 p.m. and asked Staff to make their presentation.

- Planner Kirmis and Engineer DeWalt presented the Planning Report Addendum included in the packet and recommendation for approval of the Anderson Woods preliminary plan/preliminary plat (subdivision) application subject to fulfillment of amended conditions 1-52.

- Commissioner Yoshimura-Rank referenced the condition regarding the City Forester working with the homeowner for preserving trees and asked if that could be put in a letter and given to every future homeowner, welcoming the homeowner but also encouraging the homeowner to work with the Forester before removing any large trees, because the City does care about trees in the developments. She noted the North Oaks Company (NOC) is doing a concerted effort to leave big trees and that it would be a shame to have a homeowner go in and clear-cut trees because of a lack of an ordinance.

- Planner Kirmis stated he felt it was a good idea and could be done, although he was not sure exactly how that would be implemented, as far as being a newsletter from City Hall, etc.

- Commissioner Yoshimura-Rank asked if there was a "Welcome" packet given to new homeowners.

- Administrator Kress said that could probably be coordinated with North Oaks Home Owners' Association (NOHOA) and put in an email blast.

- Commissioner Yoshimura-Rank commented Engineer DeWalt talked about filling in the wetland for the access road and asked where the water is going, whether it is going to Wilkinson or a culvert.

- Engineer DeWalt stated it was her understanding that the existing drainage conditions are such that it already flows to the north and south from that location, that being a high point of the wet basin. The construction of the roadway will not change the drainage patterns of that wet basin.

- Commissioner Shah thanked Staff for the historical acreage of impacted wetlands as well as the new and improved wetlands. She asked where the projected wetlands information is and wondered what the comprehensive outlook is for the entire East Oaks development area.

- Engineer DeWalt stated she would defer to the Applicant and could only answer with regard to the proposed developments in front of everyone today, which would be an additional proposed .192 acres on top of what is shown.

- Chair Azman asked whether that would be a question Attorney Nason may weigh in on, in terms of the Applicant's obligations during the submission of new applications and what their obligations are regarding a survey or breakdown/itemization of the impacted wetlands on a Planned Development Agreement-(PDA)wide basis.

- Engineer DeWalt noted that Staff did a conceptual review of the remaining East Oaks Planned Unit Development (PUD) projects and she does not believe there were any other

anticipated wetland impacts for the other projects.

- Commissioner Shah said even if that was the case, if the two developments being spoken about are the only ones with wetland impacts, everyone should be able to do the math.

- City Attorney Nason said she would let the Applicant speak to the question as to whether there are proposed wetland impacts for any of the remaining developments. With respect to the existing wetland impacts, the City has the information that has been provided from the Applicant to the City; specifically, the wetland impacts as noted in the calculations provided in the packet, which shows there are more impacts from a wetland basis than were outlined in the Environmental Assessment Worksheet (EAW). However, the total wetland impacts, including the projected for these developments with respect to subdivision approval -- installation of the roadways -- still comes in at less than .1%. With a phased development, the impacts throughout the entire development need to be looked at. However, even with the increased impact to wetland, the impacts are still quite low as compared to the overall acreage of the development area.

- Commissioner Hara asked if the wetland impact being discussed per the Applicant is as it relates to the road, they are intending to build into each of the developments; it does not address the overall wetland impact of the proposed properties in there. He said when he heard there was no wetland impact, he understood that information was about the entire development, not about just the road. If it is about just the road, it is very different than looking at a significant parcel where homes are going to be located and understanding that when homes and driveways get built, what the wetland implication might be. He asked if he was correct in that the only thing the Commission is looking at or that Vadnais Lake Area Water Management Organization (VLAWMO) has given the Commission direction on is just the road that the developer is intending to build.

- Engineer DeWalt said at a high level, yes; however, the Applicant has been working with VLAWMO and is actively working on permitting for these projects, which requires further analysis of the entire project to ensure that it is feasible for the lots to be buildable. VLAWMO is well-aware of what is being proposed in the future as far as residential lots, and the Applicant is working with VLAWMO and their consultants on the comprehensive applications that are required under the Wetland Conservation Act (WCA) to show the required buffers and working with VLAWMO to make sure that each lot can meet them.

- Commissioner Hara said what the Commission is talking about, which has been approved, is a very minimal part of each development. It would seem to him, if the Commission is looking at overall wetland impact, they should be looking at the totality of each project and not kick the can down the road and wait until the homeowner buys the lot and then see what can be done. He said if the Commission is going to make a recommendation to approve or deny these planned developments, the Commission should have that information in-hand before making a decision so they know if it can actually be achieved.

- Attorney Nason said there are different ways to approach subdivision approval. Sometimes the developer comes in with a plan and they are going to be building the houses and have

more information about exactly where houses would be located, etc. In this particular situation, the developer proposes to obtain subdivision approval, and it is anticipated that the developer would not be doing the construction of the residences. Generally speaking, the developer provides proof or information with the plans that shows that the development could occur without the need for any specific variances from the wetland setbacks. She noted she would defer to the developer for more information.

- Commissioner Cremons asked, relative to the actual construction on the site, if at a later point there was a building plan submittal and approval process that would govern things like the individual homeowner's construction impacting wetlands and the City saying they cannot do that.

- Attorney Nason stated there is a separate process that would have to be completed for each of the building sites, so whoever bought the lot will come in and has to comply with the approval process to obtain the necessary approvals from the City for whatever is developed on the site.

- Mark Houge, NOC, said the work they have done with VLAWMO takes into account all construction on-site, not just roads. The submittal package shows proposed septic systems as well as house locations. In the case of Anderson Woods, given there is no septic system, they have shown the approximate house size. They have taken into account the entire development, all impacts including the house construction, not just the roads. That is how VLAWMO will look at it. NOC will coordinate with the City and Architectural Supervisory Committee (ASC) when the homeowner brings their house plan in to make sure it conforms with what NOC originally proposed the development would look like.

- Commissioner Hara noted the gentleman that signed the VLAWMO letter is only giving approval on the road, no discussion of the houses or the hypothetical location of septics or homes on the different plots.

- Mr. Houge said that is because he has not seen the final plans; however, it is taken into account.

- Commissioner Hara asked when the final plans would be available for viewing.

- Mr. Houge stated each homeowner is asked to go before the City to get a permit which conforms with those approvals, so it would be coordinated with the City's permitting department when they apply for a building permit for the home.

- Chair Azman asked if Staff could give an outline of what VLAWMO's representations were in their letters.

- Engineer DeWalt said VLAWMO submitted a letter that outlined the to-date regulatory activities that have occurred for the Anderson Woods development speaking to wetland delineation boundary that was approved for the site in December 2018, which is good for five years from that date. Per Department of Natural Resources (DNR) comments regarding plant

surveys, a survey report was completed and received in July 2019. No state-listed rare or endangered species were observed at that point. A wetland replacement plan application was received May 20, 2020. The application was for the proposed wetland impact to gain access to the buildable lots and is currently under review by VLAWMO, BWSR, DNR, Rice Creek Watershed District, and the Corps of Engineers. All of the requirements and the modeling required are listed. They stated previously they did not have an issue from a high level with the application, but the permit is under review.

- Chair Azman asked what the timing is for the review and any determination on the permit from VLAWMO.

- Engineer DeWalt stated she does not have the information.

- Chair Azman referenced VLAWMO's February 11 letter where it says "no issues at this time for the Anderson Woods site preliminary plan, so we'll need stormwater hydro plans and a replacement plan application for wetland impact for formal application review." He asked if the application is moving in the typical sequence for subdivision review. He asked Staff if the correct sequence is getting VLAWMO approval for proposed homesites or is the Commission moving forward subject to any requirements of VLAWMO. His concern is why the City would want to approve a development that isn't something that is buildable once VLAWMO takes a look.

- Mr. Houge said they have to seek multiple approvals and cannot do this in a parallel manner. There has been a practice over the last 20 years of NOC getting approval from the City prior to bringing it to VLAWMO so that something does not go before VLAWMO for a thorough, technical review and then later have to review it a second time because the City decided the original plan was not suitable. It is a choice everyone makes. It is possible to get approval sometimes, in some communities, ahead of City approval. It is risky, because then the City does not have an opportunity to weigh in on things. NOC chooses to coordinate closely with both parties, but because it is a pretty formal process, the Company cannot literally submit until approval from the City in terms of the preliminary plans. That is why NOC chooses to get preliminary plan approval from the City conditioned upon VLAWMO's approval.

- Engineer DeWalt stated, based on her experience working on many developments, it is fairly standard practice for Staff to recommend approval with conditions that plans and permits meet all regulatory approving parties such as the Watershed, VLAWMO, MnDOT, etc. She has seen it many times and it does not seem to her that it is being done out of order.
- Chair Azman asked if it is conceivable that City approval goes through, VLAWMO does not approve, and then the Applicant may have to come back to the City.

- Administrator Kress confirmed if the Applicant does not meet the requirements of one of the regulatory offices, they have to come back and resubmit.

- Commissioner Shah asked if the Company has any response and willingness to remove the island in the cul-de-sac in response to NOHOA and the Fire Department's feedback.

- Mr. Houge said the NOC is okay with removing plantings in the center island. The Fire Department feedback indicated the turning radius is appropriate for fire trucks.

- Chair Azman asked Engineer DeWalt to explain what the County was saying about multiple access points along Centerville Road and the logistics of that as opposed to what was conceptually provided in the PDA.

- Engineer DeWalt said she provided an email from the Ramsey County Engineer wherein they concur that the Applicant has done some coordination with the County about the expectations related to Anderson Woods. One of the County's suggestions was to align the access of the development with any other existing access along the corridor to create a traditional four-legged intersection. Anderson Lane would be the logical spot and is reflected in the proposal. Regarding the PUD and conceptual street access, the County's position is they would prefer to minimize the access points along Centerville for a number of reasons, including potential signalization, potential sight distance, turn lanes, etc. They talked about studies and trials that have occurred over the last 20 years since this PUD was developed that talk about the benefit of managing accesses and the benefits that come with it such as safer, more efficient roadways and the privacy factor. Based on studies, they support managing/limiting access onto the roadway network when it is practical. In this case, one access point is more than sufficient for nine lots.

- Chair Azman referenced the East Oaks PDA vs. Actual roadway comparison chart and noted the original drawing shows sort of a long road off of Centerville going westerly and then northerly up to the lots. He said there have been concerns raised about tree preservation and the removal of a significant amount of trees in the area, and asked what it would encompass if the original road plan were followed in terms of wetland or tree impacts.

- Engineer DeWalt said she did not believe Staff did an analysis on what the impacts would be if the City were to require access as shown in the original East Oaks PDA roadway exhibit. She asked the Applicant to speak to the issue. She indicated they may want to speak to the original intent of the long access point. She believes the long access point is no longer necessary, in part due to the Wilkinson Villas on the northern portion already being built.

- Chair Azman said the proposed road looks shorter than the other two, and his concern is there is quite a bit of tree loss with the road as proposed in the application and based on the Forester's report. He asked if there is a commitment from the Applicant to continue to try and preserve trees; has the roadway been set out to try and take a look at minimizing the impact of tree removal as well as other concepts.

- Mr. Houge stated the Company gave it a lot of thought, and the road coming from the south is primarily on an existing farm road which would be repurposed for the trail. There would be some tree loss if it had to extend on the northern end. He noted the "C" shape, which would have provided for two entry/access points off of Centerville, would require significantly more trees to be removed on the northeast corner. By turning and going west across the wetland into the westerly three lots, they were able to minimize the removal of trees significantly. With the construction of the northerly entrance that was originally

conceived, it would have required significant grading, which would have also required tree removal. They made a commitment to design the lots such that they do not have to grade the lots; they are basically grading for the road, and tree removal will be limited to the road footprint. When someone goes to build a home, they will be able to place their home to avoid any significant trees. The project also has municipal sewer and water so there are no septic fields required, which also greatly reduces the need to remove trees. The Company is very interested in keeping as many trees on this site as possible. They are able to preserve trees on Lot 9, which basically starts where the entrance road comes in and goes northerly to the home-building site. As per Forester Rehder's recommendations, they will protect any significant trees that are in proximity to the road construction and will have a construction barrier that precludes any tree removal along Centerville Road other than the entrance area.

- Chair Azman asked the Applicant if he had any comments on the additional materials that were submitted or any other information he would like to provide to the Commission; specifically, the May 22, 2020 letter regarding wetland impacts, what it means, and how he intends the Commission to review that.

- Mr. Houge stated each time they do a project in the City of North Oaks, they do a thorough review with the City and VLAWMO on how to avoid wetland impacts. In each case dating back to 1999, they looked at the option of doing a detached townhome project for single-family. It was the preference of the City that it should be single-family. In doing so and while creating lots the City desired, there were some impacts. In each case, the Company has replaced or improved at least twice the amount of wetlands that would have been impacted. For example, they made considerable effort to restore and improve 2 ½ acres in Rapp Farm even though the impacts were very minimal. They did a major project in what was then called Andersonville, now called Anderson Woods. They have approximately four acres of wetland credits in their bank that they can use, and they intend to use a small portion of that for the impacts in Anderson Woods. It will leave the Company with a significant number of improved wetlands from when they started in 1999. They do not anticipate using those in total. At the end of the work on each of the sites in the PDA, they will most likely end up with more/higher quality wetlands than what they started with in 1999.

- Chair Azman asked Mr. Houge how the wetland impact numbers were calculated. He noted the Commission had difficulty getting the information and asked if those records are kept by the Company.

- Mr. Houge stated because that information is not typically a requirement of a PUD, no one was keeping a running tab of it, so neither the City nor VLAWMO had the information. Gary Eagles went through the files, and he was able to pull the numbers from previous applications submitted to VLAWMO.

- Chair Azman asked Mr. Houge if he had further comments regarding the new information in the Addendum that Staff provided.

- Mr. Houge said he thought most things were covered. They are interested in working with the Natural Resource Commission (NRC), Natural Environment Stewardship Team (NEST),

and the City Forester on preserving as many trees as possible on the Anderson Woods site. They are pleased as to how the road connection enables them to do that. They are excited to begin work on wetland improvements in the close proximity to this project, which are over and above what is required. The point where the crossing occurs is a high point and the water flows in both directions. VLAWMO asked for a culvert under the proposed trail exiting the property on the side which helps to balance the water, but in the process, they will be improving the water quality that goes into Wilkinson Lake.

- Chair Azman noted there has been a concern that the proposed road bisects a wetland and that can have some detrimental impacts on the wetlands to the north and south. He asked what the Company's position is on the impacts of the bisected wetland with the roadway.

- Mr. Houge stated that Don Pereira was formerly with the DNR, and the Company asked him to join them to help with environmental improvement initiatives that Doug and Mari Harper would like to pursue. He said Mr. Pereira would speak to the question.

- Don Pereira, NOC, said wetlands provide a lot of benefits and are important to a variety of animals and plants. They are also natural filters to remove sediment nutrients before they get to downstream waterways. One of the emerging focuses is Wilkinson Lake, which is listed by the Minnesota Pollution Control Agency (MPCA) as impaired for nutrients. The proposed roadway, which is an alternative to what was originally proposed, has a very flat topography, so water will not dam up on either side of the roadway because of the flat elevation. The water will be free to move in either direction on its course, either from the south and eventually to Wilkinson Lake, or to the north and around the north end of the island of land that is going to have three lots. He stated there should not be any hydrologic impacts at all. The impacted acreage from the road itself, as far as removing habitat for living organisms, whether that is plants or animals, is covered in the fact that the Company has a positive wetland bank. The Company intends to keep the bank as a strong positive throughout all of the remaining developments as well. The wetland bank means the NOC made a positive contribution to the total acreage of quality wetland in the community.

- Commissioner Yoshimura-Rank asked how a wetland is improved.

- Mr. Pereira stated wetlands get impaired just like lakes do. If they receive too much sedimentation from urban runoff, they will fill in too quickly and lose their capacity to absorb nutrients; they can even start exporting nutrients. There is one line of thinking by VLAWMO staff that the wetlands between Amelia Lake and Wilkinson Lake are dysfunctional to the point where they are now exporting nutrients down into Wilkinson Lake instead of absorbing nutrients. He stated they can take wetlands that have been impaired with too much sedimentation and remove the sediment and re-establish deeper water, which is what they did with one of the Company's more significant wetland improvements, which is south of Wilkinson Lake just to the northwest of the development. On one of his first days on the job, he got a field tour and looked at that wetland. Sediment has been removed on the southern part of the wetland so it is deeper and more functional.

- Chair Azman said there has been some concern about activity out on the site and the PUD might express the concept that there is not supposed to be any activity absent City approval. He asked what activity has been going on at Anderson.

- Mr. Houge said there has been removal of buckthorn in order for the Company to get the soil testing boring rig in, which is a requirement of the City.

- Chair Azman asked how big the soil boring rig is, whether it is pickup-truck sized or larger.

- Mr. Houge said it could be as large as a large piece of earth-moving equipment if it has tracks. Sometimes it is possible to use a truck if it is dry and he thought in this case they used a truck-mounted boring rig.

- Chair Azman noted one of the concerns was that there were tree removal activities that were outside of soil testing boring and he is wondering if that happened at all.

- Mr. Houge stated that has not been happening.

- Chair Azman stated he understands the City Council passed a resolution in March that there were 174 units left and the Company agrees with the resolution in terms of the number of remaining units. He would like to hear from the Company if that is, in fact, correct.

- Mr. Houge stated that is correct and it takes into account the four villa lots constructed the past fall on the north end of the property which are part of the Villas of Wilkinson Lake. They previously had 178 units; they built four on the south end of the Villas of Wilkinson Lake development, which leaves the Company with 174 housing units.

- Chair Azman said if Anderson is approved with nine lots, there would be 165 lots left afterwards.

- Mr. Houge said that Chair Azman was correct.

- Chair Azman asked for a motion to open the public hearing.

MOTION by Yoshimura-Rank, seconded by Hara, to re-open the public hearing at 6:40 p.m. Motion carried unanimously by roll call.

- Chair Azman invited members of the public to speak, noting there were no members of the public in the seating room and he did not see anyone standing in the hallway. He asked for participants on Zoom to raise their hand if they wanted to speak.

- Administrator Kress noted there were a couple of comments by email and wanted to know what the Commission wanted to do as far as reading them in or just including them in the minutes or what the City Attorney's preference was with regard to the comments.

- Attorney Nason said, since the comments are not incorporated as part of the packet, she would request they be read into the record, as they were submitted to be part of the public comment period, and was hopeful they were not too long.

- Administrator Kress noted the comments are 23 pages long.

- Attorney Nason stated that would take a while and suggested circulating the comments to the Planning Commission and incorporating them as part of the record. Because the Planning Commission did not have them ahead of time, she was not sure if the Commission members would be able to have an opportunity to review them while sitting in the meeting.

- Chair Azman asked if Administrator Kress had circulated all comments before the meeting.

- Administrator Kress said he believed he sent the comments to Chair Azman because he did get a few earlier in the day. He believed a majority of them have already had the opportunity to speak or will speak tonight, since a lot of the people are attendees. He stated he could screenshare and noted some of them were from the previous public hearing that was extended out to today.

- Chair Azman stated he thought some of the documents were dated for the prior hearing and were part of the record. He asked if they could deal with the written submissions after the live comments.

- Administrator Kress agreed to do so.

- Citizen Comment: Cheryl Blackford, 7 North Deep Lake Road, commented that on page 51 of the packet there is a statement that says, "It is worthwhile to note that a driveway, which appears to be a legally established nonconforming use, currently exists in the area where the proposed shared driveway is to be located."

- Chair Azman indicated to Ms. Blackford that he thought she was referring to the Nord parcel.

- Ms. Blackford asked if she was jumping the gun.

- Chair Azman stated she may be a little, that the Commission was still on Anderson and felt it would be more beneficial for her to make comments about Nord during the Nord hearings.

- Ms. Blackford apologized and said she would come back later.

- Citizen Comment: Franny Skamser Lewis, 3 Red Maple Lane, asked to screenshare.

- Chair Azman agreed to do so and said he had to ask to start video, which he then did.

- Ms. Skamser Lewis commented that she is far enough along in her pregnancy where the baby is compressing her lungs, so her husband offered his three minutes so she is able to speak without being labored; if it is agreeable to the Commission, she would like to extend her time

a little. She is only commenting on Anderson at this point.

- Chair Azman noted that the question would go to the Commission to make a decision. He did not know if it needed a vote and asked if there were any objections from any Commission members to allow an extension.

- Administrator Kress said his preference would be a motion, second, and roll call if agreeable by the City Attorney.

- Attorney Nason stated either way is acceptable. She understands three minutes is the number that was established before. If the Planning Commission wants to extend that time, it is up to them. Although it may not be necessary, the Planning Commission could do a formal vote to confirm the will of the group.

- Chair Azman asked Ms. Skamser Lewis if she could do her presentation in five minutes.

- Ms. Skamser Lewis agreed that it would not be much longer and wanted to be respectful of the three-minute estimate. She noted she could talk really fast but would probably be out of breath unless she could slow down a little.

- Chair Azman asked if any Commission members had an objection to allowing Ms. Skamser Lewis five minutes. After there were no comments, he asked Ms. Skamser Lewis to proceed.

- Ms. Skamser Lewis said she wanted to focus most of her comments on the WCA and how it is implemented at a City level. She acknowledged that some of the items have already been commented on. She stated when VLAWMO, who is the permitting authority in the WCA, makes their comments, it only applies to the impervious surfaces shown on the plan and does not take into consideration PDA/PUD agreements or a City's Comp Plan and does not include wetland impacts created by NOHOA in the building/maintaining of a trail, which she thinks are important standards to be considered when evaluating plans at the City level. Using screenshare, she indicated she had highlighted a couple of areas within the PDA and Comp Plan where the City certifies to the community as guidance for development that there are strong standards and an interest in avoiding negative environmental impacts at all costs. It is not something they like to do but it is a part of the City's plan. It is also guaranteed by the development agreement; that was a major consideration granted to the City as a signator of the agreement. The WCA provides three questions for local government entities to ask when evaluating plans: Is there another property on which the development can occur so wetland impacts can be avoided; can the project be designed differently to avoid the wetland impacts; can the project footprint be reduced to avoid wetland impacts. She displayed a drawing of the Conceptual Street & Access Plan from the PDA and stated the green are wetlands as designated by the most recent VLAWMO wetland inventory, the orange are the roads that were originally agreed to, and the purple lots indicate additional lots that could be added as part of the density bonus increased flexibility. She noted the parcel was specifically zoned residential multi-family high-density so it could accommodate higher density development that avoids the wetlands. She said she understands that the County has expressed a strong interest in having the access consolidated. She wanted to answer those evaluation questions

for the Anderson parcel. Is there another property on which the development can occur? No, it is not possible. Can the project be designed differently to avoid wetland impacts? Yes. The access could be configured according to the PDA. It could also be configured so that access is consolidated to Centerville Road with either a C-shaped road that terminates before it reconnects to Centerville Road, or a cul-de-sac that terminates east of the wetland. Can the project footprint be reduced to avoid wetland impacts? Yes, lots can be configured according to the conservation model that was proposed by the concept plan of the PDA with higher density and smaller lots. She noted that the WCA does not say that wetland impact is acceptable if it is convenient, less expensive, or increases privacy. While North Oaks residents might be inclined to accept an access plan that they think might impact privacy, that is not something that is taken into consideration by the State mandate. With those wetlands, the cul-de-sac can terminate before the wetland, while still providing plenty of opportunity to develop the additional lots because it has that multi-family high-density. The parcel was intended to have life-cycle housing provided. The wetland impact is not necessary. She commented that earlier there were questions asked about what the additional anticipated wetland impacts are for other parcels. She has a visualization of Island Field, and the site is basically a square-ish rectangle. The easternmost one-third of the property stretching from north to south is entirely wetlands, so she anticipates there will be additional road access wetland impact for that.

- Administrator Kress asked Ms. Skamser Lewis to send him the PowerPoint.

- Ms. Skamser Lewis agreed to do so.

- Citizen Comment: Rachel Maher, 91 Rapp Farm Place, said she wanted to give clarity to the VLAWMO approval process. After the subdivision is approved and it goes to VLAWMO for individual building and septic review and approval amongst the different organizations, if there is wetland impact in any of those different lots, they do not necessarily reject it. From her conversation with VLAWMO, it is rare that they reject something entirely. During that process, if there are wetland impacts, they will make sure all of the proper permits are submitted and approved and proper mitigation is in place. Just because a certain subdivision is approved does not necessarily mean it will be rejected if there are wetland impacts. Also, the level of wetland impact is beyond their control at that point.

- Administrator Kress asked Attorney Nason if she wanted them to call the 7:00 p.m. meeting to order and recess it, or how that should be handled.

- Attorney Nason asked if there was a separate Zoom number for the 7:00 p.m. meeting.

- Administrator Kress, after a reminder by Staff, said the 7:00 p.m. meeting is the same number.

- Attorney Nason indicated she would keep going with the special meeting and call the regular meeting to order at 7:00 p.m. Alternatively, at 7:00 p.m. the special meeting could be recessed for two minutes, then open the regular meeting at 7:00 p.m. and recess it until such time that the special meeting is over. The second option might ensure that the meeting starts

on time. She does not know if the variance Applicant was intending to attend, so it might be worthwhile to acknowledge that and advise them that the meeting will take place once the special meeting is over. She asked Chair Azman and members of the Planning Commission if it was okay to take a brief recess for two minutes at 7:00 p.m., call the regular meeting to order, and recess the meeting until such time as the 5:30 p.m. special meeting is concluded.

- Chair Azman noted there was not much going on at the regular meeting other than approval of minutes and the variance at Sunset and anticipated that it could be fairly quick. He asked if it would be procedurally acceptable to suspend the current special meeting, deal with the regular meeting, and then go back to the special meeting.

- Attorney Nason said if it is anticipated that the regular meeting would be relatively short, that would be an option as well, particularly if the Applicant or any consultants were online for that. If it would be anticipated to take a longer period of time, the Planning Commission might want to wrap up the special meeting first.

- Chair Azman stated his hunch is that the regular meeting would not take long and, absent any objection from Planning Commission members, it would be his preference to get that one done. He noted City Septic Inspector Humpal was also waiting to come on board as well. He said the special meeting could take a while before it concludes. He asked if there were any objections, and after a brief pause indicated there were none. He also noted there were no other hands up for the public hearing aspect of Anderson Woods and no one was physically present in the chambers. He suggested closing the public hearing on Anderson, taking a short recess, have the regular meeting and coming back. He said if anyone wanted to speak, they should raise their hand on Zoom. He noted he did not see any other hands raised.

- Attorney Nason asked for a motion to accept, as part of the public hearing, the comments received by Administrator Kress.

- Chair Azman indicated that was a good point and wanted to know if Administrator Kress could put them on-screen and do a review and then the public hearing could be closed.

- Commissioner Shah asked if Commission members could receive them via email and look through them during the recess.

- Administrator Kress said he could do that and that when the Commission closes out of the regular meeting, he could show them on the screen if everyone was okay with that.

- Chair Azman asked whether they should be part of the public hearing.

- Administrator Kress agreed and said there would be a recess, go to the regular meeting, come back to the special meeting and see the comments, and then close out the public hearing for Anderson Woods.

- Chair Azman stated that brought up another procedural question: can the Planning Commission recess in the middle of a public hearing.

- Attorney Nason said the Planning Commission can do so.

- Citizen Comment: Eric Einan, 16 Sunset Lane, said he wanted to clarify if the Commission was going over his application in the meeting.

- Chair Azman asked Mr. Einan if he was on the variance request at 16 Sunset.

- Mr. Einan stated that he was.

- Chair Azman explained the Planning Commission was in the middle of a public hearing on another matter and would get to him in a few minutes.

MOTION by Yoshimura-Rank, seconded by Sandell, to recess the public hearing of the special meeting regarding Review of Anderson Woods Parcel - Subdivision Application to move into the regular meeting. Motion carried unanimously by roll call (Cremons was absent due to technology issues).

RECESS AND RECONVENE

Chair Azman recessed the special meeting at 7:02 p.m. The special meeting was reconvened at 7:29 p.m.

a. Review of Anderson Woods Parcel - Subdivision Application (continued)

MOTION by Hauge, seconded by Yoshimura-Rank, to re-open the public hearing regarding Review of Anderson Woods Parcel - Subdivision Application. Motion carried unanimously by roll call.

- Chair Azman said he did not see any more hands up and the Council Chambers were empty. He asked Administrator Kress to briefly go over the written submissions and indicate to the Commission if there were any phone calls.

- Administrator Kress stated there were no phone calls. He looked through a lot of the comments sent to the Planning Commission. He said there are a few references to the Anderson parcel, but the majority of the questions are on the Nord parcel. He screenshared the comments and said he highlighted as many areas as he could; green were references to Anderson Woods and yellow were references to Nord. He went through the comments, indicating some were for Nord, Wilkinson Lake parcels, there was a comment asking for a postponement until the Planning Commission can meet again. He noted the comments were prior to tonight and that Chair Azman and he were at the Council Chambers. He indicated another comment from the previous public hearing at 6:00 asking for a postponement. There was a question about maps shown at the NOHOA Board meeting showing only half of the subdivision. He stated that there is a new map in tonight's packet that shows the entire

subdivision. He identified another comment talking about the notice and the changed link for the meeting from the previous meeting that was republished and reposted for tonight. He said another comment speaks to forestry reports and a reference to the Nord parcel as well. Another comment is about the tree inventory. He indicated Cheryl Blackford is present and could provide further comment in addition to her email if she would like. He indicated that concluded comments pertaining to Anderson Woods.

- Chair Azman verified that the written comments would be made part of the record.

- Administrator Kress stated he was correct, that the comments would be put with the packet.

- Attorney Nason suggested the Planning Commission formally vote to accept and include the 23 pages into the public comments in the record for the Anderson parcel.

- Administrator Kress reminded the Commissioners that it is a mixture of Anderson Woods and Nord so there are a few references to both, but that it makes sense if the whole 23 pages are offered and then the same thing could be done for the Nord parcel.

MOTION by Yoshimura-Rank to include the 23 pages of comments about Anderson Woods and Nord developments with the minutes of the meeting.

- Chair Azman asked if it would go with the minutes or is it part of the record.

- Administrator Kress said it would be part of the record and it would be included in the packet that is held at the City Hall and asked Commissioner Yoshimura-Rank if that was acceptable.

- Commissioner Yoshimura-Rank indicated it was.

Seconded by Shah. Motion carried unanimously by roll call.

- Chair Azman indicated there was no one physically present in the Council Chambers and there were no other hands up.

- Administrator Kress noted there was one hand up.

- Citizen Comment: Leanne Savereide, 4 Red Maple Lane, said she would like to talk about the fact that she is one of the four residents whose property the proposed trail would go through. She is not opposed to a trail going through her property but is opposed to this trail as a resident of North Oaks. It is not the best trail for the purposes it is intended, primarily for skiing and the connection between the east and west.

- Chair Azman apologized but noted the comments by Ms. Savereide were geared towards the Nord application and the public hearing being discussed is the Anderson Woods application.

- Ms. Savereide said she thought it was done; she got mixed up with all of the different meetings. She stated she would talk to the Commission later.

- Commissioner Hauge asked Chair Azman what the plan for Anderson was now.

- Chair Azman said it did not appear as though there was anyone left to make any public comments on Anderson. There could be a motion to close the public hearing, and at that point the Commission can deliberate on Anderson and come to a vote on how to recommend to the City Council. He noted the same method would be followed for Nord. After not seeing any more hands up or anyone physically present in the Council Chambers, he asked if there was a motion to close the public hearing at 7:40 p.m.

MOTION by Hauge, seconded by Yoshimura-Rank, to close the public hearing. Motion carried unanimously by roll call.

- Chair Azman stated the public hearing was closed at 7:41 p.m. on the Anderson application. He noted this is the time for the Commission to deliberate as to how to proceed. There are a couple of different options regarding the procedure. Usually the process begins with a motion to either approve or deny the application with or without conditions as recommended by Staff. Sometimes Commissions or bodies like Commissions may take a straw vote on what people are thinking in order to gauge where it is going. He said it is up to the Commission. He asked if anyone had questions or wanted to discuss anything and said the most efficient way to proceed would be to see if there is a motion to approve or deny the application.

MOTION by Yoshimura-Rank to approve the Anderson Woods Parcel Subdivision Application with conditions 1-51, condition 51 being modified to say that the City Forester is able to communicate with all of the homeowners in Anderson Woods development in terms of preserving trees, not just the Lot 9 applicant.

- Chair Azman said if Commissioner Yoshimura-Rank wanted to make her motion to include the conditions in the Staff recommendations, she could revise those recommendations however she wanted as part of her motion.

- Administrator Kress stated it looked like Commissioner Yoshimura-Rank was talking about condition 51. He highlighted the language on the screen and asked Commissioner Yoshimura-Rank if she would change that language to talk about all lots located within the Anderson Woods subdivision.

- Commissioner Yoshimura-Rank stated Administrator Kress was correct.

- Administrator Kress stated if that was acceptable, Chair Azman could ask for a second.

- Chair Azman stated it was acceptable and asked for a second.

- Commissioner Hauge referenced condition 52, comments of other City Staff, and asked if there was anything going in under 52 which was discussed today.

- Administrator Kress said Attorney Nason would have to speak to that, noting that most of the comments were related to the conditions already listed, 1-51. If there were other comments that weren't already incorporated in the conditions, they would come into play at this point.

- Attorney Nason stated Administrator Kress was correct and said the only other condition that might not be spelled out based on when the packet and Staff conditions were compiled was the feedback from the Fire Marshal regarding removing the island. She suggested condition 52 be revised to indicate the island in the cul-de-sac be removed per the Fire Department and NOHOA's request.

- Commissioner Hauge said he is satisfied with that change.

- Chair Azman stated he also would like the cul-de-sac removed, which is a NOHOA request as well. In NOHOA's letter to the City on the application, there were a number of requests for information, and he wanted to make sure that NOHOA gets the information they are looking for. He asked Attorney Nason if the boring soil data and other information NOHOA is requesting be provided to them as a condition by the Applicant.

- Attorney Nason asked Chair Azman which NOHOA letter he was referring to.

- Chair Azman said there are two of them: one from April 7, 2020, starting on page 44 of the packet. Paragraph one discusses the cul-de-sac, paragraph two discusses some trail maintenance items, and in paragraph five they are looking for information dealing with the roads. He stated NOHOA will be taking over the roads, and it would be appropriate to make sure NOHOA receives the information they are looking for in the letter.

- Attorney Nason suggested condition 52 is removal of the cul-de-sac from the island and condition 53 is to provide all information requested in the letter dated April 7, 2020, to NOHOA as the information becomes available to the developer.

- Chair Azman stated, with respect to condition 50, where it says, "Where practical, the Applicant shall consider," the word "consider" makes him nervous because people can say, "Yeah, we considered it but we are not too concerned about it." He would prefer paragraph 50 be a requirement: The Applicant shall undertake development such that trees are preserved to the greatest extent possible. The Applicant shall observe the recommendations of the City Forester upon the site. And for the trees that must be removed for reasonable development, conditions a-j imposed by the Forester shall be followed.

- Attorney Nason stated the motion was made by Commissioner Yoshimura-Rank and asked if she would modify her motion to include the additional recommendations as outlined and discussed for changes to the proposed conditions.

- Commissioner Yoshimura-Rank stated she would do so.

FRIENDLY AMENDMENT by Yoshimura-Rank that her motion include the additional recommendations as outlined and discussed for changes to the proposed conditions.

- Chair Azman asked if there were any additional comments on the motion or terms of the motion before there would be a second.

- Commissioner Sandell asked if Chair Azman was still retaining the "where practical" component.

- Chair Azman noted he did not use that language in particular. He wants to make sure from his standpoint that the Applicant shall undertake the development such that trees are preserved to the greatest extent possible. He noted it might be semantics, but it is more in his mind than just a "shall consider," it is a "shall undertake." That way there is more of an authority for the City to enforce that condition if it is observed that trees are being taken that should not or that could be preserved. Similarly, there is not an option to consider the City Forester's recommendations but there is an obligation to follow the recommendations. He noted it is not a directive that the Applicant shall preserve every last tree to the unreasonable progression of the site development, but something a little stronger than "consider."

- Commissioner Hauge asked Chair Azman if he was waiting for a second.

- Chair Azman said he was pausing a moment to let people think if they wanted to make further changes before a second came along. If not, he would be ready for a second.

Motion Seconded by Hauge.

- Commissioner Hauge stated one of his initial questions was the road that cuts across the wetland. There were comments about the wetland, and what he heard from the Company was that the road crosses the wetland at a high point so the water does not need to go through the road construction, it flows to each side. That was his concern and it has been answered.

- Commissioner Shah said she wanted to talk a little bit about the re-wording that is being suggested with the trees. She asked, with that verbiage, is it implying basically the Forester is pretty much going to have the final say on what is going to be removed and what is not.

- Chair Azman said he does not contemplate that the Forester would get involved to that extent. The City can enforce those conditions and he is sure the Forester might be consulted. There are a lot of trees being removed in that area, and the Applicant has made a commitment on the record that they will do what they can to reduce tree removal. In his background and experience, when you have words like "shall consider," that means ignore. There is nothing holding the Applicant to that other than they considered it and dispensed with it because they do not have to give a reason. He was not thinking about whether the Forester has that police authority; he was thinking of the City coming in and having at least some authority to take a look and see what is happening out at the site.

- Commissioner Shah noted it would still be on a consulting basis because the City cannot enforce it, they do not have an ordinance.

- Chair Azman said, under his language, the condition is that they "shall" undertake and the condition is mandatory.

- Commissioner Sandell noted the language is "where practical." He understands there are some semantics to it, but he is wondering what enforcement would really be. The Applicant has identified that they will follow this to the extent they can. He noted he had not thought, the way Commissioner Shah phrased it, that the City Forester would have some governance there, but the way it is stated currently it almost implies that they would, and he is not sure that is the right path.

- Chair Azman stated he respects the comment and that was just his thought. If the language says "shall consider," even though something may have been mentioned on the record, he does not see that as an obligation or anything the City can do to impose a requirement that it be done. It looks pretty by saying "shall consider" but does not mean anything in his mind, and he was looking for a bit more in the form of a requirement.

- Commissioner Yoshimura-Rank asked if it would be better to add both the NRC and Forester to get more feedback.

- Commissioner Sandell said he is not looking to add more governance to it.

- Commissioner Shah said she is in agreement with Commissioner Sandell; they are going into a territory that Counsel has briefly touched upon and are prematurely entering an area where they are not sure of the City stance on the governance of this.

- Commissioner Hauge asked what Commissioner Sandell was suggesting.

- Commissioner Sandell said he was suggesting to leave it as-is as long as the "where practical" stays in there. He understands where Chair Azman is coming from, to make sure it is worded in such a way that the Applicant takes serious consideration. He thinks the "where practical" on the front end probably gives them some latitude regardless if it says "shall consider" or "will," and he would prefer it to stay as it is written. He would be all right with Chair Azman's proposal as long as the word "practical" stayed on the front end of it.

- Chair Azman clarified the technical language he proposed was "to the greatest extent possible" as opposed to "where practical."

- Councilmember Kingston stated it seemed like the Commission's goal is to make sure the Forester is contacted when the homeowner is making plans on where they want to build and to take a look at the trees on the property and see if there are options to preserve the trees that should be preserved. The way it is listed seems like it could accomplish that, if they are required to consult with the Forester. He felt giving the Forester the final say on whether or not a homeowner can build on their property in a particular area based on a tree is going to

have some serious consequences.

- Commissioner Hara said if someone spends half a million dollars for a piece of dirt, they are going to be pretty distressed to find out they cannot position their house because there is a tree in the way. Practically speaking, if you have lived in North Oaks long enough, people have taken it upon themselves at times to cut trees down without asking permission or advice from a Forester, so the Commission might be chasing something that is not very practical.

- Commissioner Hauge stated that after listening to the discussion, he tends to agree with Commissioners Sandell and Cremons and Councilmember Kingston, because the Commission should make it practical.

- Attorney Nason said that as she understands the condition as written, it is related to the Applicant's work within the subdivision area, which is essentially the area where the roads will be installed. It does not really apply to the development sites themselves, because the Applicant is not going to be doing the development work on those sites, as she understands. With respect to these conditions, whether it is mandatory or more of a recommendation, it is specific as it relates to the work done by the Applicant on the subject site as it relates to the roadwork. She asked for clarification on that to make sure everyone is on the same page and understands what the recommendation is. She suggested the Chair ask the Applicant if he would agree to the condition as proposed and amended, although ultimately it is the Planning Commission's decision to impose it or not.

- Chair Azman said there already has been questions to the Applicant and an agreement for compliance with the provisions, and he recognizes there is no tree ordinance. He also recognizes that the Comp Plan and the history and the ordinances as written all encompass an idea of preserving the natural properties and features of the land. He is happy to hear from the Applicant. He stated if there is not the traction from the Commission, he does not want to hold up the application from moving forward. He wanted to express his concern and preference for what he thought was somewhat suggestive language that can be ignored, regardless of what the Applicant may/may not have said during the public hearing or public comment portion. They can say they think it is a good idea to follow it; once the paperwork is completed and the preliminary plan is approved and these conditions are there, that is really what is going to govern, not what somebody may have said during a hearing. He reiterated his concern was "shall consider" is "shall consider each of these items," such as treatments for high-value trees, following oak wilt protocol, and installing a tree protection fence. He feels during site development those are items that should be followed. He does not want to jeopardize the unified thought on what is best for the application.

- Commissioner Cremons suggested the language to be "Where practical, the Applicant shall follow the recommendations of the City Forester" and then continue as it is, getting rid of the qualifying language that bothers Chair Azman and just say "shall follow" rather than "shall consider." He stated this is only binding on NOC, it has nothing to do with the owners or the building of houses. He said he thought the Commission was getting bogged down in something that really is not that binding on anybody and does not have anything to do with

what the homeowners are going to be doing with the lots.

- Commissioner Sandell said he would be okay with Commissioner Cremons' language as long as it contained the practicality piece of it.

- Commissioner Cremons proposed to keep the word "practical" and change the few words right after that.

- Chair Azman noted it would read in paragraph 50, "Where practical, the Applicant shall follow the following recommendations of the City Forester," removing the word "consider" and replacing it with "follow."

- Commissioners Cremons, Sandell, and Yoshimura-Rank were okay/fine with the language.

- Commissioner Shah agreed it has to be "where practical," with the summary statement the Forester would be consulted. She noted there are always exceptions, the Commission always sees exceptions, and there will be exceptions to all of the trees as well.

- Attorney Nason noted there is a motion and a second on the floor. The motion and second include the language as proposed by the Chair. If there is consensus by the group to modify the motion to read as previously stated, there would need to be a motion to amend the motion on the floor, which would require a vote of the Planning Commission.

- Commissioner Hauge agreed that would need to be done.

- Chair Azman said he agreed and the motion would be to change in paragraph 50 the word "consider" and have it read "shall follow," and everything else would remain the same.

- Attorney Nason said it would be to amend the pending motion to have the language related to condition 50 read as just described.

- Commissioner Hauge asked Attorney Nason to read the language that would be voted on.

- Attorney Nason stated she hoped Administrator Kress had the motion written down because she did not write it down verbatim.

- Administrator Kress said condition 50 shall read, "Where practical, the Applicant shall follow the following," and it goes from a-j; condition 51 shall read "All of Anderson Woods"; and condition 52 is the removal of the cul-de-sac and the additional comments from NOHOA dated April 7.

- Chair Azman clarified it would be the additional information requested from NOHOA.

- Administrator Kress said it is the letter included in the packet on page 45.

- Attorney Nason said the information requested in the letter dated April 7, 2020, shall be provided to NOHOA as it becomes available to the developer.

AMENDMENT MOTION by Cremons, seconded by Yoshiumura-Rank, to amend the motion on the table, as discussed, to change the verbiage in condition 50 to "Where practical, the Applicant shall follow the following," and in condition 51, "The Applicant shall work with the City Forester and lot purchaser and explore options to preserve trees located within the narrow southern one-third of Lot 9," and condition 52 is to remove the island from the cul-de-sac and have the Company submit the information as included in the April 7 NOHOA letter.

- Commissioner Shah asked for a clarification on the component around the Forester, as to whether that criteria and condition is only for the Applicant, and asked if that was correct.

- Chair Azman said paragraph 50 says, "Where practical, the Applicant shall consider," et cetera, and then at 51 it says, "The Applicant shall work with the City Forester and explore options," et cetera. As he read it, this would impose the obligations on the Applicant, and whatever happens with ultimate homeowners would be a separate matter.

- Commissioner Yoshimura-Rank said she wanted it for the homeowners as well as the Applicant on number 51.

- Chair Azman stated he thought Commissioner Yoshimura-Rank was talking about the "explore options on all the lots."

- Commissioner Yoshimura-Rank agreed with Chair Azman.

- Chair Azman noted it would be, as he understood it, "The Applicant shall work with the City Forester and explore options to preserve trees located within all of the lots." He asked Commissioner Yoshimura-Rank if she wanted to include not only the Applicant but also the ultimate purchaser.

- Commissioner Yoshimura-Rank stated yes, if it did not open a can of worms.

- Chair Azman stated it did open a can of worms.

- Administrator Kress said the Applicant has no responsibility for the individual lots, they are not placing the home and have no responsibility there, so the City cannot hold this Applicant to that consideration.

- Commissioner Yoshimura-Rank stated it should then be for all of the lots.

- Chair Azman indicated it would read, "The Applicant shall work with the City Forester," and "preserve trees located within all of the proposed lots."

- Commissioner Yoshimura-Rank agreed with Chair Azman.

- Commissioner Shah stated she needed to go back to the criteria the Commission is talking about, having the Applicant work with the Forester, and said the Applicant is selling lots, not homes. She asked for someone to help her understand the scope of lots versus the road.

- Administrator Kress said that, basically, for any work that they perform on individual lots, they would have to follow the criteria listed in number 50. They would have to install tree protection, it talks about grading, and placing fill next to saved trees. He noted a lot of that would probably not happen within individual lots; but if it does, they would have to be compliant with this criterion.

- Chair Azman stated he thought the same would be true with condition 51.

- Administrator Kress agreed with Chair Azman.

- Commissioner Shah asked about the homeowner's decision regarding that.

- Administrator Kress said the Applicant is not tied to that. That would be part of the building application that is received at City Hall after the fact.

- Commissioner Shah said it seems like if the Applicant is working on these individual lots, as they build the home they would be tied to the same criteria.

- Chair Azman clarified that the Applicant will not be building the home. The Applicant will sell the lot to an individual, who will hire their own builder. As the Applicant develops the lots for ultimate sale, the Commission is asking the Applicant, through 50 and 51, to do what they can in conjunction with the City Forester to preserve trees. When the homeowner comes to the City for their building application, that would be a separate deal. The homeowner would not be subject to this particular preliminary plan, if it is approved, in that regard.

- Commissioner Shah said it seems like the Commission is asking the Applicant, where practical, to make these conditions happen; but once a homeowner buys the lot, the Commission has no governance or anything to police them from cutting the trees down.

- Attorney Nason stated there are two different pieces that might be getting confused. Condition 50 is related to the Applicant and its work within the development site, which is primarily the road area. Condition 51 had to do with preserving trees located on the narrow southern one-third of Lot 9. Her notes of the motion originally made included communication to all owners regarding their options about preserving trees on all lots. As she understood, 51 was not an application of all of the criteria in 52, it was more that there was supposed to be a communication piece to the end users/purchasers about the options to preserve trees on the lots.

- Chair Azman said he understood 51 was changed to cover all of the lots: "The Applicant shall work with the Forester and explore options to preserve trees located within all lots in

the subdivision." That is the way it was stated as part of the motion.

- Commissioner Shah said she was also confused because she thought 51 was a letter or working with the Forester out of encouragement and suggesting practical ways to save the trees on each lot. Condition 50 was specific to the Applicant in terms of scope of the street that had to be built.

- Administrator Kress said he also had all of Anderson Woods for 51. He thought the intent was what Attorney Nason talked about, some kind of letter or correspondence to the new homeowner, but currently the City does not have a tree ordinance to apply any further regulation on that. He thinks it will be fine if it is listed as all of Anderson Woods, but after the developer sells the lot, their obligation is no longer there.

- Commissioner Cremons asked Administrator Kress, if someone submits a building plan that shows they are going to clear-cut one-third of their lot, would that be grounds for rejection of the building plan.

- Administrator Kress stated he did not believe so, although he would have to look at the specific ordinance to see if there are any criteria for removing trees, in particular to the acreage. That is his understanding of this zoning district.

- Attorney Nason said she would have to look at the ordinance, but she thinks that is one of the challenges without a tree preservation ordinance. There are some requirements, but they are only found in the commercial district. There is not anything that would specifically apply to those lots. However, she understands the City is in the process of considering a potential adoption of a tree preservation ordinance. If adopted, the ordinance would apply to any subsequent individual building site developments. There is a way for the City to address this, which would be the adoption of the tree ordinance or other zoning ordinance amendments that would specifically address the development site/tree removal piece.

- Chair Azman suggested, for condition 51, revising the language to say, "The Applicant shall work with the City Forester and homeowner to explore options to preserve trees located within the lots of the subdivision." He said that way it imposes an obligation to work with both, but lacking a tree ordinance, it does not go much further than that. It provides the thought to stop, take a pause, think about tree preservation, and whether there are options.

- Commissioner Sandell asked if the Applicant works with the homeowner upon building, or do they just sell the lot to a builder and then exit from that point on. He asked if that was the dynamic between NOC and a buyer or a builder.

- Chair Azman said traditionally the Company has sold to private owners and not a developer, although Rapp might be a different example of that. From what he is hearing from Commissioner Yoshimura-Rank and what Attorney Nason's notes reflect, there was some intent to try to bring in the homeowner to the process through the Applicant on tree preservation issues.

- Commissioner Yoshimura-Rank stated she thinks this is the only opportunity to provide a forum where that discussion can happen.

- Chair Azman noted that it seems fairly benign.

- Mr. Houge said the Company has situations in North Oaks where they sell exclusively to some preferred builders such as in Rapp Farm; in the case of Villas of Wilkinson Lake, there is one builder they prefer to work with; and in other cases like Red Forest Way, they sell to the homeowner directly and they bring their builder. What they tell the homeowner is they need to follow the ordinances in the City, and in many cases the Company reserves the right to review the plans. In the case of Rapp Farm, the Company reviews the builder's drawings before they go to the ASC; in the case of the Villas of Wilkinson Lake, the subassociation reviews the drawings before they go to the ASC. They have found, as a practical matter, that most people that prefer to live in North Oaks prefer to preserve trees, so it is really important that this be practical because he thinks everyone is well-intended, especially the Company, because they are doing everything they can to save as many trees as possible in the design of Anderson Woods, and the last thing they want to see is a homeowner come in and clear-cut.

- Chair Azman said he would be supportive of language that would prompt some involvement of the homeowner through the Applicant without being overly onerous in light of the fact that the general philosophy is to preserve trees, anyway. However, if someone wants to come in and remove trees in whatever manner they wish, he is not sure there is a lot the City can do about it without a tree ordinance. At least with the option in front of the Commission, they can utilize some sort of flowery language that prompts the thought process.

- Commissioner Yoshimura-Rank said that she would like that.

- Commissioner Shah asked that condition 51 be read one more time and also 52 with the precise verbiage.

- Administrator Kress noted he had the verbiage on the screen.

- Chair Azman asked if Commissioner Shah wanted 51 or 52.

- Commissioner Shah said it would be 50 as rewritten and 51. She noted that 50 was rewritten, too.

- Chair Azman stated 50 was changed by replacing the word "consider" with "follow" in the first sentence.

- Commissioner Shah said she thought, per Commissioner Cremons' suggestion, it was summarized and the detail was removed.

- Administrator Kress stated it reads, "Where practical, the Applicant shall follow the following."

- Commissioner Cremons said he proposed leaving all of the details and just changing a few words in the first line of 50. He stated he thinks the detail helps so he would leave it in there.

- Chair Azman clarified that Commissioner Cremons' suggestion was to strike "consider" and replace it with "follow."

- Commissioner Cremons agreed that is what he suggested

- Chair Azman said, for condition 51, he did not know that the Commission was in a position to propose some actual language, it was more about whether there was some buy-in from the Commission on the concept of getting communication/dialogue with the homeowner on a tree preservation idea. He stated if there is some traction with the Commission on that concept, the Commission can think about some language. If there is not, the Commission should move on.

- Commissioner Cremons suggested condition 51 could read, "The Applicant shall work with the City Forester and lot purchasers to explore options to preserve trees located within the entire subdivision."

- Commissioner Shah stated that is more precise on how the Commission plans to work with the homeowners. She stated that another suggestion for condition 50 is that the Commission needs to distinctively call out that what they are asking for the Applicant is for the road of the subdivision.

- Administrator Kress said it is mainly the road, but if they create any impact on the individual lots, these criteria would provide the requirements.

- Commissioner Cremons stated it would be better if the Commission did not limit condition 50 to the road, that it applies to any work they do in the subdivision, which will probably only be the road.

- Commissioner Yoshimura-Rank asked if it would also involve work on the trail.

- Chair Azman said he viewed condition 50 as primarily dealing with the road; but if there are impacts elsewhere, then the recommendations of the Forester would need to be observed.

- Commissioner Shah noted the Commission has specified that NOC will work with the owners as needed in each of the lots in condition 51. Condition 50 is holding them accountable for the road.

- Administrator Kress stated he thinks condition 50 holds them accountable to everything on-site. For 51, if the extra verbiage from Commissioner Cremons is added, that is fine; but the City Council has the final say. If they want additional criteria above and beyond what the Planning Commission has, they can do that. There is enough information tonight that the Commission could move forward with the motions that are on the table.

- Chair Azman said that means revising 50 and 51 per Commissioner Cremons' comments.

- Commissioner Cremons said he would withdraw his prior motion if that would help since it was not seconded and the Commission could move forward with a motion as the revisions were just discussed.

- Administrator Kress said from his perspective the motion is ready to go and the Commission is getting in the weeds a bit on some criteria that the Council can weigh out at their meeting.

- Attorney Nason clarified there was a motion and a second, then there was a motion to amend the existing motion to provide some clarifying language which was approved, so the Commission is at the original spot, which is a motion and a second. She believes the discussion had to do with clarification of exactly what the language from the original motion as amended stated. She did not know if anyone could read back into the record what the original motion as amended was. She clarified that there is a pending motion on the table.

- Administrator Kress asked if there could be a vote, and then call for a new motion when the roll call fails.

- Chair Azman noted there is a motion and a second on the original motion, and then there was a motion to amend. Commissioner Cremons has the motion to amend with his language at conditions 50 and 51, and he does not recall if there has been a second to it. That seems to be where the Commission is at and what he would like to move forward on. He noted Commissioner Cremons has some good accommodations to conditions 50 and 51, he is not hearing a lot of push-back on that, but does not recall if there was a second to it. Motion to amend motion seconded by Yoshimura-Rank.

- Chair Azman noted the Commission is in the second motion which amends the first motion and there is a second. He asked for discussion on that.

- Administrator Kress clarified that the motion was by Commissioner Cremons, seconded by Yoshimura-Rank, to change the verbiage in condition 50 to "Where practical, the Applicant shall follow the following," and in condition 51, "The Applicant shall work with the City Forester and lot purchaser and explore options to preserve trees located within the narrow southern one-third of Lot 9," and condition 52 is to remove the cul-de-sac and have the Company submit the information as included in the April 7 NOHOA letter.

- Commissioner Cremons stated in condition 51 the Commissioners agreed that it would apply to the entire subdivision and not just the southern one-third of Lot 9.

- Administrator Kress noted that Commissioner Cremons was correct.

- Commissioner Shah said Administrator Kress said "remove the cul-de-sac," when he meant to say "remove the island from the cul-de-sac."

- Administrator Kress stated that Commissioner Shah was correct.

- Commissioner Hauge asked if everyone was clear on who made the motion. He noted Commissioner Cremons has a motion on the table that is being discussed but there was an original motion.

- Chair Azman said everyone got bogged down in the motion to amend the original motion, and that was made by Commissioner Cremons and Commissioner Yoshimura-Rank seconded it. Administrator Kress was restating the terms of the motion and the Commission was in a discussion period over that second motion, the motion to amend. The motion Administrator Kress read is the pending motion before the Commission. He said they are at the point of further discussion on that motion and that is what should be discussed now.

- Councilmember Kingston stated he wants to know what they are going to get at the City Council. He is confused and wants to understand what the Commission's intent is. He asked what the role of the Forester is and whether the Forester is making the determination as to whether or not it is practical. He asked what it is the Commission wants the Forester to be doing in these circumstances and what authority they have in terms of vetoing where somebody wants to put their house and what trees might come down.

- Chair Azman said the Commission asked the Forester to do a review of the tree impacts at both sites. With regard to Anderson Woods, the Forester came back with an analysis of what the impact was by the proposed subdivision on the trees at the site and also provided recommendations. The Commission is trying to impose those recommendations on the Applicant in a manner that is reasonable. The City would have the authority to enforce all of these conditions in a manner that is consistent with the conditions as written. If the City decides that something was done that was not practical, then the City could take enforcement action. It is no different than if the City would enforce a condition on any wetland or VLAWMO issues, etc. When it gets shipped up to the City Council, the Council could look at it and say this is a condition the City can enforce if it is not being complied with. The Forester may be consulted, but the Forester has already expressed his opinion on what recommendations are appropriate for the site and the site development.

- Commissioner Hauge stated it is all in the relationship between the Applicant and the City. He noted Commissioner Yoshimura-Rank had a request to include the future homeowner in the situation, too.

- Chair Azman said that would come in at condition 51, which was on the screen, and the language would read, "The Applicant shall work with the City Forester and the lot purchaser to explore options to preserve trees located within the subdivision." He stated it imposes a condition on the Applicant to do something in cooperation with the Forester, but because the City does not have any standards through a tree ordinance, it is more of a suggestion.

- Councilmember Kingston stated he thinks that is where he is confused. He said a homeowner could come in to buy a lot and find out that if they want to put the house in a particular location, if it is not considered practical by the Forester, they don't have the option to do that.

He is trying to understand if that is what the intent is. An example of what might happen is, you have somebody that says there is this tree located here and that they could put the house in another location, but they really like the sunset in another area and there is no way to get there unless the particular tree is moved. He indicated there can be a difference of opinion in terms of whether that is a practical consideration.

- Commissioner Yoshimura-Rank said it is just having the discussion. There is absolutely no weight that the Forester has; there is no ordinance.

- Councilmember Kingston stated he agreed but was looking at the first comment where the Commission was taking out the "shall" to make it a more active recommendation. He is trying to understand what the degrees of freedom are for what a homeowner would do in that case.

- Commissioner Yoshimura-Rank said they are talking about NOC; they are not talking about homeowners.

- Councilmember Kingston asked whether they had added the homeowner into it.

- Commissioner Hauge noted the homeowner was added into it and that Commissioner Yoshimura-Rank did so.

- Commissioner Yoshimura-Rank said it was added to number 51, not 50.

- Commissioner Hauge noted number 50 is on the road and number 51 is the lot.

- Chair Azman stated number 50 is subdivision-wide and he thinks Councilmember Kingston was concerned about how to put this into action. The language was changed to say "Where practical, the Applicant shall follow the following recommendations" where originally it was "Where practical, the Applicant shall consider the following recommendations."

- Councilmember Kingston said his concern was what the word "practical "means. He gave an example of someone who likes the sunset or the orientation of their home a certain way. He said the phrase "practical language" is going to impede the decision-making regardless of whether "shall consider" or "shall follow" is used. From a practicality standpoint, if Councilmember Kingston is viewing it as maybe not as workable as it should be, then the option should be to take out the "where practical."

- Commissioner Cremons said he would suggest leaving a little flexibility which "where practical" does. As a practical matter, if there is a dispute about trees, the homeowner will have to come in and talk to the City and try to figure something out. The Commission cannot backdoor their way into a tree ordinance by this resolution. If people are truly concerned about protecting trees in North Oaks, the tree ordinance is going to have to take care of it, and everything the Commission does in the resolution is going to do nothing. He thinks the Commission can move forward on the basis of what has been talked about. The Commission

has made very good changes to the language and needs to get this process moving.

- Commissioner Shah stated she agreed with Commissioner Cremons but the concern is that the Commission is opening the door and she is hearing differing views from different Commissioners. Some want stricter accountability; some are saying the Commission has to be flexible. She asked what the Commission is saying in number 50. She asked, if the Commission is waiting for the City Council to make some sort of decision on a tree ordinance, what is 50 here for.

- Commissioner Cremons said the whole process is between the City and NOC. The Commission has no ability to bind a homeowner or govern what they do with their lots, no matter what is put in the document. What the Commission is doing in number 50 is binding NOC as to all the work they do. In number 51, a process of communication has been added with the homeowners that NOC will have to pursue to make sure the trees are part of the focus as they develop the lots. He said that the Commission cannot do much more relative to this application.

- Commissioner Shah indicated the way Commissioner Cremons phrased number 50 is that he only considered the Applicant. She is hearing from other voices they want the Applicant and homeowners in there. She thinks there is variability here.

- Commissioner Cremons stated the way he understands number 50 is, the Commission is here to govern the terms by which the Applicant can develop this property; nothing else is on the table.

- Councilmember Kingston noted the Applicant is not building the home. The lot will be sold, and then the homeowner comes in and has the obligation to take it to the next level. He said if the Applicant is not building the home, he is trying to understand what the purpose is.

- Commissioner Cremons said condition 50 governs the road and any other work NOC does on those lots. As the language reads right now, it does that. If NOC decides to do some grading before they sell lots or pre-prep it for utilities and they decide it would be better for them to do it than have the developer do it, they are going to be bound by every one of the provisions. Once the lot is handed over to the owner, there is a separate process that begins at that point that the Commission cannot control by the resolution.

- Attorney Nason stated it is appropriate to revisit a little bit what the Planning Commission and the City Council can do in the subdivision context. She thinks there is clearly a sense from the Planning Commission that they would like the Council to look at how best the City can protect trees, which might be a tree preservation ordinance. With respect to what can be done to a condition on a subdivision approval, when applying the subdivision standards, you are looking at what does your code have and what are the requirements in there as it relates to subdivision. Currently, the City does not really have any. From Staff's perspective, they got the information from the Forester and put it in as a suggestion. As worded, it is really a non-condition; as was mentioned, "shall consider" does not mean anything. The Commission could say, "The Applicant shall follow the recommendations of the Forester with respect to

the Applicant's work and as it relates to the subdivision," but none of the conditions specifically deal with tree preservation except for using essentially best practices with respect to the tree removal pieces. As far as condition 51 is concerned, it is a little bit of an unusual condition. She understands the Applicant is agreeable to it. If the Applicant is agreeable, then perhaps a bit more unusual condition is not out of order in that if there is some type of communication piece that's made by the developer to the purchaser of the lot regarding working with the Forester in the importance of preserving trees. It does not specifically require preserving trees/heritage trees, because the code does not contain any of that language currently. She wanted to make sure the Planning Commission is clear in what their recommendation is to the Council and that it is clear in understanding ultimately what the City's options are as far as any enforceability with respect to the regulations. Once the subdivision is approved and the lots are platted, if there is a violation of the subdivision conditions, there is not a good "remedy" for the City at that point; the lots are platted. It is a little bit different than a violation of a condition of a variance or a Conditional Use Permit (CUP), where there is a process to revoke and rescind that approval.

- Chair Azman said he does not know where the Commission is right now. He tends to agree with Commissioner Cremons on how he views his changes to numbers 50 and 51 and Attorney Nason's fleshing out what these things mean. He noted there is a motion and a second and thinks he should call the question. He indicated the motion is to swap out "consider" with the word "follow" in condition 50, and in condition 51 to add "the lot owner" and change out "Lot 9" to "subdivision-wide." He noted there were comments on City Staff on 52, which is removal of the cul-de-sac island. He asked Administrator Kress what else was pertaining to 52.

- Administrator Kress noted there was also a desire for information from the April 7, 2020 NOHOA submittal included in the packet.

- Commissioner Hauge asked Chair Azman if that is what he had suggested, because he thought Chair Azman did not agree that the homeowner should be included in number 51. He said the homeowner is someone that the Commission does not control in the situation, from what everyone has heard from several parties, including Attorney Nason.

- Commissioner Cremons said the language is more of a guidance than an enforceable regulation. There is no reason not to put in "shall work with the City Forester and lot purchaser to explore options." It is relatively soft language, but at least it raises it to the point where the Commission is expecting NOC to have that conversation and involve the City Forester in the conversation. As Chair Azman and Administrator Kress indicated, as far as revisions, that is as far as he can go.

- Councilmember Kingston asked if it would be a requirement as opposed to trying to observe best practices and make recommendations if the Commission is going to insert "shall follow" instead of "consider."

- Commissioner Cremons noted condition 50 is NOC and the City, and he has no problem saying the Applicant shall follow the recommendations of the City Forester in an effort to

preserve and save trees. He stated that they should follow the recommendations.

- Commissioner Hauge stated that it says "where practical," they should follow.

- Commissioner Shah said if the City Forester comes through and identifies the trees to save on where the Company has plotted out the houses to be, where does the Commission stop. She asked if she is hearing that the City is saying they would have to move the house.

- Commissioner Cremons said there would have to be a discussion about what is practical.

- Commissioner Shah said that is the problem; the Commission is trying to define that and is saying it is loose, but who is the force that will say that. Also, at that moment how does the Commission define what is practical.

- Commissioner Cremons noted there is a difficult problem between making the Forester the total controller of what is going to go on/keeping the Forester involved in the process and keeping NOC as best as possible bound by these provisions. He thinks "shall follow" is still fairly fuzzy. The language is "where practical"; it's got that the City Forester is going to make recommendations so there will be some conversation there. He said he does not think the Commission has the authority to say they have final control over what is going to happen except for NOC's work; but on their work, they have to follow these rules.

- Commissioner Shah said she is not hearing that from Chair Azman.

- Chair Azman stated he is saying if you look at condition 50 and what it is actually saying in the details, it is not ordering or directing the preservation of trees. As Attorney Nason said, in the process of site development, you are doing what you can to protect trees that might be affected by the development. You want to "Fell all trees to be removed towards the centerline of the street to limit injury to saved trees," and "Put in a tree protection fence after tree removal," etc. Condition 50 is not saying, "We want you to go out there and only take down the absolute minimum amount of trees;" 50 is saying, "When you are going through this, do the best you can to save the ones you're saving." Condition 51 is a little different and says when a homeowner buys the lot, have a conversation with them about tree preservation, and does not go to the limit of a tree ordinance that might say, "Look, we are going to require you to save certain heritage trees of this size and standard." He does not think the Commission is getting into tree ordinance territory with conditions 50 or 51. The Commission is imposing the obligations to try and protect the trees that are saved in condition 50. In condition 51, it is to have a conversation. That is not what he originally intended, but he thinks it is workable.

- Administrator Kress said it was time to roll call because the question was called. There was no motion to call the question, but it was time to see where everybody is at. The vote would be approval with the three changes to numbers 50, 51, and 52.

- Attorney Nason noted it was the motion to modify the motion on the table, so she understands the vote to be the modification of language of the motion on the table.

Motion to amend carried unanimously by roll call.

- Chair Azman stated the Commission is now back to the original motion, which was Commissioner Yoshimura-Rank's motion to approve the application subject to conditions 1-52 as were just amended. He asked if there was any further discussion. Not hearing any, he asked for a vote.

Motion as amended carried unanimously by roll call.

- Chair Azman noted the Commission recommended approval subject to the conditions and that will go to the City Council.

RECESS AND RECONVENE

MOTION by Yoshimura-Rank, seconded by Hara, to take a recess for ten minutes. Motion carried unanimously by roll call.

Chair Azman recessed the special meeting at 8:55 p.m. The special meeting was reconvened at 9:06 p.m.

MOTION by Yoshimura-Rank, seconded by Hauge, to reconvene the meeting. Motion carried unanimously by roll call.

b. Review of Nord Parcel - Subdivision Application

- Chair Azman opened the public hearing at 9:06 p.m.

- Planner Kirmis, Engineer DeWalt, and Attorney Nason presented the Planning Report Addendum included in the packet and recommendation for approval of the proposed Nord preliminary plan/preliminary plat (subdivision) application subject to the fulfillment of amended conditions 1-49.

- Commissioner Sandell said Engineer DeWalt made reference to the sewer system which seemed like a different message than previously received for the site. He asked if there would be construction for easements for potential sewer connections and City water and still have wells.

- Engineer DeWalt noted Staff was not talking about sewer service at this time, it was regarding municipal water service, because a question was raised about the future potential for it. The idea is for Staff to address it with easements today, which are easier to get rather than planning for a potential future service 30 years down the road.

- Commissioner Sandell asked if the properties would still be required to have wells initially.

- Engineer DeWalt noted Commissioner Sandell was correct, that there would be no water service. It would be providing easements to make any potential future water service easier to

provide.

- Commissioner Sandell noted it sounded like water service is a potential at some point. He asked if sewer was also a potential at some point.

- Engineer DeWalt said City Staff is trying to address a future unknown. While they have the ability to provide for additional easements today, it will be much more difficult in the future if the opportunity arises.

- Commissioner Sandell apologized if he was mixing water and sewer up; he asked whether the City would want to do the same for potential sewer connections in the future.

- Engineer DeWalt stated it potentially could be done. She noted the Applicant is proposing easements already, so the easements that are part of the application could cover the future utilities.

- Commissioner Hauge stated both the sewer and water is very close, since it is at Rapp Farm, and also fairly close on the Sherwood side, so it should be available for some time in the future. He noted he has raised the question a couple of times and thinks the Applicant is willing to do that. He added that Administrator Kress has also discussed it with the Company.

- Commissioner Yoshimura-Rank asked if there was any discussion about a fire hydrant.

- Engineer DeWalt said that Administrator Kress had conversations with the Fire Department.

- Administrator Kress stated he sat in on a conversation with Mr. Houge. The problem with the hydrant is, it is still a dead-end loop, so it does not fix the problem. The water line comes through the Rapp Farm area and dead-ends at the cul-de-sac. Without a loop system, it defeats the purpose. The easement is there if the City wants it, but it does not make sense right now.

- Commissioner Hara said he got copied on a letter on May 26 from NOHOA that said they have not agreed to the Nord or Anderson Woods development. He asked Planner Kirmis if he said they had come to an agreement on it and if it had happened in the last couple of days and the Commission had not been updated yet.

- Planner Kirmis stated his understanding is they had come to an agreement regarding the trail location for Nord.

- Commissioner Hauge stated what he understands is that there was a 6-2 vote on the NOHOA Board which was for the trail proposal, with two people on the Board that voted against.

- Commissioner Shah said that happened at the April NOHOA Board meeting. The Board reviewed both Anderson and Nord and provided feedback, and the City received letters of their feedback/comments/suggestions. She said the Board voted, two abstained and six voted

to approve, so the majority have spoken from the NOHOA side.

- Commissioner Sandell stated the letter was quite confusing and the timing seemed odd and kind of implied that NOHOA had not approved anything.

- Commissioner Hara said it reads, "In conclusion, the NOHOA Board, within its purview under the 1999 PUD/PDA, has provided review and comment that has not agreed to the Nord and Anderson Wood development proposals."

- Commissioner Hauge said he read it as NOHOA says that it is not their job to decide, it is the Planning Commission's job to decide, and NOHOA does not want to make the decision for the Planning Commission.

- Commissioner Hara said he did not disagree with Commissioner Hauge but that the Planning Commission, representing the community, has to take into consideration the Home Owners' view on it. He does not think they are pretending to be the authoritative body. He received the letter two days ago, but this is different from what he heard before; and he thought they may have changed their mind on the trail recently and that this letter was in response to that.

- Commissioner Shah asked about the possibility of having Kathy Emmons or someone from the Board call in to get that perspective. She also noted that Mark Houge is on the Board and suggested he could speak to it as well.

- Chair Azman said it is his understanding NOHOA will not be appearing to speak publicly at the hearing today. The purpose of the letter was not to backtrack on their approval of the trail agreement with the Company. The purpose of the May 26 letter was to express the view that while they have provided review and comment about Anderson and Nord, they have not agreed on a boundary expansion agreement such that those parcels would come into NOHOA. He understands that they are expressing they have not taken a position on it. Under the PDA, in Section 2.4, it states that residential lot owners within the development sites shall become either members of NOHOA or members of a subassociation of NOHOA. It is his position that would have been the perfect and opportune moment for NOHOA to take a position on whether they think these development applications are something they would approve of. He thinks it is troubling not having that insight. The letters that appear to be sending somewhat mixed messages are also a little troubling. However, he does not see an objection to anything in the first letter. There is dissension on the NOHOA Board, which is fine, but it would have been preferable from his standpoint under the PDA as the City is considering the applications to find out what NOHOA thinks with a little more substance. He does not believe there is any dispute that NOHOA has agreed with the Company on the proposed trail.

- Commissioner Hara agreed it is confusing because it says, "In conclusion, the NOHOA Board... has not agreed to the Nord and Anderson Woods development proposals." He noted it does not talk about the specifics as far as the trail, it just says proposal; and he would take that to mean the entire proposal, not a specific part or point of the proposal.

- Chair Azman said he does not think that is the intent but understands what Commissioner Hara is saying and another reason that it is troubling. He suggested digressing for a moment to see if Mr. Houge has received any word from NOHOA that they have backed out of their trail agreement.

- Mr. Houge stated he talked to Kathy Emmons as recently as two days ago. The intent is not to change their position on the trail agreement. He believes this was an effort to clarify two things. He said he was not a party to the preparation of the letter because he recused himself as a representative from the Company. The letter does not state that NOHOA will not accept the lots into NOHOA; it actually says the opposite. That was one point to be clarified based on NOHOA's attorney's opinion. Also, he believes the position the other Board members wanted to communicate is that it was not NOHOA's role to approve the development, but that it does, by virtue of its joinder to the agreement, have a role in approving trails and the design of roads so that they are able to be comfortable taking responsibility for them in the future. He noted the original letter stands as sent and there is no retraction of their commitment to the trails that are proposed.

- Chair Azman said he thinks those are good points. Section 2.4 of the PDA is a section that NOHOA expressly consented and joined to when they signed it, stating that residential lot owners shall become members of NOHOA. NOHOA also takes the position in the clarification letter that, assuming each development is completed consistent with the 1999 PDA and applicable law, NOHOA will expand its boundaries. He sees that NOHOA is trying to say that it is not their authority, and he also does not think they ever tried to take any of that authority. On the other hand, they are also taking a position that they are going to make their own decision about whether or not it is compliant with the PDA. He is not quite sure what the Commission is supposed to do with it, other than take it for what it states.

- Commissioner Hara asked where in the PDA it specifically states that the trail and open-space obligations have been met.

- Attorney Nason stated with respect to the PDA and the trail and open-space obligations, under Article I, Findings and Covenants, there are a couple of references. Under number 5 it talks about how the Company is attempting to create an interconnected system of trails and byways of proposed open-space easements and conservation easements. It proposes to protect and preserve approximately 885 acres of property. With respect to where it says it has met the open-space requirement, Section 12.1 talks about all park dedication requirements essentially are met by what is granted through the PDA. It also states the parties agree that all park dedication requirements for the East Oaks PUD project and development sites, as well as for the subdivision known as West Black Lake, shall be and are satisfied by the developer in the form of: one, execution, delivering, and coordinating by the developer of the open-space easements affecting the protected land to the City and NOHOA; two, granting of conservation easements; three, rough grading of park and trail easements; four, granting of primary trail easements over primary trails and restricted trails. She said with respect to those included parcels, all park dedication, open-space contribution requirements have been fulfilled by the initial dedications and by that trail dedication pursuant to the PDA.

- Chair Azman noted there were two letters and he does not believe NOHOA will be at the meeting tonight to make further comments on them, so the Commission is left reviewing them for what they say. He asked if there were any other questions for Planner Kirmis or Engineer DeWalt on any of their reports regarding the issues.

- Commissioner Sandell asked what the history is with NOHOA approving shared driveways. He noted there are some in the City already and asked if any have been approved or denied recently.

- Planner Kirmis said he knows they exist. He is not aware of any specific standards in the ordinance which specifically regulate shared driveways. Within the PDA there is a reference to shared driveways; specifically, it says driveways must be not less than 10 feet apart except in the case of shared driveways which, to him, implies an allowance of shared driveways. He is not aware if there was any sort of specific approval process for shared driveways.
- Administrator Kress said they have seen several shared driveways throughout the City of North Oaks. As far as the approval process, he does not know that it was very formal on the City or NOHOA's side.

- Chair Azman, on the topic of shared driveway, stated if there is a recommendation that a variance may be needed as a condition, that prompts him to think about a comment he received from a member of the public about whether or not the Shoreland ordinance would apply to Nord and how that particular ordinance would impact the need for a variance, and whether or not, under specific Shoreland ordinances, if there is a variance that is required, is the application approvable.

- Attorney Nason said, with respect to whether the Shoreland ordinance applies to the Nord parcel, the answer is, with respect to the majority of proposed Lots 1, 2, and a portion of Lot 3, yes, those lots are shown as designated within the Shoreland Management area on the zoning map. She reiterated those three parcels are within the Shoreland Management area and subject to the provisions of Chapter 153 of the City Code. With respect to the Shoreland Overlay Zoning District and the included parcels, the PDA specifically states that as part of the PDA being granted, Section 2.1 says that the Council finds that the development sites are rezoned to PUD district under the zoning ordinance and grants a CUP under the Shoreland ordinance and certain variances to allow development of the development sites consistent with the development guidelines. She stated the development guidelines are further fleshed out in Appendix 1 to the PDA, which has been further amended through the 7th Amendment. She said there are specific references within Appendix 1 to variances granted pursuant to the Shoreland ordinance. No other variances, other than those articulated within Appendix 1, were granted as part of that original PUD approval process or any subsequent amendment. She reiterated the Shoreland ordinance applies, there are certain variances that have already been approved with respect to the included parcels, but obviously not with respect to the excluded parcels. She asked Chair Azman to repeat the next part of his question.

- Chair Azman said there is a portion of the Shoreland ordinance which provides that a subdivision is not approvable if a variance is required. He said he was interested in understanding how the ordinance would apply or if it would apply here and how it would

impact the application.

- Attorney Nason stated there is specific language in Section 153.086 of the City Code titled "Consistency With Other Controls" that provides subdivisions must conform to all official controls of the community. "Official controls" is not a defined term within any of the City Code provisions but is defined in State statutes, Chapter 462, Section 352, as essentially including the zoning ordinance, the subdivision ordinance, or other similar ordinances. Section 153.086 further states that a subdivision will not be approved where a later variance from one or more standards and official controls would be needed to use the lots for their intended purpose. She noted there is a provision that, if you have property located within the Shoreland Zoning District, a subdivision of that property will not be approved if, in the future, additional variances are needed. She said with respect to subdivision, it is worthwhile to note that Chapter 152 of the City Code contains a process related to variances at the time of subdivision application. She indicated that as the Planning Commission is aware, they often hear or see applications for variances. The variance process is controlled by Chapter 151. However, at the time of subdivision, State statutes provide a separate variance process for variances granted as part of subdivision approval. The process is also found in Chapter 152. With respect to the language, it is the opinion of Staff that a subdivision cannot be approved if there are going to be variances required at a later date when dealing with Shoreland property. However, to the extent there may be a variance needed at the time of subdivision that could be approved at time of subdivision, that language would not preclude approval of a variance at the time of subdivision. She stated with respect to the shared driveway, Staff's initial review of the documentation it received showed a shared driveway, and it appeared that there would need to be a variance in order to have that shared driveway specifically because the City Code provisions provide a 30-foot setback from lot lines for driveways. The proposed driveway essentially straddles the lot line between Lots 1 and 2. Staff received additional information from the Applicant that shows the proposed access driveway for Lots 1 and 2 actually exists right now; it is some type of road/farm road that has previously been used to access the real property that would comprise Lots 1 and 2. Furthermore, not only does it exist along those shared lot lines, but it branches out where driveways would be installed to potential residences on Lots 1 and 2. Staff was not aware of that information before today and was under the impression that there would need to be some type of variance to approve the connection of the driveway that connects from a house to the existing north-south farm road. She noted that is why the language regarding a variance was there. She asked Administrator Kress to display a map to help illustrate her point. She said it appears that the old farm road exists over both the north-south driveway access as well as the east and west driveway access, which would be used to get to where the potential building sites/homesites would be located, such that there might not need to be a variance. The information was received by Staff late in the day and additional analysis needs to be completed to confirm that the width, etc., of the existing farm road would support the proposed driveway use. She stated with that information in mind, it is a recommendation that a variance be granted or that the driveway access be found to be a legally established nonconforming use sufficient to provide access to those two residences as a proposed modification for the condition as previously recommended in the Staff report.

- Chair Azman asked if the Commission knows, if it is not a variance that is needed, that there is a legally nonconforming use that is in place.

- Attorney Nason, referencing a map entitled "Development Area C," said that it appears, based on the information provided, that the blue lines illustrate the old farm road and appears to transverse the lot line between proposed Lots 1 and 2 and also provides some branching out into Lots 1 and 2 such that any further addition would be outside of the 30-foot setback. Additional information will be required to validate and confirm that.

- Commissioner Hara noted the distance coming off of North Deep Lake of that existing trail or old farm road is 24 feet between standing water and the two adjacent wetlands. He asked if that was a satisfactory amount of space to meet wetland requirements as well as a driveway that two sets of cars can use.

- Attorney Nason said, not having the specific information but basing it off the information by the Commissioner, it would not comply with a 30-foot setback from wetlands or any buffer. However, it is Staff's understanding that the road exists and is a legally established nonconforming use such that it would be able to maintain its existing state and it would be allowed within that particular area.

- Commissioner Sandell asked, if that would allow for no variance, would that be because the Commission would consider it a road and that the driveways would essentially not be shared, they would branch off from the farm road.

- Attorney Nason stated that to find there was no need for a variance, it would have to be found that the old farm road constitutes a legally established nonconforming use in its existing state and that it would provide sufficient access to both the building sites on Lots 1 and 2, at least far enough to get outside of the 30-foot setback area from the lot lines.

- Commissioner Cremons said he thinks he is hearing that until the Commission has the information concerning the farm road, they do not know whether they can approve the subdivision because of the Shoreland ordinance issue. He asked if the Commission is stuck until the issue gets resolved.

- Attorney Nason stated they were not necessarily stuck because one of the conditions of approval was to approve it with the condition that a variance needs to be obtained. If a variance is not obtained, then approval for the subdivision would be held up. The Planning Commission has a couple of different options if they want to know the answer as to whether or not it is a legally established nonconforming use and if the Planning Commission were not comfortable recommending approval with conditions and having approval be in the disjunctive, either with a variance or as a legally established nonconforming use if that can be confirmed. The Planning Commission could continue this matter for a very brief time for Staff to obtain more information sufficient to answer that question.

- Chair Azman asked how VLAWMO's authority impacts whether or not the driveway can be there and how the Commission can address that.

- Mr. Houge noted several questions have been raised about the road and whether it is sufficient. His understanding is that it is sufficient for the width of a driveway. He believes the zoning ordinance defines a driveway as 18 feet wide. He will take the Commissioner's word that it is 23 feet. VLAWMO reviewed the entire plan, including the proposal for a shared driveway, and has approved the project, in part, based on the fact a driveway in a setback area is allowed. The Company is not impacting the wetlands in any way. The driveway has been in use for 30-40 years, including use by heavy logging equipment. It is a very significant roadbed and T's off and would serve Lots 1 and 2 without further improvements. The road is positioned to be south of the proposed trail. The location works out very well so that if you're walking on the proposed trail, it would be north of where the road T's off so they do not conflict.

- Chair Azman asked Mr. Houge where the approval is from VLAWMO. He has seen a "30,000-foot comment" that VLAWMO does not have any issues, but they also state that buffers will need to be complied with.

- Mr. Houge stated he believes there is a letter in the packet from Brian Corcoran, separate from the letter received in the last two days, that says that the development is approved and conforms with all of their requirements. In order to verify their understanding was correct relative to being able to place septic systems in houses on these lots to conform with setbacks, they prepared a drawing showing that as well. They have always believed that to be the case, but they asked their wetland consultant to put that on paper and show it with an illustration. He believed Administrator Kress or Engineer DeWalt had the information to show the Commission.

- Commissioner Hara asked which Corcoran letter approves that, because the one he saw is very vague. It says approval but it was the road and cul-de-sac and had nothing to do with the rest of the development. He asked if there was a newer letter from VLAWMO.

- Mr. Houge said there is a May 27 letter which Administrator Kress displayed on the screen; and a prior letter, which he could not find.

- Administrator Kress stated that he probably has it, but he does not want to jump back and forth on the screen.

- Chair Azman noted there is a May 27 Memo from VLAWMO; and the second bullet point indicates, "Future homes to be built need to follow the buffer setbacks for each wetland on the parcel." He said his question is the buffer on lots and homes and how that may impact, or whether the Commission deals with it now by saying, as a condition, that VLAWMO needs to give approval.

- Engineer DeWalt stated that is a proposed condition already and a typical condition the City provides since the City is not a Local Government Unit (LGU) as far as wetlands go. It is a

requirement and recommendation upon potential approval or recommendation for approval that that is a condition. She noted VLAWMO's policies are very clear, but they have some gray area and leeway, and it is not up to Staff to do the analysis to confirm or deny that what is being proposed works. The Applicant has provided a plan that has been worked on by a wetland engineer to show that the proposed plan with some conceptual homes and septic site locations fit within the assumed wetland buffer requirements per VLAWMO policies. Also, the VLAWMO policy states that a buffer is not required for both the resurfacing of an existing road, sidewalk, or trail that does not increase the area of impervious surface. She reads that to say an existing driveway would not be subject to additional buffer requirements.

- Chair Azman noted that the safest way would be to say that any approval needs to be conditioned on VLAWMO approval.

- Engineer DeWalt stated Chair Azman was correct, which is what the current proposed conditions recommended by Staff address.

- Commissioner Hara asked who the wetland expert was and who hired that consultant.

- Mr. Houge said the Company hired a firm called Kjolhaug Environmental Services Company, who does a lot of work in VLAWMO and are the experts that entities like watersheds rely on for this type of analysis.

- Chair Azman asked if the map displayed on the screen was the drawing referred to earlier from the Company.

- Administrator Kress confirmed that Chair Azman was correct.

- Chair Azman noted the area where the shared driveway would go up and take a right towards Lot 1 is where a buffer is needed if there is no prior road/driveway; if there is an existing road/driveway, the buffer is not applicable, according to his understanding.

- Commissioner Hara asked how someone gets from the shared driveway to Lot 1, because it looks like they would have to go through a wetland buffer zone.

- Chair Azman asked, if it is an existing access path, what is the standard that VLAWMO applies. He thought Engineer DeWalt said then the buffer does not apply.

- Engineer DeWalt reiterated the City is not the LGU for wetlands and this is her interpretation of the policy. The policy clearly says a buffer is not required for the resurfacing of an existing road, sidewalk, or trail that does not increase the area of impervious surface. She reads that to say that if the farm road is used as access, the buffer does not apply. She has been told that VLAWMO typically does not consider driveways within the buffer zones; but VLAWMO will need to review each of the plans and provide their comments, which is what Staff's recommended conditions of approval reflect.

- Commissioner Hara noted the road is not impervious and that it is basically a trail in a field; there is no asphalt or any kind of surface, but basically ground that was driven over at some point. He would presume a driveway would become an impervious surface there.

- Engineer DeWalt said that is not what is being proposed in the current application and she cannot speak to what could be.

- Mr. Houge stated the current road had been built, probably with a gravel base, many years ago. Even in some trails there are gravel bases that get covered over with grass. If anyone were to drive out there today on the road, there is a substantial base beneath the grass. They have been driving on the road off and on at least 2-3 times a week to show people around, and it has a very substantial base to support traffic. He also noted that historically VLAWMO allows for driveways and trails in setback or buffer zones.

- Chair Azman noted the VLAWMO review and approval is a recommended condition. He indicated this is a Shoreland Ordinance and stating a variance might be required later would then make an application for a subdivision not approvable, and it would not apply because this isn't a variance that is being sought later. The variance should be sought now unless it's illegally nonconforming use has been established.

- Attorney Nason said Chair Azman is correct. She noted, under the Shoreland Overlay Zoning District, a subdivision cannot be approved if it will require variances later to use the lots for their intended purposes. It does not necessarily preclude variances granted at the time of subdivision. It is possible the Commission could add a condition of approval for some type of document recorded against the three lots located within the Shoreland Overlay Zoning District that indicates there shall be no variances granted for development/use on those lots.

- Chair Azman said that suggestion made him nervous, because putting that type of restriction on the land as opposed to an official control makes him uncomfortable because of unforeseen conditions on the site because of a septic, etc. He asked if an alternative would be to combine Lots 1 and 2 into one lot and whether it would remove some of the questions about variance and legally nonconforming use.

- Attorney Nason stated the Commission could recommend approval of the proposed subdivision with the listed condition and could add as a condition that Lots 1 and 2 be combined into one lot.

- Chair Azman said he understands there are recreation obligations imposed in the PDA, but there are two orphaned parcels that are not in the PDA. He asked, if there are subdivision requests that include them, what are the recreation obligations that an Applicant would have.

- Attorney Nason stated if the Commissioners look at the language found within the subdivision ordinance, Section 152.052, there is a requirement for every subdivision to be developed for residential uses to have a "reasonable amount of land dedicated or preserved for the benefit of present or future residents of the City or for present or future residents of the areas to be subdivided for open space purposes, parks, playgrounds, trails, or

conservation purposes." She said that there is a requirement of that particular land to be dedicated for recreational purposes. She noted further in that section it indicates the maximum area to be dedicated/set aside/preserved is 10% of the area being subdivided. Section 4 says that whenever the City Council finds land for the purposes specified above is not required, not suitable, or when they determine the area to be subdivided is too small to warrant the dedication set-aside, conveyance, or preservation of the land, it may reject all of those dedications. She said with respect to the Nord development as it pertains to the included parcels, all of the set-asides have been satisfied pursuant to the terms of the PDA. With respect to the two excluded parcels, which total 3.9 acres, in theory the Commission could require some type of set-aside or dedication; again, that would be of land within the parcels. Alternatively, the Commission could take the position that it is not necessary to require the dedication, that the property being proposed is not reasonable or viable for the dedication purposes, or that the trail proposed through Nord is the functional equivalent of any required dedication under the subdivision ordinance as it relates to the excluded parcels.

- Commissioner Hara said he is curious about the excluded parcels and the current Staff position that they are still a mystery, because the previous Staff, including Robertson and the previous City Planner, in one of their meetings said that parcel V-284 was intended to be a trail. He is curious how current Staff came up with a different assessment of what that was.

- Attorney Nason stated she could not speak for all Staff and was not sure any Staff were at that meeting with the possible exception of Planner Kirmis. She noted the property records research that was conducted was inconclusive as it relates to those parcels.

- Chair Azman asked Attorney Nason what Staff is looking at when property records are pulled.

- Attorney Nason stated they looked at the registered land surveys to try and see if they could ascertain anything from the way those were divided up. There was nothing they were able to ascertain with respect to those particular parcels. In addition, there are not any easements for trail purposes that have been recorded against those parcels.

- Mr. Houge noted Mike Robertson was not in North Oaks very long and he was asking the Company if they knew what those were designed to be. Gary Eagles, who has been involved with the Company for 30 years, had a relationship with Louis Hill before his death, and at no point in time was that configuration ever discussed. Mike Robertson was speculating in his comments. No one within the Company knows what the original intent was when those were created; they can only speculate. The Company is proposing to combine those lots with the adjoining lots to clear up what would otherwise be orphan lots that the City would have to deal with at some point in time.

- Administrator Kress suggested opening the public hearing, noting it was 10:20 p.m., if the Commission wanted public comments.

- Commissioner Cremons asked Mr. Houge if he is suggesting that he would agree to amend the PDA to bring the orphan lots into that development.

- Mr. Houge said if that would be the most expedient way to deal with that issue, the Company would be open to doing so.

- Commissioner Cremons asked City Staff if there was another way to take care of the issue.

- Attorney Nason stated there are two options: The subdivision can proceed, as there is not a legal or code provision that Staff has located that would preclude the subdivision of the property, including the excluded parcels Alternatively, the PDA could be amended to bring in the excluded parcels. It is more complicated than it sounds, because it is not simply amending it by a text amendment, it is amending it by text amendment which would include rezoning of the property because it would then be rezoned PUD, and the entire rezoning process has to be followed through as outlined in the code.

- Commissioner Cremons said if the goal is to get the orphan parcels into the site so they are done forever as opposed to approving this with the orphan lots still out there, the only way to do that is to amend the PDA and do the rezoning.

- Attorney Nason stated that was incorrect. She said the proposed subdivision includes the excluded/orphaned parcels. The Commission can move ahead with the subdivision, which would include the excluded parcels. At that point you end up with lots that have two different zoning designations, so you would have lots that have a portion of the lot zoned Residential Single Family Medium Density District (RSM)/PUD and a portion of the lot zoned RSL. The PDA does not have to be amended to approve this subdivision. There is another option which would include amending the PDA to include those parcels; that requires Council action and a rezoning, which is a more involved process.

- Chair Azman asked what the implications are of having a dual zoning on one lot. He asked if the former lot lines/boundaries are looked at in order to determine which portion of the lot is subject to which former zoning.

- Attorney Nason stated she thought the answer was yes. She noted there is language in the code that deals with existing lots that have two zoning designations and how those are handled with respect to which requirement. For example, if there are different setback requirements, that would require the stricter of the two to apply.

- Chair Azman asked, regarding a potential amendment of the PDA, if that would be a major or minor amendment.

- Attorney Nason said it would be a minor amendment which requires a majority vote of the Council; however, because the proposed amendment does involve the rezoning of property, it would require completion of the rezoning process of the property. It would not be as simple as having the Council approve an amendment; the amendment would have to be done in

conjunction with a rezoning, following all of the typical rezoning processes in the code.

- Chair Azman asked if having the dual zoning designation on one lot has been problematic in Attorney Nason's experience.

- Attorney Nason stated that it is not entirely uncommon, they have seen it before in other cities, particularly with respect to some of the more urban development where zoning districts sometimes cut across property lines. She said it would be cleaner and easier if it was all zoned the same thing. With respect to these particular developments, some of the concerns about setbacks, etc., at least upon the initial Staff review, do not appear to create too many challenges or inconsistencies. She could not say the Staff has done an extensive analysis on that issue; but on a preliminary, high-level review, it does not appear to be preclusive to development on those sites.

- Mr. Houge said he is concerned that this not be a problem moving forward so he asked the Company's attorney to study the State and City ordinances. There is nothing in the State or City ordinances that preclude the Planning Commission and City Council from approving a subdivision where there is a lot that has two zoning classifications. Also, the Company would be happy to conform with the most restrictive set of ordinances. The immediately adjacent property is residential single-family. These are very large lots, and they could probably put a line where they could make the buildable area restricted to where the PUD subject area ends. He believes there are other areas within the City that have zoning errors, in terms of the map and how it is classified, that could be all cleaned up at the same time the issue is addressed.

MOTION by Yoshimura-Rank, seconded by Shah, to open the public hearing at 10:25 p.m. Motion carried unanimously by roll call.

- Chair Azman opened the floor for public comment. He invited people to raise their hands if they would like to speak on Zoom. He noted there were no persons physically in the Council Chambers currently. He stated there were a couple of hands going up and he knew there were others seeking to speak.

- Citizen Comment: Leanne Savereide, 4 Red Maple Lane, said the proposed trail going through her property is not the trail the people of North Oaks want. She appreciated that all the Commission members looked at the area in question because they know it crosses a road, goes close to a house, and goes through the wetlands. She thinks if NOC would go back to the plan by Randall Arendt that had the wildlife corridors and the lesser density, all of the problems would be solved. There would be room for a trail, there would be less impact on wetlands, and there would be wildlife corridors. She said NOC's website says every effort is made to preserve the natural topography and ensure privacy. She thinks there could be more effort by the Company to preserve the natural topography if they did not have the density bonuses all up to the top. As difficult as it is for everyone to lengthen this process, she asked the Planning Commission to vote to advise the City Council to reject the application for the earlier-referenced and all the other reasons the Planning Commission has been discussing.

- Citizen Comment: Rachel Maher, 91 Rapp Farm Place, said that, according to the PUD, variances have been granted; but it also specifically states none of those variances are included within the Nord parcel. Any variances needed have not been granted and would need to be granted. She noted she had a video that she prepared and asked to share her screen. Her audio presentation began and discussed that the map showing the red area outlines the wetlands with the setback included in the preliminary plan, which is 30 feet. However, the setbacks for M1 and preserved wetlands should be 40 feet and 75 feet, as required by VLAWMO. Using the map, it was indicated the dark red area outlining the wetlands are the noncomplying setbacks that are included in the preliminary plan. The light red area outlining the wetlands are the VLAWMO-required setbacks. To be compliant, a preliminary plan needs to have the correct and required VLAWMO setbacks. The map tells shows that significant wetland impacts are inevitable with the plan as it has been presented. A submitted preliminary plan application is only accounting for wetland impacts as it relates to the cul-de-sac indicated on the map. Wetland impacts caused by future homes, septic systems, driveways, and the shared driveway are not considered or included in the preliminary plan application, even if they are entirely inevitable regardless of future homeowner and developer additions. If the preliminary plan is passed, significant wetland impacts are inevitable in obtaining access to Lots 1 and 2. The entire shared driveway is surrounded by high-value wetlands and does not meet the required setbacks. In addition, once the shared driveway splits, the private driveway needed to access Lot 1 goes straight through the setback areas of two preserved wetlands that are also located in the Shoreland District. Lots 1, 3, 4, and 5 do not have enough space available for a home and two sewage tanks without impacting one or more wetlands. She indicated she was going to fast-forward to other key items for the sake of time. The audio presentation continued and discussed topic two, wetland delineation. For this topic, she focused on the section of the parcel circled in red on the map. She asked everyone to draw their attention to the area being indicated. According to the scale provided in the exhibit, the area between the two wetlands is 85 feet. However, in reality, the boundaries on the wetland are less and the distance between the two wetlands is only 27 feet. She displayed a photograph of the area she was discussing and a map and pointed out a stake on the edge of the northern wetland identifying Point A and a stake in the southern wetland identifying Point B. She said the tape measure in the photo was used to measure the distance between Points A and B, which was 27 feet. She indicated because boundaries in the wetland are not properly identified in the preliminary plan, it causes many issues with the plan itself. She displayed the wetland visual map and said it represents the wetland setbacks with 85 feet between the wetlands. If the boundary of the northern wetland were moved to reflect the actual wetland boundaries, the wetland plus the setbacks greatly reduces the usable area of Lot 1. She stated the yellow dashed line represents the trail included in the preliminary plan. She noted the trail was not feasible as it goes directly through the wetland, which is a very deep wetland. In order to make Lot 1 accessible, the minimum space between Wetland 1 and Wetland 2 must include a VLAWMO-required buffer for Wetland 2 of 75 feet, an absolute minimum of 10 feet for the trail, 10 feet for a driveway, and a VLAWMO-required buffer for Wetland 1 of 75 feet, for a total minimum space needed of 170 feet. The actual space between Wetland 1 and Wetland 2 is 27 feet, leaving a whopping 143 feet short, meaning Lot 1 is entirely inaccessible without significant impacts to high-value wetlands. The issues may have been due to the wetland delineation report being updated. VLAWMO's water management policy requires current

wetland delineation for upcoming projects. VLAWMO also says a delineation should be performed every five years. The last in-field delineation performed for Nord was just over six years ago, and the official report based on that delineation was distributed four years and 10 months ago. Based on the requirements and five-year recommendations of VLAWMO and evidence of wetland expansion, it is reasonable to believe a new wetland delineation report is needed. She noted the third topic goes over a couple of other noncompliance issues. Lot 1 is not a suitable site. Per Ordinance 153.085(A), each lot created through subdivision must be suitable in its natural state for the proposed use with minimal alterations. Lot 1 is not suitable in its natural state and would require significant alterations. Therefore, it is noncompliant. Lot 1 is inaccessible without significant alterations to high-value wetlands; feasible or buildable area is limited and feasibility is questionable. It is also surrounded by preserved wetlands in the Shoreland District. Lot 1 contains important wildlife habitat as identified by VLAWMO. There are also potential erosion issues at the entrance of the shared driveway due to the culvert connecting Wetland 1 with Wetland 3 and there are likely other potential limitations. Moving on to the next compliance issue, no variances have been granted for the Nord parcel. However, in order to simply access and build on Lots 1, 2, 3, and 5, variances will inevitably be needed. Ordinance 153.086 states, "A subdivision will not be approved where a later variance would be needed to use the lots for their intended purpose." Therefore, the Nord subdivision is noncompliant and should be denied. She stated that the preliminary plan should be denied for the following reasons: It contains incorrect setbacks, which is noncompliant with the VLAWMO-required setbacks. The preliminary plan contains inevitable impacts to high-value wetlands, but those impacts are not acknowledged or identified in the plan. Suitable sites for sewage tanks, potential homes, and access to Lots 1 and 2 are not identified to accommodate correct VLAWMO setbacks, which is a preliminary plan requirement. Wetland delineation is potentially incorrect or outdated. The usable area of Lot 1 is significantly less than reflected in the plan. The proposed trail goes through Wetland 2, which is noncompliant with the PDA. Lot 1 is not reasonably accessible, and inaccessibility is noncompliant with the PDA. The wetland delineation used in the preliminary plan does not accurately reflect wetland boundaries; a current wetland delineation is required per VLAWMO water management policy. Lot 1 is not a suitable site, which is noncompliant with required City ordinances. No variances have been granted that are necessary to access and build on certain lots, which is also noncompliant. Necessary variances need to be granted prior to the preliminary plan. For approval, the preliminary plan should include correct setbacks as required by VLAWMO and the DNR; a subdivision that does not contain substantial inevitable impacts to high-value wetlands. It should identify all wetland impacts from shared driveways, private driveways, homes, and sewage tanks that are inevitable. It should identify suitable sites for sewage tanks, potential homes, and lot access based on correct wetland setbacks. An updated wetland delineation report should be obtained and correct wetland boundaries should be identified. Lot 1 should be removed from the subdivision plan and converted to open space, as it is inaccessible on suitable land that is surrounded by high-value wetlands in the Shoreland District. It should include a suitable trail that does not go through a deep wetland. Any variances needed to access and build on lots should be obtained prior to submitting a preliminary plan for approval. There is overwhelming information evidencing noncompliance of this preliminary plan. Acceptance of this plan would not be in the best interest of the community and its residents. Even more importantly, acceptance would be detrimental to the environment; specifically, valuable

wetlands and the biodiversity they support. She asked the Commission to deny this preliminary plan and demand a preliminary plan that is complete, accurate, compliant, and environmentally sound. She stated she realized the video was much longer than her three minutes and appreciated them letting her go on that long.

- Citizen Comment: Cheryl Blackford, 7 North Deep Lake Road, stated she has three major concerns with the proposal. She said Ms. Maher expertly covered the issues with wetlands and she did not want to bore anyone with more talk about that, although it is a major concern of hers. She noted there was a lot of discussion about the shared driveway, another major concern of hers. North Deep Lake Road is narrow and winding. There is not going to be any parking allowed on that driveway, which means that if any of the residents in the proposed two houses have any kind of a gathering -- a party, a Christmas party, a graduation party -- all the cars will need to be parked on the street. On one side of the street there is a pond with a drop-off into the pond; on the other side of the street is a wetland with a drop-off into the wetland. In addition, there is almost no shoulder on either side of the road and there are trees on one side. Basically, there is not anywhere for people to park; and she is concerned about safety for the existing residents. She has not heard anyone address that issue at all. She knows some/all of the Commissioners walked the trail. She does not know if anyone walked down the street and looked at the site to see what they thought of those safety concerns. She said they have lived at their residence since 1996 and have never seen any use of what they used to call the old burn site road, which is another safety concern. She does not know how recent most of the houses are on the street, but she is wondering if they were there when the burn site road was used. She indicated she sent the Planning Commission pictures of what the existing trail easement looks like when it rains, that it is very boggy. She does not think it is an ideal position for a trail, and she noted NOHOA said they would work with the existing homeowners to position that trail. Currently, it is six feet wide. If there will be a 10-foot trail, the wetland will have to be encroached upon, or the land towards her house will have to be encroached upon, which might include cutting down mature oak trees. She is not convinced that it is a good site for a trail and understands that the City is saying that it is not an issue because it is outside the area under consideration. If it was decided that was not an adequate trail, then the City would have to start looking again at the trail within the proposal area. She thinks the trail is an issue and does not think it is a moot point at all.

- Citizen Comment: Franny Skamser Lewis asked to share her screen because she would be reading some things and thought it would be helpful to be able to read along. After Chair Azman complied, she said there has been a lot of talk about the shared driveway access and the letters coming from NOHOA. She wanted to reiterate a couple of the comments from their letters sent either earlier in 2019, when not everyone who is currently sitting on the Planning Commission was on the Commission, and she is not sure if those letters have been included in recent packets. She wanted to emphasize the shared driveway is not on the Conceptual Street & Access Plan. On May 9, 2019, a letter from NOHOA to the City stated, "East Oaks PDA establishes a consistent road plan in which all roads in the residential areas are non-connecting roads. None of the roads, including the road serving the Nord development, connect to other roads within North Oaks. The City Council approves and the North Oaks Company moves forward with a connecting road in the Nord area. NOHOA will not expand its boundaries to include the Nord area and will not accept any of the roads, trails,

recreational areas within the Nord development." She stated that as far as she can tell, the City ordinances do not differentiate between a road and a driveway in that a road or street is defined as "a public or private thoroughfare easement, constructed according to the specifications of the City, which affords the principal means of access for vehicular traffic to attributing land." She said she did not see any further delineation between a driveway or a road, so it would be helpful to understand that if the Commission and City approve that shared driveway, if it is considered a road. According to NOHOA in their July 8, 2019 letter, "In Section 3 of the City Staff Memo, City Staff states that the street and access plan contained in the East Oaks agreement is conceptual in nature and, therefore, subject to change. NOHOA disagrees. Any changes to the street and access plan contained in the East Oaks agreement without notice or consent will result in the development not being accepted into NOHOA." She said she specifically cited those two letters because she can echo the Commission's statements earlier about some confusion existing about the nature of the April 2020 letters and the letter made public via the NOHOA eblast today. It is not clear that there is consensus among the NOHOA Board about how these issues will be handled. She requested of the City Council and Planning Commission that these be interpreted in as strict adherence perspective as possible, because they do not know if it will be accepted by NOHOA until after the decisions have been made. The letters in 2019 were incredibly clear and concise with the perspective of NOHOA and extending its boundaries. She commented that the Comp Plan includes trail-planning concepts that talk about the "connectedness experience" and designing trails for appropriate uses. The trail in Nord is a cross-country ski trail, so when people talk about the trail, she would really like to see discussed how well it conforms to the intention of how trails are planned through the Comp Plan, as well as how the Comp Plan identifies trails along or on roads. She indicated she would like to hear some clarification, if possible, when the PDA says that the developer is responsible, at its expense, for construction costs of all trails shown on the trail plan. It does not say it is limited to primary and restricted trails; rather, it seems to be inclusive of existing trails as well. In talking to people who negotiated that original agreement, it is clear that the reason that that was not excluded was because there were known issues with easements being properly transferred. She noted in Article 19.13(x), it says the existing trails means the trails previously conveyed to NOHOA by the developer or its predecessors prior to the execution of the agreement. It does not note that those are the only trail easements that were properly conveyed. It would be helpful to understand what is the remedy process at the City when all parties have agreed that a trail should have existed there and did not get transferred properly. Displaying a map, she stated she does not think there is a single resident in North Oaks who has suggested that the trail that goes through the V-284 parcel was the actual placement of the trail location. Rather, that is how it was depicted on the map everyone signed and agreed to saying that there was a trail in the area. NOHOA trail maps have shown that as a trail. She pointed out the green line which she said indicates the farm road/trail that everyone has used historically and said, when she moved into her house, it was marked by NOHOA as a trail. The function that this trail provides is continuous connectivity for the entire community, not only for an ideal ski trail, but year-round use. When looking at the proposed trail which is in black on the map, that connectivity is not there; there are obvious places where that is broken up. With the southern wetland boundary having been expanded over the years, everyone knows the southern route brings people really close to homes, which does not conform with the Comp Plan about how trails will be planned, and also is an uncomfortable experience for

everyone involved, as well as disrespectful to the natural topography which is, by all sources, supposed to be included in trail conception. She understands the blue line depicted on the map which was the existing trail could have been trying to depict those easements along the southern boundary. She would like to submit that it is just as reasonable that that was trying to depict the northern route which had been in existence and then it was confirmed as being the intention through things like the EAW in the original concept plans. She said unless a trail is brought forward with that Golden Gate section intact, her understanding is the community has said that is not an equivalent and does not seem to satisfy the requirements that all of the controlling documents put forward have indicated are acceptable criteria for a trail. She displayed several photos and noted that it is an incredibly wet area and high-value wetland. She noted it has also been said that this has been a concern for mostly the residents in the Nord area. She displayed a map which plots out all of the people who have indicated their support for the rejection of the plan based on the trail being a consideration. She hopes the Commission does not feel the residents are harping on this issue. If it were not for the wetland impacts, she could probably live with the southern route because she lives right next to the southern route. The problem exists for all of the homes on the east side and west side that are no longer connected by that historical, functional trail equivalent in the Nord area. She stated as much as she may be willing to deal with a bad trail, she does not know if she is willing to concede her neighborly love for everyone else indicated on the map. She referenced the WCA questions and noted the wetland impacts to the trail can be avoided in a way that it does not inappropriately harm existing homeowners and can create value for the new homeowners of the northern parcels in the Nord parcel. She reiterated all of her support for the rejection of the plan based on those additional parcels as well. She thanked the Commissioners for their time and commitment.

- Administrator Kress requested Ms. Skamser Lewis to send him her PowerPoint, which she agreed to do.

- Chair Azman noted there were no more hands up, nor was anyone in the Council Chambers.

- Administrator Kress stated there were several emails from residents, a lot of which were from the first public hearing. He indicated everything highlighted in yellow is regarding the Nord parcel. He stated Leanne Savereide had spoken earlier in addition to an email. There was an email from Kris Nielsen talking about the trail through the Nord parcel. Cheryl Blackford spoke earlier and went through her email. He noted there was an email talking about the trail, an email talking about the original public hearing setup, an email about the first public hearing when the City was starting to use virtual hearings, the video seen from Ms. Maher, a list of supporters which was shown by Ms. Skamser Lewis previously, another comment by Ms. Blackford, some earlier slideshow pictures, and an email regarding tree inventory. Administrator Kress asked for a motion to accept the emails.

MOTION by Yoshimura-Rank, seconded by Cremons, to close the public hearing at 10:55 p.m. Motion carried unanimously by roll call.

MOTION by Hara, seconded by Yoshimura-Rank, to add the applicable emails into the record. Motion carried unanimously by roll call.

- Chair Azman suggested, given that it was close to 11:00 p.m. and a special meeting was already set for June 9 which is a simple application on a CUP at 7:00 p.m., adjourning the matter until the June 9 special meeting. He asked for Attorney Nason's input.

- Attorney Nason stated the prior meeting and public hearing were both continued until tonight. The Planning Commission could continue the meeting to a set date, time, and location, and it would again be a special meeting. She offered to pull up language if the Planning Commission wanted to entertain that motion.

- Chair Azman asked the Commissioners what their feelings were.

- Commissioner Shah asked for a confirmation date of the City Council meeting.

- Chair Azman stated the City Council meeting is June 11.

- Commissioner Shah stated that it would still be within the 120-day rule.

- Chair Azman stated she was correct.

- Commissioner Cremons noted it would give Staff a chance to figure out the shared driveway issue and give the Planning Commission more clarification on that point. They could also take a look at the conditions relative to Nord such as the tree issue, etc., and brush those up to take advantage of the work that has already been done on Anderson and put the same concepts into the Nord conditions. He stated he would advocate the June 9 date.

- Commissioner Hauge said he agreed with Commissioner Cremons. He noted there are a lot of comments from the public on behalf of others, such as the lengthy presentation about the wetlands. He said he has a letter in the file that says VLAWMO has no issues and asked if it was true or not and that there needs to be an opinion about the issue when a decision is made. Furthermore, the Commission now has NOHOA Board's 6-2 vote on the trail, which he had just walked the day before, and there were a lot of comments about the trail that he did not see when he walked the trail. He suggested everyone walk the trail and make an opinion on their own before the next meeting, because he did not recognize all of the negative comments about the trail, noting that he totally agrees it is a compromise. He may have wanted another solution when the Commission started talking about it 15 months ago or so, but it is a compromise that, as far as he knows, has been agreed to by NOHOA and the Company, and some people have said it is not the case. He said the Commission has to find out, because the next time the Planning Commission discusses it, there has to be a decision.

- Commissioner Shah asked if someone on behalf of the NOHOA Board could speak if the meeting was continued to June 9.

- Chair Azman said he would love to have them come and speak. NOHOA felt that their letters expressed their position and that sufficed; however, he is happy to talk to Ms. Emmons and encourage her to speak to the Board and see if there is an opportunity for her or another

Board member to make an appearance and talk about the letters. He stated he encouraged and invited NOHOA to attend tonight's meeting, noting he was not criticizing NOHOA.

- Commissioner Shah encouraged the entire Planning Commission, if they had not done so, to go to the NOHOA website and watch the April NOHOA meeting and listen to what they discussed about Nord and watch them take the vote.

- Councilmember Kingston said he thinks the Planning Commission knows what the issues are. Speaking for himself, he would prefer the Planning Commission deal with it before it gets to the City Council. He thinks it is a good idea to extend it and make it part of the next special meeting. It will give the Commission enough time to sort out some of the issues and get some answers. That way it will make it a cleaner process when it comes to the Council.

- Commissioner Hara said when he walked the trail, there was a stake that said "center line of trail," and he measured it and it was 44 inches from a house retaining wall and seven feet from a deck of a house. If the trail is six feet wide, that would mean the edge of the trail would be four feet from someone's deck, which he did not find to be acceptable. If that was his house, he would not like that in the least. He asked Commissioner Hauge if he thought that was okay.

- Commissioner Hauge said when he went to the location, he saw there is a trail and a deck; and there is a distance from the deck to where the trail physically is, which is 15 feet or so.

- Commissioner Hara said it is 44 inches to the retaining wall and seven feet to the deck from the stake that said "center line of trail."

- Commissioner Hauge noted there is an existing trail, and that is a distance away from the deck. He understands there isn't any communication with the owner of the house and the subject deck, whether they like/dislike it. He asked Commissioner Hara to share any comments he heard from the house owner.

- Commissioner Hara said he had not heard any, but if someone can be on the trail and be within four feet of someone's deck, especially in the era of six-foot social distancing, it does not seem to be too good.

- Commissioner Hauge stated people are not within four feet of the deck when they walk on the trail. He suggested Commissioner Hara meet him the following day to walk it together.

- Commissioner Hara said there was a stake in the middle of the trail that said "center line of trail" and he has a picture of it.

- Commissioner Hauge stated the center line of the trail is probably something like four feet away from the deck but the trail is about 15 feet away from the deck.

- Chair Azman noted that would be another issue to iron out. He has walked it and knows what Commissioner Hara is talking about. There might be a difference between where people walk

on the trail and where the physical easement sits. He has seen the stakes out there and it's pretty close. He noted Administrator Kress was screensharing and possibly prompting a motion to adjourn to June 9 and suggested the motion include the 7:15 p.m. time frame.

MOTION by Shah to continue consideration of the Review of Nord Parcel - Subdivision Application to June 9, 2020, at 7:00 p.m. in the Community Room, 100 Village Center Drive, North Oaks, Minnesota, unless due to a health pandemic or an emergency declared under Chapter 12 it is not practical or prudent for an in-person meeting to occur, in which case the continued meeting shall occur by telephone or other electronic means.

SUBSTITUTE MOTION by Shah to continue consideration of the Review of Nord Parcel - Subdivision Application to June 9, 2020, at 7:15 p.m. in the Community Room, 100 Village Center Drive, North Oaks, Minnesota, unless due to a health pandemic or an emergency declared under Chapter 12 it is not practical or prudent for an in-person meeting to occur, in which case the continued meeting shall occur by telephone or other electronic means.

- Commissioner Yoshimura-Rank asked what would happen if another CUP came up.

- Chair Azman said there is not time to get it published such that the Planning Commission could hear it, so there would be nothing left to deal with on that date. Unless there was a serious emergency, he did not believe the Commission would hear anything else on that date.

- Commissioner Shah asked if it was prudent for the Commissioners to list some things they want Staff to look into, because between now and June 9, the Planning Commission/Staff needs to be productive and have answers so that on June 9 a decision can be made. She asked if it was worthwhile as a Commission to ask questions that need to be answered at this point.

- Administrator Kress suggested sending the questions to Staff and he can address those with the consultants if they haven't already in the Staff Memo.

- Commissioner Yoshimura-Rank asked if Administrator Kress meant sending questions to him.

- Administrator Kress indicated Commissioner Yoshimura-Rank was correct.

- Chair Azman asked if there were any other housekeeping or procedural matters the Commissioners would like to discuss before there was a second.

Seconded by Yoshimura-Rank. Substitute motion carried unanimously by roll call.

<u>ADJOURN</u>

The Planning Commission special meeting adjourned at 11:09 p.m.

_____ _____

Kevin Kress, City Administrator Mark Azman, Chair

Date approved_____

North Oaks Planning Commission
Special Meeting Minutes
City of North Oaks Community Meeting Room
June 9, 2020

CALL TO ORDER

Chair Azman called the meeting of June 9, 2020, to order at 7:56 p.m.

In compliance with Governor Walz's Stay-at-Home Order and pursuant to Minnesota Statute 13D.021, the meeting was conducted via Zoom.

ROLL CALL

Present: Chair Mark Azman, Commissioners David Cremons, Jim Hara, Stig Hauge, Nick Sandell, Sara Shah, and Joyce Yoshimura-Rank. City Council Liaison Rick Kingston.
Staff Present: Administrator Kevin Kress, City Planner Bob Kirmis, City Attorney Bridget Nason, and Engineer Larina DeWalt.
Others Present: Videographer Maureen Anderson.
A quorum was declared present.

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

MOTION by Hauge, seconded by Yoshimura-Rank, to approve the agenda as submitted. Motion carried unanimously by roll call.

CITIZEN COMMENTS

Chair Azman opened the meeting for Citizen Comments, noting that there was a new policy in place recently passed by the City Council where individuals may speak on any topic except items on the agenda. After seeing no one present in the Council room and no hands up on Zoom, he closed Citizen Comments.

BUSINESS ACTION ITEMS

a. Consideration of Nord Preliminary Plan/Plat/Subdivision Application - Continuation from the May 28, 2020 Meeting

- Chair Azman reminded everyone the public hearing on the Nord application is concluded; there is no more opportunity for public comment. It is now the Commission's opportunity to ask any final questions and deliberate. He said he may ask for a point of clarification from Attorney Nason regarding *Robert's Rules of Order* to make sure the Commission is proceeding correctly. He asked if there needed to be a motion to reconvene the Nord application hearing or if the approval of the agenda took care of that portion.

- Attorney Nason said the approval of the agenda took care of that item.

- Chair Azman stated an appropriate way to begin would be to have Staff discuss their Second Supplemental Report which was submitted with the packet.

- Administrator Kress noted there was a PowerPoint and he would share his screen; and Attorney Nason, Planner Kirmis, and Engineer DeWalt could present Planning Report Addendum Number 2.

- Attorney Nason and Engineer DeWalt began presenting the Planning Report Addendum Number 2 included in the packet.

- Commissioner Hara asked if the subdivision proposed preliminary plat is just the road that comes in off of Sherwood, not the entire site.

- Attorney Nason stated that Commissioner Hara was correct and she would have Brian Corcoran speak to what is the context of the proposed wetland impacts in the subdivision and what the restrictions are on any wetland impacts that may occur by subsequent development of the building sites.

- Attorney Nason continued with the PowerPoint presentation.

- Commissioner Hara stated his understanding with the road is that the soil cannot be disturbed nor intensify use. One of the comments made was that the road has been used forever, and there was a comment from an adjacent neighbor that said they had never seen a vehicle on the road in the 26 years they have lived there. He asked if it would be expected that if the Company is going to build two houses that are going to share this driveway, that road would be improved which would require that there would be dirt moved to flatten the trail out; and the current pervious surface would become an impervious surface. He noted one of the Fire Department requirements is that it be at least 20 feet wide and suitable to carry the weight of firefighting equipment such as firefighting trucks. When Staff says it can be maintained, he thinks it has to be maintained without disturbing the vegetation on it or moving soil, and he is wondering how that could be accomplished in its present state.

- Attorney Nason said the legally established nonconforming use can be maintained, replaced, repaired, or improved. Under the State statute and City Code, improvement of a legally established nonconforming use is allowed. With respect to issues such as the location between wetlands, which is where it is located, and what would be allowed per VLAWMO, she noted Mr. Corcoran could speak to that. Legally speaking, a legally established nonconforming use can be improved; however, you cannot expand or intensify that use.

- Commissioner Hara noted that, at the last meeting, Engineer DeWalt said it could not become an impervious surface, it had to remain pervious, which means it has to stay in a condition of basically dirt and vegetation and what it is currently. He asked how that would be improved. He also referenced North Oaks Ordinance 153.070, which says you cannot displace dirt or vegetation to improve the road. He asked how the road would be improved without displacing vegetation or changing the soil condition.

- Attorney Nason said she would defer to Engineer DeWalt for the first part and would look up the ordinance.

- Engineer DeWalt said she wanted Mr. Corcoran to address the issue of what would be able to be done to the road as far as improvements. She thinks there are grandfathered rights within the policy for the resurfacing of an existing road, but she is not familiar with exactly what would be allowed under the current plan. She noted there is historical evidence of that road being surfaced with gravel. She does not have a soil report or borings along the road to confirm that.

- Commissioner Hara asked what a resurface would look like if there is no surface on it now.

- Engineer DeWalt said she did not have the answer because it has not been proposed at this time. She asked Mr. Corcoran if he had anything to add.

- Administrator Kress stated he is a little concerned by some of Commissioner Hara's comments, that they are falling in line with one of the emails received early in the morning. He said, for transparency purposes, Commissioner Hara should state his relation to the person who sent that email.

- Commissioner Hara said he would be happy to do that. He stated, in full transparency, the Commission should discuss some of the City Councilmembers' relationships with the developer. He noted the person who sent the email was his daughter. He stated the Commissioners' role is not to find exceptions or loopholes to be able to approve this plan; the bigger thing is to maintain the integrity of North Oaks. He referenced the gentleman who has lived in North Oaks for 60 years and said he lives here for the purpose of enjoying the natural setting North Oaks has. He said he feels that setting is being compromised by trying to push another lot or two into the development, which does not seem to be conducive to the additional lots. The public comments the Planning Commission heard from quite a few people have all been opposed, including a petition with 100-some people. The purpose of his comments is representing North Oaks, not himself or his daughter.

- Chair Azman suggested continuing with the PowerPoint presentation, noting there will be opportunities for further discussion regarding Commissioner Hara's concerns and the application.

- Commissioner Hara stated he thought it was the right time to ask the question since it was being talked about.

- Administrator Kress asked if Chair Azman wished to continue with the PowerPoint or have Brian Corcoran speak to a couple of the points.

- Chair Azman asked what would be logistically easier: having Mr. Corcoran jump in and talk about some of the wetland, or getting through the PowerPoint to try and address some of the questions.

- Engineer DeWalt noted the PowerPoint was almost done so it made sense to power through.

- Attorney Nason and Engineer DeWalt continued with the PowerPoint presentation.

- Commissioner Hara said he is still confused about the potential 400-500-foot driveway to serve Lot 1 and its proximity to the wetlands as to how that road, in its current state, serves the properties without being graded or surfaced in some way to accommodate snow-plowing, fire truck access. He asked what a person who would spend this kind of money on a lot would expect for a road.

- Engineer DeWalt suggested the Applicant speak at some point regarding the plan. Although she knows it has been stated previously, she wanted to reiterate the City does not have any performance standards related to driveways except in the commercial district. Driveways in the commercial district are required to be paved; driveways within residential districts are not.

- Chair Azman asked Commissioner Hara to ask his question again.

- Commissioner Hara said he understands that the developer is not proposing to build a driveway or shared driveway, and he understands that it would be an expensive proposition to do so. He has walked the road and it concerns him that the Planning Commission is pushing the application through as, one, not impacting the wetlands; and, two, that the road is a suitable road to access the homes for not just the people living there, but any kind of vehicles that would have to access the road such as an Amazon truck. He said the road is not a plowable road, at least plowable to a point that it would be easily navigable unless someone had a pretty heavy-duty four-wheel drive. If the road is going to be improved, he understands it cannot be made to be an impervious surface, it has to be maintained and the improvement cannot involve moving dirt or the vegetation that exists currently. He asked Mr. Corcoran what level of improvement can be made to the road and still be within the regulations that control it.

- Brian Corcoran, VLAWMO Water Resources Manager, stated that, as far as the road goes, VLAWMO administers the Wetland Conservation Act (WCA). The buffer rules and everything else involved in the water management policy, due to the Joint Powers Agreement (JPA) status of VLAWMO and the six cities and townships, adopt through the local water plans the water management policies, which is where the buffers are located. He said VLAWMO relies on its cities and JPA people to administer the policies. As far as the road goes, per WCA it is considered grandfathered in or permitted fill. Resurfacing is allowed; buffers do not apply, etc. It is considered a road and anybody can do anything to the existing size it is, although he does not know who determines the width of the road or where it goes. He does not know if it is through aerial photos or historical maps. It is considered a road and, per WCA, it is allowed to reconstruct the road to its historical size. It could be resurfaced or left as-is. If it is made any bigger than it historically is, a variance process would have to be involved and approved.

- Commissioner Hara noted, under Ordinance 153.070, alterations, expansion, intensification of use which increase an impervious surface, and land-disturbing activities, including the removal of vegetative covering, and grading, disqualify the exemption and subject the driveway to all setbacks, buffers, and other requirements. He asked if the Commission is back to where they have setback issues.

- Attorney Nason asked Commissioner Hara for the section he was referencing because she was not seeing the same language.

- Commissioner Hara said it was Minnesota Rule 8420.0544D and that North Oaks was adopting that Minnesota requirement.

- Attorney Nason stated she was looking at 8420.0544D which says replacement for public transportation projects, and it deals with wetlands impacted by public transportation projects. She asked if she was in the right spot.

- Commissioner Hara said he may not have it correct. He stated the North Oaks ordinance that he referenced adopts a Minnesota rule, and within the ordinance it references 8420.0544D. He asked if there was a VLAWMO water policy that discusses land-disturbing activities as any change in the land surface. He said to him it would be a change in the land surface if the road gets graded and made into a usable driveway for a resident.

- Attorney Nason noted Mr. Corcoran may want to speak to that as the Local Government Unit (LGU) and she would look for the reference.

- Mr. Corcoran stated VLAWMO policy, adopted by JPA, says the applied buffer width for a linear reconstruction project shall be limited to the extent of buildable right-of-way. A buffer is not required for resurfacing of an existing road, sidewalk, or trail that does not increase the area of impervious surface.

- Administrator Kress noted Mark Houge may have a question and he could be moved as a participant.

- Commissioner Cremons stated, with no disrespect to Commissioner Hara, it seemed to him the issues have been examined by Staff in great detail with impressive analysis. He said the Commission could spend all night going through rules and code sections and comparing City Code to State regulations. The Planning Commission as a group is not prepared to spend a huge amount more time on the shared driveway, in his opinion. He stated he thinks the Commission has beaten it to death and needs to move on.

- Mark Houge, North Oaks Company (NOC), said he wanted to clarify a few things. He noted people may or may not be aware that for years there were numerous dump trucks going back and forth on that road to the burn site and it is interesting going through the spring/early summer season that the road does not look like much once the vegetation takes over. He wanted to make sure members of the Planning Commission understand it has been used continuously, including many dump trucks that have gone back and forth to the burn site,

which is effectively where the new Rapp Place cul-de-sac is for Rapp Farm Place. They have plowed the driveway; the field superintendent has a plow on his truck and has plowed it occasionally. He realizes it does not look like much right now, but it is a very usable road and has been used continuously. He said he would be very interested to know who it is that is living in close proximity that says they have never seen a vehicle on it, because within the last two weeks there have been a dozen vehicles on it.

- Chair Azman asked Mr. Houge to clarify if he was talking about the piece from North Deep Lake Road that extends northerly.

- Mr. Houge indicated Chair Azman was correct, that it would be accessed directly from North Deep Lake Road where the green gate is and is the same section of road the Company is proposing to re-use as a driveway. He pointed out, relative to intensity of use, at one point they were considering putting a street along the path coming from North Deep Lake Road going west. Through many conversations with City Staff and community members, they reversed that. The intensity of the road is probably equal to or less than what it has been in the past. It will be limited to two residents as opposed to a service road for things like the burn site.

- Commissioner Shah asked Mr. Houge to speak to what the Company plans to do for improvements to the current farm road that would be the proposed shared driveway.

- Mr. Houge stated if the Company is successful in subdividing the parcels, they are marketing the road to a buyer. Generally, someone interested in those types of lots, between 6-9 acres overall, are going to want a very natural environment. The Company will encourage them to use a gravel surface similar to what is there today, subject to North Oaks Home Owners' Association (NOHOA) and Architectural Supervisory Committee (ASC) approval. If they prefer to have some hard surface, they would be encouraged to consider pervious bituminous or pervious paving systems for water management. It is not an obligation, but that would be how the Company would approach it.

- Commissioner Shah asked if there are other driveways of this nature that are not paved in North Oaks.

- Mr. Houge said the short answer is yes. In pretty close proximity to this driveway, there is a long gravel driveway into a residence. There is a site with two lots which is known as Tory's Island; that one is improved. He stated there is a wide variety. Everyone tends to approach it differently in terms of if you are a homeowner and what your preference is. There is a combination of gravel as well as bituminous, and he said he would look to the ASC for some guidance on their preference.

- Commissioner Yoshimura-Rank noted that relatively recently the Commission had decided not to have any more gravel driveways and the existing gravel driveways had been grandfathered in.

- Chair Azman stated Engineer DeWalt commented that there is no ordinance currently in place that mandates paved driveways within the residential areas of North Oaks. He asked for confirmation from Staff.

- Administrator Kress indicated Chair Azman was correct.

- Chair Azman said he recalled there was some past discussion about expanding that requirement to residential areas but he did not think it passed.

- Administrator Kress stated that chances are high that the Company would not have to comply with the ordinance, anyway.

- Chair Azman noted that the PDA predates the change.

- Administrator Kress said Chair Azman was correct.

- Chair Azman asked if the PowerPoint had been finished and if there were questions that should be addressed to Mr. Corcoran regarding wetlands. He noted Mr. Corcoran had addressed some of the nonconforming use issues; he asked if that was the extent of what Mr. Corcoran would be asked to comment on, absent questions from the Commission.

- Engineer DeWalt suggested Mr. Corcoran speak to the concern that once the development is approved, that landowners/homeowners could go in and impact the wetlands on their own.

- Mr. Corcoran said this project was brought to VLAWMO as a 54-acre parcel. The boundary and type/delineation was reviewed and a decision was made in 2015. Per the application, the Applicant is stating there will be no wetland impacts for the subdivision. Because this 54-acre parcel was identified, the wetland boundary/types were done on the parcel, and there are no wetland impacts that can be done moving forward, even after it is subdivided.

- Chair Azman asked Engineer DeWalt if Mr. Corcoran answered the questions.

- Engineer DeWalt noted she wanted it clarified for the Commissioners. She said City Staff had stated in the Memo that was the case and there was concern that was not true, so she wanted Mr. Corcoran to reiterate it.

- Chair Azman asked Mr. Corcoran and Engineer DeWalt what that meant. He noted the Commissioners have the preliminary plan that doesn't appear, at least from VLAWMO's Memo, to impact the wetlands; but when it is an actual homeowner, the homeowner has to site their home and they have to have a septic under the current plan. He asked what that meant from the real-world standpoint, that there can be no further wetland impacts or impacts subject to any of the exceptions that were pointed out in the Staff report.

- Engineer DeWalt referenced Attorney Nason's identification of what a wetland impact means and said there are no future impacts that will be allowed on-site. The development application proposed has accounted for the required buildable area for a home and has

accounted for two required septic site locations within the suitable soil areas, and so the application has fully accounted for the proposed wetland impacts.

- Chair Azman asked Mr. Corcoran if he agreed with what Engineer DeWalt stated.

- Mr. Corcoran indicated that he did agree.

- Commissioner Cremons asked, if someone comes in with a development plan for their actual home that involves filling in some wetland or putting a driveway up against the wetland, if that would be rejected until they corrected that situation. He clarified by asking about the control method applied to keep the individual homeowner from doing anything to impact the wetlands.

- Engineer DeWalt said if the homeowner impacts the wetlands, they are required to obtain a permit and approval. They would not be able to obtain that approval outside of the exemption standards under the WCA, including what is called a “de minimis” which is a very small, incidental wetland impact, probably smaller than most people’s kitchens. She noted there are strict standards involved in the control of that.

- Mr. Corcoran agreed with Engineer DeWalt and said the de minimis exemption is still available; but in that area, he does not foresee any possible scenario where any homeowner could come in and utilize the de minimis exemption in WCA.

- Commissioner Sandell noted that these are the controls for any building in any city, it does not have to be unique to this development. He said he suspects there are controls for any lot in any city to govern that issue.

- Engineer DeWalt said Commissioner Sandell was correct.

- Commissioner Sandell noted he thought he was piggy-backing off of Commissioner Cremons’ earlier comments, that the Commission received expert consultation on engineering, planning, governance, and legal which all seems to support that this fits. He does not think there is a lot more to exhaust other than it is an allowed use.

- Commissioner Yoshimura-Rank noted number 19 in the conditions of approval talks about emergency overflow locations and elevations for all site surface water features, including wetlands, shall be shown on the grading plan based on actual field topographic survey information and stormwater management plan design. She asked, if there ends up at some point being drainage problems or overflow of water, is someone responsible for that or is it the homeowner’s responsibility.

- Engineer DeWalt asked if Commissioner Yoshimura-Rank was saying, for example, if a stormwater pipe overflowed or plugged and a basement flooded. She asked for clarification of the question.

- Commissioner Yoshimura-Rank said it is kind of known that the climate is going to get wetter, and she is wondering, if there is any standing water or unanticipated drainage problems that occur down the road, if it is strictly the responsibility of homeowners to take care of those issues or if there is a City response.

- Engineer DeWalt noted it is not her area of expertise but she would say typically, yes, it would be the homeowner's responsibility in the future. The systems are designed using industry standards to account for all of the requirements, but there are experience issues that don't get accounted for. She asked if Attorney Nason may have something to add from a City liability standpoint.

- Attorney Nason stated it would depend a little on what the specific issue or concern is. She said she knows there are concerns with the stormwater pond maintenance and she is not sure if that is where the conversation is going or if it is other types of pipes. With respect to the stormwater maintenance pond, required conditions include a grant of easement and a maintenance obligation agreement. She noted it is still unresolved as to whether or not NOHOA would eventually take over that obligation. There would be safeguards in place to ensure that is adequately managed. If no one is managing it and doing what they need to do, the City would have the opportunity to come in and do so and seek to collect costs that the City would incur when engaging in the stormwater maintenance activities.

- Chair Azman asked City Staff if one of the conditions is dealing with the stormwater management and that it is going to be part of a future agreement with the developer.

- Administrator Kress said Chair Azman was correct.

- Mr. Houge said he wanted to address Commissioner Yoshimura-Rank's question and said he would dissect it in two ways. Where the new road is being placed coming from Sherwood on the west side of the site, there is a stormwater pond which manages any additional stormwater coming off of the road's impervious surface. There is a very extensive stormwater study that is being done at the request of the City. During the construction process, he trusts that work will be inspected, and the City Engineer as well as NOHOA's engineer may look in on that. There will be great measures taken to ensure there are not any surprises in terms of what would happen with future stormwater events. In addition, when somebody applies for a building permit, the City would require a survey. The survey would have topographical information and information regarding adjoining wetlands and stormwater issues that typically the building official will weigh in on with the resident as they plan their facility.
- Engineer DeWalt stated one of the reasons for the particular condition Commissioner Yoshimura-Rank is referring to is to make sure there are pathways for water that is not planned for. During intense storms or potential flood situations, there will be a place for the water to go rather than towards the homes.

- Chair Azman brought up the NOHOA letters and trail and indicated there are mixed messages from NOHOA and what their position is. He asked Mr. Houge if there has been any indication from NOHOA that they have withdrawn their agreement on the proposed new

trail location within Nord.

- Mr. Houge said he sits on the NOHOA Board with a position that is appointed by the Company, and although he did not participate in the second meeting which discussed crafting the letter, he was able to talk to some fellow Board members to clarify what the intent of the second letter was. He noted the concern was that the letter sent on April 7 implied that NOHOA was approving the design of the development. It was intended to clarify that NOHOA's role is not to approve the design of the development but, per the PDA, to weigh in on the location of the trail and the suitability of the roads going forward for maintenance. The second letter was intended to clarify that NOHOA is not approving this subdivision, that that is the job of the Planning Commission and City Council.

- Administrator Kress stated that he asked Kathy Emmons if basically everything said in the April 7 letter is still in place; specifically, there was a vote of 6-2-2: six for, two against, and two abstained. One abstention was for conflict of interest, Mr. Mark Houge; and the other, due to a planned departure from the Board. Ms. Emmons' response was the understanding described requires one clarification, that they voted in favor of sending the review and comment on the preliminary plan to the Planning Commission and Council as reflected in the April 7 letter; and, yes, nothing has changed in this regard since NOHOA issued the April 7 letter. He noted that from that they are saying they are in favor of the current trail design.

- Chair Azman said the application has been talked about quite a bit and there is not yet a motion on the table, although he was not sure the Commission was ready for that. He asked if there were other questions, concerns, comments, or items Commissioners wanted to flesh out on any aspects of the Nord parcel.

- Commissioner Yoshimura-Rank said Commissioner Hauge and she had been talking about the language having easements for water and sewer also put into the plan.

- Administrator Kress stated that they were included.

- Commissioner Hara commented that this development is navigated more from parcels. The shared driveway, the nonconforming road, wetland setbacks, lack of open space, and the general development criteria is inconsistent with most of North Oaks. There is also the issue of the trail. The Commission has really not taken into consideration that there is a lot of public opposition to the application amongst more than just the few people that spoke but also the people that signed the petition. He predicts in a couple of years the Planning Commission will be convening to deal with hardship residents that have difficulties locating septic systems outside of wetlands and also paving a road that is now pervious to being an impervious one. He thinks the Planning Commission is kicking some issues down the road and he is disappointed that the development wasn't put together with more thought about what the neighbors and community in general was looking to see.

- Commissioner Hauge said he has been part of the Commission for about 16 months, along with Commissioners Shah and Yoshimura-Rank. When the first proposal came to the Planning Commission, they were against a couple of major things: one was the road that

originally proposed to come in from the south, from Deep Lake Road. They suggested it to go according to the PUD from Sherwood Road. They also disliked the proposal about the trail. The Company, together with NOHOA, has found a solution to the trail. He walked the trail a couple of times, and he finds the trail to be a decent, good solution for the community. He said it is important to remember the Planning Commission has not been doing this for a short time; they have been doing it for a fairly long time. The Planning Commission is coming to the point where it has been discussed at length, solutions have been found to the original questions, and the Commission has also discussed at great lengths the wetlands. The Commission has a clear message from VLAWMO about the wetlands. He stated the issues have been resolved. The Company has changed their proposal to what is in front of the Commission. The farm road discussions have also been dealt with. The Commission is at the point where it is time to make a decision. He noted he was a little frustrated at the last meeting because the Commission was hearing things that were kind of undermining facts, or what the Commission thought was facts. He complimented the administration for putting together an excellent report, Addendum 2, that summarizes the questions from the community and the answers given to the questions.

- Commissioner Shah said she wanted to piggy-back on Commissioner Hauge's comments. Some Commissioners have been involved for about 16 months on Nord, and their role was to listen to the residents, who came in droves. There were three major issues. The original proposal had a wetland impact, and this proposal does not. The trail was a massive concern, and there was movement and collaboration with NOHOA. They were able to work with the Company because the trail is in their purview. The road was also deemed unacceptable. She noted all three of the big points were addressed by the Applicant, and she is seeing a completely different response.

- Commissioner Cremons asked if a NOHOA variance is still required on the shared driveway under any circumstance.

- Attorney Nason stated her purview is the City Code and regulations. She knows there is discussion regarding the ASC committee and their standards on shared driveways, so that will be a battle that the developer has to fight in the realm of NOHOA. She did not know what the City said about that or if it was identified as something they need to work through. Ultimately, in terms of the City Council, what needs to be applied is what is in the City Code. The City does not have any specific standards for driveways or things such as that. As to what might happen in trying to obtain approval from NOHOA, that is outside of the purview of what can be done at the Planning Commission. She said if a developer is unable to gain the permissions from NOHOA they need to gain, that might impact the ultimate site design.

- Commissioner Cremons said he is a newbie; he started in January. He stated City Staff works extremely hard and do listen to the people in North Oaks. As a newcomer to the process, it has been very impressive how patient and what good listeners they have been. He does not know what more Staff could have done to examine every miniscule point and made sure they knew what the Planning Commission was up against and what the impact was going to be. He has also been impressed with the Company's willingness to be flexible to help solve some

of these problems.

- Commissioner Yoshimura-Rank said she agreed with Commissioners Hauge, Shah, and Cremons that people have worked hard and there has been a lot of cooperation with the Planning Commission, NOHOA, and the Company. She also thinks the Commission is very appreciative of all of the comments received from the community and the support, the different points of view, and that everyone has one common goal, which is to keep North Oaks as special as it is and to preserve what it has. She noted it has been a very good process.

- Chair Azman said he had a couple of questions for Attorney Nason, noting the Commission was on the cusp of a motion. He said it might be a good idea to take a review of what the legal standard is that the Commission needs to apply when reviewing the application: what are the obligations; what are the duties. He asked Attorney Nason to bring the facts and circumstances back around to what the standard is that the Planning Commission applies when a recommendation is developed one way or the other for the Council.

- Attorney Nason stated the Planning Commission sits in sort of a quasi-judicial capacity: there is a specific application before them; they are not engaged in a legislative function; their job is to review the application to apply all of the standards that would apply to the application itself which include the standards found in the PDA, the standards found in the City Code, and any applicable State statutes or rules. She said she thought those were highlighted on one of the checklists; there was an initial checklist and a compliance checklist provided. She stated the Commission is to apply the standards and criteria that exist to subdivisions; and if the criteria are met, it would be anticipated that there would be a recommendation of approval. If the criteria are not met, it would be anticipated there would be a motion for denial with specific reasons and articulation of what criteria are not met. Ultimately, the Council will make the final determination with respect to the preliminary plan approval. The decision, if it were to be reviewed in a court of law, would be reviewed under an arbitrary and capricious standard. In other words, did the Council have any reasonable or rational basis for its decision one way or the other. She stated she could provide further clarity if requested.

- Chair Azman commented that he thought it was fine, and he wanted it summarized as the Planning Commission looks at the issues in anticipation of a motion. He noted he asked Mr. Houge at the last meeting /one of the last meetings if they agreed with the counts the Council had passed as a resolution, because as the applications start coming before the Planning Commission, they have to be able to understand what the housing counts are and apply them so the Commission knows how many are left. He asked if it would be appropriate to include a condition that the Applicant recognizes that there are 174 units left and this would account for “X” amount of units that are left. He noted that was not done with Anderson, but wondered if that is something that could be done now so there is a recognition of that somewhere or whether the number is separately tabulated.

- Administrator Kress noted it was an amendment or a change to the PDA.

- Attorney Nason said she thinks it is vitally important that one of the evaluative criteria with respect to the subdivision applications is whether or not it exceeds the density per the PDA.

In this case there are ten dwelling units allowed with density bonus up to 13, so it complies with that criteria. With respect to the issue of what is the ultimate housing count/dwelling unit count that remains as far as what can be spread across the developable undeveloped properties, that is sort of a separate piece. She stated that issue was addressed by Council when they adopted a resolution establishing what the existing housing counts were. She said that while it could not be a condition, the Planning Commission could encourage the Council to meet with the developer to sit down and address the housing count issue to consider an amendment to the PDA that establishes the current updated housing count. She stated if the Planning Commission has a desire to address that, the best way would be to encourage the Council and developer to take that step and address the issue head on, outside of the context of the subdivision application.

- Chair Azman said that was not exactly what he was hoping for but it was understandable. He thought one of the conditions would be, are there sufficient units left to allow this application to proceed in the event there was a vote of approval. He noted there needs to be a way to keep track of that and it would seem logical to have it be part of this process. He indicated it was 9:15 p.m. and there has been a lot of talk about the application. He said there was a possibility to approach things with a straw vote, engage the temperature of the water of where the Commission is going. He stated procedurally those make him nervous but it could be talked about. Alternatively, if someone wanted to make a motion, they could do so now.

- Commissioner Hauge asked Chair Azman why he wanted to do a straw vote. He said they were kind of at the end of the rope and they just had to plunge in.

MOTION by Hauge that the Planning Commission approve the proposed Nord Preliminary Plan/Preliminary Plat/Subdivision Application subject to the fulfillment of amendment conditions 1-50.

- Chair Azman noted it is a big application, and without forcing someone's hand, he wanted to put some options on the table. He stated the motion seems to encompass all the conditions recommended by the consultants and addresses a lot of the issues talked about. He asked Staff if there were any items missing as conditions, because he did not want to get into a situation where there will be three motions to undo one motion. He asked for comments from Staff.

- Administrator Kress said he did not have anything from his end.

- Attorney Nason stated she didn't have anything to add.

Seconded by Cremons.

- Commissioner Shah noted some Commissioners have been deliberating the Nord application almost 15 months and she recognizes it's a very important vote. There have been comments and characterizations of individuals as "pro-Company" and "anti-Company" and thinks the labels are divisive and unhelpful to their community. She said everyone at the Zoom meeting are residents and all are pro North Oaks, and cannot lose sight of that important fact.

Commissioners may disagree on how to proceed in a given situation, but everyone is coming to their viewpoints with the best interests of North Oaks. Everyone lives in North Oaks and wants to see it for generations to come. As Commissioners vote, it's essential that everyone respects one another regardless if they agree or not.

Roll call vote: Ayes 6 (Yoshimura-Rank, Shah, Sandell, Hauge, Cremons, Azman), Nays 0, Abstained 1 (Hara). Motion carried.

- Chair Azman thanked everyone for going through the process, noting it was a lot of work, particularly for the consultants. He also thanked the VLAWMO staff. He said it is important to recognize there are significant opinions in the community that were received and reviewed, and they were happy to have them and consider them as part of the process.

MISCELLANEOUS

- Administrator Kress stated the next Planning Commission meeting is set for June 25, depending on what is on the agenda for actionable items. Currently, it is likely there will not be a June 25 meeting.

- Chair Azman asked, if there is a meeting, if the meeting would be held via Zoom.

- Administrator Kress said currently the meeting would be held via Zoom, depending on what the State puts out.

ADJOURN

MOTION by Yoshimura-Rank, seconded by Sandell, to adjourn the Planning Commission meeting at 9:24 p.m. Motion carried unanimously by roll call.

_____ _____

Kevin Kress, City Administrator Mark Azman, Chair

Date approved_____

North Oaks Planning Commission
Special Meeting Minutes
City of North Oaks Community Meeting Room
June 9, 2020

CALL TO ORDER

Chair Azman called the special meeting of June 9, 2020, to order at 7:15 p.m.

In compliance with Governor Walz's Stay-at-Home Order and pursuant to Minnesota Statute 13D.021, the meeting was conducted via Zoom.

ROLL CALL

Present: Chair Mark Azman, Commissioners David Cremons, Jim Hara, Stig Hauge, Nick Sandell, Sara Shah, and Joyce Yoshimura-Rank. City Council Liaison Rick Kingston.
Staff Present: Administrator Kevin Kress, City Planner Bob Kirmis, City Attorney Bridget Nason, and Engineer Larina DeWalt.
Others Present: Videographer Maureen Anderson.
A quorum was declared present.

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

MOTION by Yoshimura-Rank, seconded by Shah, to approve the agenda as submitted. Motion carried unanimously by roll call.

CITIZEN COMMENTS

Chair Azman opened the meeting up for Citizen Comments, noting there was a new policy in place recently passed by the City Council where individuals may speak on any topic except items on the agenda. After seeing no hands up on Zoom, he closed the Citizen Comments portion.

BUSINESS ACTION ITEMS

a. Public Hearing to discuss CUP #20-05 for fill in excess of 100 cubic yards: 7 Eagle Ridge Road

- Engineer DeWalt presented the information regarding Conditional Use Permit (CUP) #20-05 for fill in excess of 100 cubic yards at 7 Eagle Ridge Road. Staff recommends approval for work to begin as soon as possible.

- Yoshimura-Rank said she visited the site and it is pretty impressive. She knows a lot of fill is being brought in and the information said only three plantings. She thinks three plantings is pretty miniscule for the huge incline. First, there is quite a run-off; second, it is all going into the wetland with no talk about cleaning up the wetland. She asked if that could be added to the work being done.

- Engineer DeWalt stated the potential conditions are up to the Planning Commission to decide. She understands the concerns and agrees that it is important to ensure that vegetation is established to try to avoid any future erosion. The plantings referred to do not include the specified seed mix that would be implemented throughout the topsoil.

- Chair Azman asked if there was vegetation included in the plan and, if so, to what extent.

- Engineer DeWalt said the plans indicate the proposed seed mix and shrubs that are specified. She does not recall what the plantings were specifically.

- Chair Azman indicated it looked like some shrubs, dogwood, and burning bush will be placed in the gully area. He asked if there was going to be any removal and remediation of the wetlands at the bottom.

- Administrator Kress suggested the public hearing should be opened to see if anyone is present, close it, and then have the discussion. He noted the Applicant is present as an attendee.

- Chair Azman asked for any further comments from Engineer DeWalt.

- Commissioner Shah said she had questions but it sounded like the public hearing should be held first.

- Chair Azman said he commonly will have Staff give a report. He opened the public hearing at 7:27 p.m.

- Bernard Bosley, the applicant, stated 88% of the erosion happened almost overnight. No one is sure how it started, but there was a large rainstorm and it opened up overnight and he has been working since then to get it fixed. There are plantings planned such as native plants and seeds. Pinnacle Engineering has been working with the Department of Natural Resources (DNR) and they have approved the plan. He does not believe they are pulling the silt back out of the wetland because the DNR feels that would cause more damage. He has a no-loss order from the DNR, and the DNR is okay with the plan as-is.

- Chair Azman asked if Mr. Bosley was looking for approval of the CUP.

- Mr. Bosley said he is looking for approval, the problem will continue to get worse, and that if it rains hard again, who knows what might happen. There is a power pole about six feet away. He would like to fix it as soon as possible. He clarified that it is the Vadnais Lake Area Watershed Organization (VLAWMO) that is copied on the plan, specifically Brian Corcoran.

- Gary Schulte, 5 Eagle Ridge Road, said he is the most affected neighbor to the erosion event; he is immediately to the south and it is only a few feet from the property line. In the process of getting things fixed, there have been considerable delays. He has seen the area get larger having gone through this past summer, as well as other times. He strongly advocates that this be worked on because he is concerned about his property getting eroded and property values.

He has lived in North Oaks since he was a child, about 60 years, and it makes him full of anguish to see the valley full of sand. If it would destroy the valley to have the sand removed, maybe that is the way it has to be. He would like to see it removed. He stated the man who did the tree shedding told him that VLAWMO/DNR would like to see the sand removed. As far as vegetation, if plants are in the path of where drainage is going to go down the hill, it creates more turbulence and erosion. A lot of times they advocate having various grasses rather than woody plants, at least in the beginning.

- Chair Azman noted there were no further hands up and asked for a motion to close the public hearing.

MOTION by Yoshimura-Rank, seconded by Cremons, to close the public hearing. Motion carried unanimously by roll call.

- Chair Azman referenced questions from the adjacent landowner and members of the Commission about dealing with the wetland at the bottom and appropriate vegetation. He asked Staff for comments/opinions.

- Administrator Kress asked for Attorney Nason's input as far as conditions being placed relating to vegetation.

- Attorney Nason said it is a unique circumstance to have a fill permit be granted via the CUP process. It is the process in place in the City Code. With respect to a CUP, any relevant conditions can be placed. For a typical use permit, they are conditions meant to address any of the concerns raised by the particular use. If the Planning Commission has some parameters regarding the vegetation, those conditions can be put in. It is an unusual circumstance to see any of those requirements in the fill context.

- Chair Azman said it is an Engineering question/VLAWMO issue and asked if VLAWMO needed to be involved from a wetland standpoint.

- Administrator Kress indicated Mr. Corcoran was available for questions.

- Commissioner Shah stated Mr. Corcoran was copied on the Pinnacle Engineering summary and it looks like VLAWMO is working closely with the solution.

- Mr. Bosley said they are trying to match the native vegetation and what will grow well in the area. He was told the native vegetation is more rugged, more likely to stay, and it will look better if they match what is already there.

- Chair Azman asked Mr. Corcoran if he is familiar with the gully situation on Eagle Ridge.

- Brian Corcoran, VLAWMO Water Resources Manager, said that he is familiar with it.

- Chair Azman noted one of the concerns expressed by the Commission is what to do with the washout at the bottom of the gully and whether there needs to be some remediation of the

wetlands as part of the process or if something is recommended. He asked what VLAWMO/Mr. Corcoran's thoughts were on that topic.

- Mr. Corcoran said he is not sure how many cubic yards are in the wetland, but they issued a no-loss order for removal of 100 cubic yards, or whatever can be safely removed, while avoiding underlying wetland vegetation, soils, or causing additional harm to the area.

- Chair Azman asked if that meant the removal of the washout that flowed down from the gully.

- Mr. Corcoran noted it was as much as they safely can remove.

- Chair Azman asked if there was any further remediation recommended after the removal or if the wetland will self-heal.

- Mr. Corcoran said it will self-heal.

- Chair Azman asked Engineer DeWalt if part of the application includes removal of the material at the bottom as part of the CUP.

- Mr. Bosley stated he believes that is in the plan.

- Engineer DeWalt said the application is specifically for the fill, but the plan provided with the application indicates removal of up to about 100 cubic yards.

- Chair Azman indicated the vegetation selected is native, which looks to be appropriate, and a portion of the project has to do with removal of the washout fill that goes down to and into the wetland with a self-healing concept. From a background standpoint, he noted he was asked to call a special meeting to deal with the situation and there were extenuating circumstances so that he felt justified moving forward with a special meeting. He said there was litigation resulting from the issue that was resolved. The property owner has been moving forward diligently. There is significant concern, including from a neighboring property owner, that further rain events may cause further damage and the time to move is now, along with further damage including potentially the roadbed, power lines, etc. He stated that is why he was concerned about getting the application in front of the Commission as soon as possible so that the property owner can move forward assuming there is an approval. He asked if other Commission members had questions of anyone.

- Commissioner Shah said she understands the sense of urgency with the application. She sees the CUP and the solution but did not see a definitive reason for the cause and is wondering why the erosion happened in the first place, because she does not want to be back in five years trying to mitigate the same problem. She asked if anyone had an idea of what caused the situation.

- Mr. Bosley said it was explained to him that the ground in the area isn't particularly rugged, and part of the plan is to compact it and make it more rugged against erosion. There are

several speculations as to the cause, but no one knows for sure because the source is gone. There is a thought that a tree fell over with its roots coming up and pulled up dirt that may have started it. An engineer said a small erosion starts and then keeps on getting bigger with more water. He was never told a definitive reason.

- Commissioner Shah noted it looks like the soil is coming from a neighboring site. She asked if it has been confirmed that it is good soil.

- Mr. Bosley stated some is coming from a neighbor and some is being brought in. The engineers are testing the soil, it has to meet a certain criteria, and only a specific type of soil can go in.

- Commissioner Cremons referenced Engineer DeWalt's comments about not wanting to go through this again and that perhaps the solution proposed isn't as complete as it could be. He asked what more the Commission would do to make sure this is going to work, if anything.

- Engineer DeWalt said her concern is not necessarily that the plan is not complete. She thinks the plan is complete in what it is trying to repair. There is no guarantee that long-term viability, per Commissioner Shah's comment, is going to prevent future erosion. There could be discussion of periodic monitoring of the situation until vegetation is established to ensure that it is working and is not continuing to erode. She believes the property is for sale and she has concerns regarding future property owners' liability if, in the future, it doesn't work and needs to be repaired again.

- Commissioner Yoshimura-Rank asked if the repair would be disclosed to interested people who might purchase the property.

- Mr. Bosley stated it would be.

- Chair Azman asked Attorney Nason if that could be made a condition.

- Attorney Nason said it is a unique situation in that this is not a site plan application or something along those lines where the Commission would be having conversations regarding the potential fix and potential future erosion issues. The CUP is to allow the importation of a certain amount of fill that exceeds the threshold for the CUP. However, a CUP is supposed to be recorded against the property. Typically, on the resolution the Council would consider as far as approving the CUP, it authorizes the recording of the CUP against the property, which would provide some notice to anyone who is a subsequent purchaser. If they were to pull it and read what it says, they would be aware that there was some type of fill activity that occurred on the property. It would not get into any significant detail other than what the fill amount was, etc., but would provide notice to any subsequent purchasers.

- Commissioner Cremons asked Attorney Nason if there was a way to reference the possibility of follow-up during the project to make sure it is proceeding in accordance with the plan, even if it is soft language. He would like somebody to pay attention so if there is a hard rain halfway through the project, the City will be able to react to it and not have it turn into a

fiasco.

- Attorney Nason stated one of the recommendations of the Planning Commission could be that the appropriate City Staff would be requested to follow up to ensure the filling is completed pursuant to the fill permit requirements.

- Commissioner Shah asked if Commissioner Cremons was looking for a control plan beyond the fill and watching the plants, etc., to ensure that everything is stable.

- Commissioner Cremons said legally there are limits to what the Planning Commission is able to do on this application; but it is a major issue, especially for the neighbor. He would like for somebody to have it on their list that they will go by the area while the project is being done to make sure it is proceeding in accordance with the Commission's expectations. If there needs to be a sentence in the approval that there will be appropriate follow-up by the City Staff, he is fine with that.

- Mr. Bosley indicated he thought it would be fine for the City to check. He stated Pinnacle Engineering will be checking periodically and will approve the work when it is done, so if it is not done completely and efficiently, they will not approve it. He will also be checking it.

- Chair Azman asked how the Planning Commission could impose that condition within reason.

- Attorney Nason noted if the recommendation by the Planning Commission is for approval, it could be approval of the CUP as submitted with a request that the Council direct Staff to follow up to ensure the fill is established pursuant to the plan submitted with the CUP. She commented that the irony is when you fail to comply with a condition of the CUP, the typical remedy is revocation of the CUP. If that were included as a condition, that would put it on the City's radar. Council could direct Staff to ensure the fill is established on the site in accordance with the grading plans submitted to the City, and if there is any failure to comply or establish the fill in accordance with the plans, the City has remedies under the revocation of the CUP piece, as well as the general misdemeanor penalty under the City Code for violation of any code requirements or City permits.

- Chair Azman asked Attorney Nason if the Planning Commission could make a condition that the landowner has to notify the City when they are about to start work.

- Attorney Nason indicated that could be done.

- Chair Azman noted that way the City will have more of an opportunity to follow up.

MOTION by Shah to approve CUP #20-05 for fill in excess of 100 cubic yards at 7 Eagle Ridge Road with conditions as follows: one, the Applicant notifies the City when they start the project; two, the project is monitored by the City to ensure the CUP is meeting expected outcomes; three, the project will proceed as the application indicates.

- Chair Azman asked Administrator Kress if that was clear enough for the purpose of drafting a recommendation to the Council.

- Administrator Kress stated he thought Staff could build a resolution from that.

- Attorney Nason said she had no concerns with regard to the motion/conditions.

Seconded by Yoshimura-Rank.

- Chair Azman noted Mr. Schulte's hand was up but the public hearing portion was closed and it would be a little unconventional to allow him to speak. He stated that he is trying to stick with appropriate procedure.

Motion carried unanimously by roll call.

- Chair Azman reiterated that the passed motion is for recommendation of the CUP to the City Council, who will be considering it at its meeting on June 11.

- Administrator Kress confirmed that is the intention at this point.

- Chair Azman suggested to Mr. Bosley he make himself available for the Thursday, June 11 City Council meeting.

ADJOURN

MOTION by Yoshimura-Rank, seconded by Cremons, to adjourn the Special Planning Commission meeting at 7:55 p.m. Motion carried unanimously by roll call.

_____ _____

Kevin Kress, City Administrator Mark Azman, Chair

Date approved_____

North Oaks Planning Commission
Special Meeting Minutes
City of North Oaks Community Meeting Room
June 9, 2020

CALL TO ORDER

Chair Azman called the special meeting of June 9, 2020, to order at 7:15 p.m.

In compliance with Governor Walz's Stay-at-Home Order and pursuant to Minnesota Statute 13D.021, the meeting was conducted via Zoom.

ROLL CALL

Present: Chair Mark Azman, Commissioners David Cremons, Jim Hara, Stig Hauge, Nick Sandell, Sara Shah, and Joyce Yoshimura-Rank. City Council Liaison Rick Kingston.
Staff Present: Administrator Kevin Kress, City Planner Bob Kirmis, City Attorney Bridget Nason, and Engineer Larina DeWalt.
Others Present: Videographer Maureen Anderson.
A quorum was declared present.

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

MOTION by Yoshimura-Rank, seconded by Shah, to approve the agenda as submitted. Motion carried unanimously by roll call.

CITIZEN COMMENTS

Chair Azman opened the meeting up for Citizen Comments, noting there was a new policy in place recently passed by the City Council where individuals may speak on any topic except items on the agenda. After seeing no hands up on Zoom, he closed the Citizen Comments portion.

BUSINESS ACTION ITEMS

a. Public Hearing to discuss CUP #20-05 for fill in excess of 100 cubic yards: 7 Eagle Ridge Road

- Engineer DeWalt presented the information regarding Conditional Use Permit (CUP) #20-05 for fill in excess of 100 cubic yards at 7 Eagle Ridge Road. Staff recommends approval for work to begin as soon as possible.

- Yoshimura-Rank said she visited the site and it is pretty impressive. She knows a lot of fill is being brought in and the information said only three plantings. She thinks three plantings is pretty miniscule for the huge incline. First, there is quite a run-off; second, it is all going into the wetland with no talk about cleaning up the wetland. She asked if that could be added to the work being done.

- Engineer DeWalt stated the potential conditions are up to the Planning Commission to decide. She understands the concerns and agrees that it is important to ensure that vegetation is established to try to avoid any future erosion. The plantings referred to do not include the specified seed mix that would be implemented throughout the topsoil.

- Chair Azman asked if there was vegetation included in the plan and, if so, to what extent.

- Engineer DeWalt said the plans indicate the proposed seed mix and shrubs that are specified. She does not recall what the plantings were specifically.

- Chair Azman indicated it looked like some shrubs, dogwood, and burning bush will be placed in the gully area. He asked if there was going to be any removal and remediation of the wetlands at the bottom.

- Administrator Kress suggested the public hearing should be opened to see if anyone is present, close it, and then have the discussion. He noted the Applicant is present as an attendee.

- Chair Azman asked for any further comments from Engineer DeWalt.

- Commissioner Shah said she had questions but it sounded like the public hearing should be held first.

- Chair Azman said he commonly will have Staff give a report. He opened the public hearing at 7:27 p.m.

- Bernard Bosley, the applicant, stated 88% of the erosion happened almost overnight. No one is sure how it started, but there was a large rainstorm and it opened up overnight and he has been working since then to get it fixed. There are plantings planned such as native plants and seeds. Pinnacle Engineering has been working with the Department of Natural Resources (DNR) and they have approved the plan. He does not believe they are pulling the silt back out of the wetland because the DNR feels that would cause more damage. He has a no-loss order from the DNR, and the DNR is okay with the plan as-is.

- Chair Azman asked if Mr. Bosley was looking for approval of the CUP.

- Mr. Bosley said he is looking for approval, the problem will continue to get worse, and that if it rains hard again, who knows what might happen. There is a power pole about six feet away. He would like to fix it as soon as possible. He clarified that it is the Vadnais Lake Area Watershed Organization (VLAWMO) that is copied on the plan, specifically Brian Corcoran.

- Gary Schulte, 5 Eagle Ridge Road, said he is the most affected neighbor to the erosion event; he is immediately to the south and it is only a few feet from the property line. In the process of getting things fixed, there have been considerable delays. He has seen the area get larger having gone through this past summer, as well as other times. He strongly advocates that this be worked on because he is concerned about his property getting eroded and property values.

He has lived in North Oaks since he was a child, about 60 years, and it makes him full of anguish to see the valley full of sand. If it would destroy the valley to have the sand removed, maybe that is the way it has to be. He would like to see it removed. He stated the man who did the tree shedding told him that VLAWMO/DNR would like to see the sand removed. As far as vegetation, if plants are in the path of where drainage is going to go down the hill, it creates more turbulence and erosion. A lot of times they advocate having various grasses rather than woody plants, at least in the beginning.

- Chair Azman noted there were no further hands up and asked for a motion to close the public hearing.

MOTION by Yoshimura-Rank, seconded by Cremons, to close the public hearing. Motion carried unanimously by roll call.

- Chair Azman referenced questions from the adjacent landowner and members of the Commission about dealing with the wetland at the bottom and appropriate vegetation. He asked Staff for comments/opinions.

- Administrator Kress asked for Attorney Nason's input as far as conditions being placed relating to vegetation.

- Attorney Nason said it is a unique circumstance to have a fill permit be granted via the CUP process. It is the process in place in the City Code. With respect to a CUP, any relevant conditions can be placed. For a typical use permit, they are conditions meant to address any of the concerns raised by the particular use. If the Planning Commission has some parameters regarding the vegetation, those conditions can be put in. It is an unusual circumstance to see any of those requirements in the fill context.

- Chair Azman said it is an Engineering question/VLAWMO issue and asked if VLAWMO needed to be involved from a wetland standpoint.

- Administrator Kress indicated Mr. Corcoran was available for questions.

- Commissioner Shah stated Mr. Corcoran was copied on the Pinnacle Engineering summary and it looks like VLAWMO is working closely with the solution.

- Mr. Bosley said they are trying to match the native vegetation and what will grow well in the area. He was told the native vegetation is more rugged, more likely to stay, and it will look better if they match what is already there.

- Chair Azman asked Mr. Corcoran if he is familiar with the gully situation on Eagle Ridge.

- Brian Corcoran, VLAWMO Water Resources Manager, said that he is familiar with it.

- Chair Azman noted one of the concerns expressed by the Commission is what to do with the washout at the bottom of the gully and whether there needs to be some remediation of the

wetlands as part of the process or if something is recommended. He asked what VLAWMO/Mr. Corcoran's thoughts were on that topic.

- Mr. Corcoran said he is not sure how many cubic yards are in the wetland, but they issued a no-loss order for removal of 100 cubic yards, or whatever can be safely removed, while avoiding underlying wetland vegetation, soils, or causing additional harm to the area.

- Chair Azman asked if that meant the removal of the washout that flowed down from the gully.

- Mr. Corcoran noted it was as much as they safely can remove.

- Chair Azman asked if there was any further remediation recommended after the removal or if the wetland will self-heal.

- Mr. Corcoran said it will self-heal.

- Chair Azman asked Engineer DeWalt if part of the application includes removal of the material at the bottom as part of the CUP.

- Mr. Bosley stated he believes that is in the plan.

- Engineer DeWalt said the application is specifically for the fill, but the plan provided with the application indicates removal of up to about 100 cubic yards.

- Chair Azman indicated the vegetation selected is native, which looks to be appropriate, and a portion of the project has to do with removal of the washout fill that goes down to and into the wetland with a self-healing concept. From a background standpoint, he noted he was asked to call a special meeting to deal with the situation and there were extenuating circumstances so that he felt justified moving forward with a special meeting. He said there was litigation resulting from the issue that was resolved. The property owner has been moving forward diligently. There is significant concern, including from a neighboring property owner, that further rain events may cause further damage and the time to move is now, along with further damage including potentially the roadbed, power lines, etc. He stated that is why he was concerned about getting the application in front of the Commission as soon as possible so that the property owner can move forward assuming there is an approval. He asked if other Commission members had questions of anyone.

- Commissioner Shah said she understands the sense of urgency with the application. She sees the CUP and the solution but did not see a definitive reason for the cause and is wondering why the erosion happened in the first place, because she does not want to be back in five years trying to mitigate the same problem. She asked if anyone had an idea of what caused the situation.

- Mr. Bosley said it was explained to him that the ground in the area isn't particularly rugged, and part of the plan is to compact it and make it more rugged against erosion. There are

several speculations as to the cause, but no one knows for sure because the source is gone. There is a thought that a tree fell over with its roots coming up and pulled up dirt that may have started it. An engineer said a small erosion starts and then keeps on getting bigger with more water. He was never told a definitive reason.

- Commissioner Shah noted it looks like the soil is coming from a neighboring site. She asked if it has been confirmed that it is good soil.

- Mr. Bosley stated some is coming from a neighbor and some is being brought in. The engineers are testing the soil, it has to meet a certain criteria, and only a specific type of soil can go in.

- Commissioner Cremons referenced Engineer DeWalt's comments about not wanting to go through this again and that perhaps the solution proposed isn't as complete as it could be. He asked what more the Commission would do to make sure this is going to work, if anything.

- Engineer DeWalt said her concern is not necessarily that the plan is not complete. She thinks the plan is complete in what it is trying to repair. There is no guarantee that long-term viability, per Commissioner Shah's comment, is going to prevent future erosion. There could be discussion of periodic monitoring of the situation until vegetation is established to ensure that it is working and is not continuing to erode. She believes the property is for sale and she has concerns regarding future property owners' liability if, in the future, it doesn't work and needs to be repaired again.

- Commissioner Yoshimura-Rank asked if the repair would be disclosed to interested people who might purchase the property.

- Mr. Bosley stated it would be.

- Chair Azman asked Attorney Nason if that could be made a condition.

- Attorney Nason said it is a unique situation in that this is not a site plan application or something along those lines where the Commission would be having conversations regarding the potential fix and potential future erosion issues. The CUP is to allow the importation of a certain amount of fill that exceeds the threshold for the CUP. However, a CUP is supposed to be recorded against the property. Typically, on the resolution the Council would consider as far as approving the CUP, it authorizes the recording of the CUP against the property, which would provide some notice to anyone who is a subsequent purchaser. If they were to pull it and read what it says, they would be aware that there was some type of fill activity that occurred on the property. It would not get into any significant detail other than what the fill amount was, etc., but would provide notice to any subsequent purchasers.

- Commissioner Cremons asked Attorney Nason if there was a way to reference the possibility of follow-up during the project to make sure it is proceeding in accordance with the plan, even if it is soft language. He would like somebody to pay attention so if there is a hard rain halfway through the project, the City will be able to react to it and not have it turn into a

fiasco.

- Attorney Nason stated one of the recommendations of the Planning Commission could be that the appropriate City Staff would be requested to follow up to ensure the filling is completed pursuant to the fill permit requirements.

- Commissioner Shah asked if Commissioner Cremons was looking for a control plan beyond the fill and watching the plants, etc., to ensure that everything is stable.

- Commissioner Cremons said legally there are limits to what the Planning Commission is able to do on this application; but it is a major issue, especially for the neighbor. He would like for somebody to have it on their list that they will go by the area while the project is being done to make sure it is proceeding in accordance with the Commission's expectations. If there needs to be a sentence in the approval that there will be appropriate follow-up by the City Staff, he is fine with that.

- Mr. Bosley indicated he thought it would be fine for the City to check. He stated Pinnacle Engineering will be checking periodically and will approve the work when it is done, so if it is not done completely and efficiently, they will not approve it. He will also be checking it.

- Chair Azman asked how the Planning Commission could impose that condition within reason.

- Attorney Nason noted if the recommendation by the Planning Commission is for approval, it could be approval of the CUP as submitted with a request that the Council direct Staff to follow up to ensure the fill is established pursuant to the plan submitted with the CUP. She commented that the irony is when you fail to comply with a condition of the CUP, the typical remedy is revocation of the CUP. If that were included as a condition, that would put it on the City's radar. Council could direct Staff to ensure the fill is established on the site in accordance with the grading plans submitted to the City, and if there is any failure to comply or establish the fill in accordance with the plans, the City has remedies under the revocation of the CUP piece, as well as the general misdemeanor penalty under the City Code for violation of any code requirements or City permits.

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ADJOURN

MOTION by Yoshimura-Rank, seconded by Cremons, to adjourn the Special Planning Commission meeting at 7:55 p.m. Motion carried unanimously by roll call.

_____ _____

Kevin Kress, City Administrator Mark Azman, Chair

Date approved_____

No. 20-07

CITY OF NORTH OAKS, MINNESOTA
APPLICATION FOR CUP, VARIANCE, APPEAL, AMENDMENT, PLAN REVIEW

Location of Property: (address) 31 S. Long Lake Trail

Legal Description of Property: Tract _____ RLS _____

Fee Owner: The Peterson Family Trust Union Bank & Trust Co as Trustee
Name Address
312 Central Ave SE Mpls MN 55414 612-455-1445
City State Zip Contact Number/s

Union Bank and Trust Company

Signature of Fee Owner: Leonetta Y. Rence Date 6/8/2020

Leonetta Y. Rence
Vice President

Applicant: _____
(if different from owner) Name Address

City State Zip Contact Numbers/s

Signature of Applicant: _____ Date _____

Type of Request: ***(Please circle correct request)***

CONDITIONAL USE PERMIT (as provided for in Chapter 151.076 of Code of Ordinances)

VARIANCE

APPEAL

AMENDMENT

BUILDING / SITE PLAN REVIEW

OTHER

Please attach fifteen (15) copies of detailed written and graphic material fully explaining the proposed request and include the reason for the request, present zoning classification and existing use of the property.

(For office use) ~~[illegible]~~

Application received with $450 fee on 6/16/2020 **Check#** 90152 **Amt#** ~~[illegible]~~ 450.00
6/21 - 350

Date for review of completeness fifteen (15) business days from initial receipt _____

* If application is deemed incomplete, written notice must be sent to the applicant by above date stating the items that need to be submitted for the application to be deemed complete.

Updated 9/18

CITY OF NORTH OAKS
100 Village Center Dr., Suite 230, North Oaks, MN 55127
(651) 792-7750 Fax: (651) 792-7751

INDIVIDUAL SEWAGE TREATMENT SYSTEM APPLICATION/PERMIT

Application Date June 8, 2020

Job Address 31 S. Long Lake Trl Permit No. 20-357

Owner Peterson Family Trust Fee Type I, II, III $450
Type IV $450 plus $85/hr.

Installer _____

Address _____

Phone No. _____ MPCA Certificate No. _____

Legal Description: RLS _____ Tract _____

Proposed Work

Description New System.
(New System, Alteration, Repair)

Type of System Type IV No. of Bedrooms 4

Variance No. (if applicable) 20-07 No. of TANKS 1 (Dual Chamber)

Union Bank and Trust Company

Loretta K. Rence
Signature of Applicant

Loretta K. Rence
Vice President
Print Name

(For Office Use Only)
Date PD 6/8/2020 Amt 450.00 Ck # 8139

This permit is granted upon the express condition that the person, partnership, firm or corporation to whom ... granted, together with the agents, employees, workers, and sub-contractors agree to abide by and conform to all Ordinances of the City of North Oaks regarding the construction, alteration, and repair of sewage treatment systems within the City; and that this permit may be revoked at any time upon evidence of violations of any of the provisions of said ordinances.

PERMITS ARE VALID FOR 180 DAYS

Approval Date *Sanitary Inspector*

Deadline for action sixty (60) days from initial receipt _____

Extended deadline _____

** City may extend the review period by up to sixty days from the end of deadline for action only if applicant is notified in writing prior to the end of the initial sixty (60) day review period. The deadline may be extended beyond sixty days with applicant's approval.

Conditional Use or Amendment request - Public Hearing date _____

Planning Commission action:
Approval or disapproval on _____ with conditions _____

City Council Action:
Approval or disapproval on _____ with conditions _____

Variance, Appeal, Building/Site Plan Review, Other

Action of Board of Adjustment and Appeals:
Approval or disapproval on _____

Bond Required _____ Bond Received on _____

CITY REIMBURSEMENT POLICY

In connection with your request and submittal of material to be reviewed by the City of North Oaks, please be informed that if the City incurs any additional expense in the course of this application review beyond the normal processing fee, the cost will be assessed to the applicant. As authorized in Chapter 151.083 of the Ordinance Code, an applicant will be responsible for full reimbursement of incurred costs to the City of North Oaks. (A copy of this section of the Ordinance is available upon request.)

Your initial application fee of $450.00 covers the processing of a typical zoning action. A typical process for reviewing a zoning action may include some or all of the following: City employee help in explaining the application process, City employee receipt of completed application and proper scheduling on appropriate agenda, one legal notice for a public hearing (if applicable), written notice to abutting property owners (if applicable) generation of a staff report, presentation of the staff report to the Planning Commission and presentation of the staff report and Planning Commission recommendation to the City Council.

If the scope of your application goes beyond a typical review process, you will be asked for an additional escrow deposit. At that time, you will be advised of the additional review necessary to complete your zoning action request and the potential cost for completing said review. You will be provided written documentation for your acknowledgement that outlines the above two items.

An applicant will be allowed to remove their request at any time during said further review process. Any remaining escrow deposit that is not needed to pay incurred costs to the date of application removal will be refunded to the applicant within sixty days.

I acknowledge that I have read and fully understand the above statements.

Union Bank and Trust Company
_____ Date 6/18/2020
Applicant's Signature

Leonetta Y. Rence
Vice President

Updated 9/18

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

Revised June 5, 2020
May 20, 2020

Rick Brama
31 S. Long Lake Rd.
North Oaks, MN

This site has an existing on-site sewage treatment system consisting of a cesspool & 2 seepage pits which have been classified as non-compliant by others. The existing tanks will be abandoned, pumped & filled with soil & a tank abandonment report completed.

This site has very limited space for placing a new system. A standard system under Minnesota Chapter 7080 rules cannot be designed. The proposal is to install a Type IV system under Minnesota Chapter 7080.2350 rules for a Type 1, 4 bedroom home.

The design is for pressurized trench system. Each trench will have a gate valve at the manifold to achieve equal distribution. The system will require a squirt test adjusting the gate valves until each trench has the same squirt height. Cap each end with a screw on cap with a 1/8" perforation hole at the irrigation box & sweep angle pipe at the end of each lateral. The trenches will have a 1.5' separation from the bottom of the rock & redox features using SB#1 with redox features at 34".

This design will need a variance to be 15' from the South property line (15' into the setback). This is needed due to the steep slope, drainage, redox features less then 34" to 46" with 13% to 30% slopes. Also a variance will be needed to be 9' into the 60' setback of West Pleasant Lake Rd. Also due to difficulty of re-routing the plumbing, the 1st tank will need to be 45' from the center line of South Long Lake Trail & 20' from the West property line. The phone line will need to be re-located.

A Class 1, Multi-Flo Aerobic Wastewater Treatment system which is classified as standard under Minnesota Chapter 7080 rules will be used or a unit which has positive filtration and an alarm equivalent to a Multi-Flo Unit. The highly treated, filtered effluent produced by the Multi-Flo is over 95% free of the normal sewage contaminants that cause the progressive failure of conventional systems. The unit will be a 600 gal/day. A trash trap is installed in front of the Multi-Flo Unit. The unit requires to be serviced 2 times a year which will be done by Schirmers Wastewater Treatment Systems, Inc. A 2 year parts & service warranty comes with the cost of

the unit. After that time, the homeowner is required to carry a service contract at a cost of $250.00 a year (2020 price). A report is sent to the homeowner, City, MPCA & Multi-Flo yearly.

2 inspection pipes must be installed, 1 to the bottom of the sand fill & 1 to the bottom of the rock bed.

All property lines will need to be located prior to installation.

Use low water use facilities throughout the home, shower heads, toilets etc. Recommend to divert the water softner out of the home & an iron filter if there is one.

The first tank will be a 1500 gallon dual chamber tanks reversed using the 500 gallon side as the trash trap & the 1000 gallon side as a dosing chamber (pump #2) which will dose 12.5 gallons every 30 minutes with a timer to the Multi-Flo Unit. The effluent will flow gravity from the Multi-Flo to a new 1500 gallon pumping chamber (pump #1), then through a Salcor UV light which will pressurized the trenches. 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.

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 sleeve must be insulated & be accessible from finished grade in an irrigation box with a ball valve.

A water meter or event counter must be installed to monitor daily water use. The homeowner is responsible for the water meter readings.

All neighboring wells are located greater than 100' away from the proposed treatment area.

An Operating Permit is required from North Oaks.

Annual monitoring of the system is required right after installation. 2020 Service contract for Multi-Flo is $250.00, monitoring bed 1 x a year is $50.00 when we service the Multi-Flo & & $90.00 for a fecal coliform test. This price does not include new bulbs or labor for the UV light. Price subject to change. An operating permit is required with the City at all times.

The mitigation plan is if hydraulic overloading would occur, a timer could be installed to reduce the amount of effluent pumped to the system and also by using the 1500 gallon pumping chamber allows the effluent to be stored during peak use and pumped to the system during low water use periods. The second would be to install holding tanks.

Keep all heavy equipment off of the proposed treatment area before and after construction. 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.

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 by owner & or inspector as determined by the local unit of Government.

Any other requirements as determined by the local unit of Government. Low water use facilities.

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. Recommend iron filters be diverted out of 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. Recommend laundering be limited to 3 to 4 loads per day. The Multi-Flo Unit will need to be pumped when the settable solids reach 40%. Schirmers Wastewater will meet the pumper & clean out the Multi-Flo at the same time. There will not be a charge from Schirmers Wastewater as long as pumping is only needed 1 time every 3 years. The pumping charges from a licensed pumper are you responsibility.

Thank You

Steven B. Schirmers

This Design requires a signature from an Advanced Designer

S-21-20

Bernie Miller 31 S. Long Lake Tr. North Oaks Date

SKETCH PLAN

FOR Chad Wojtowich

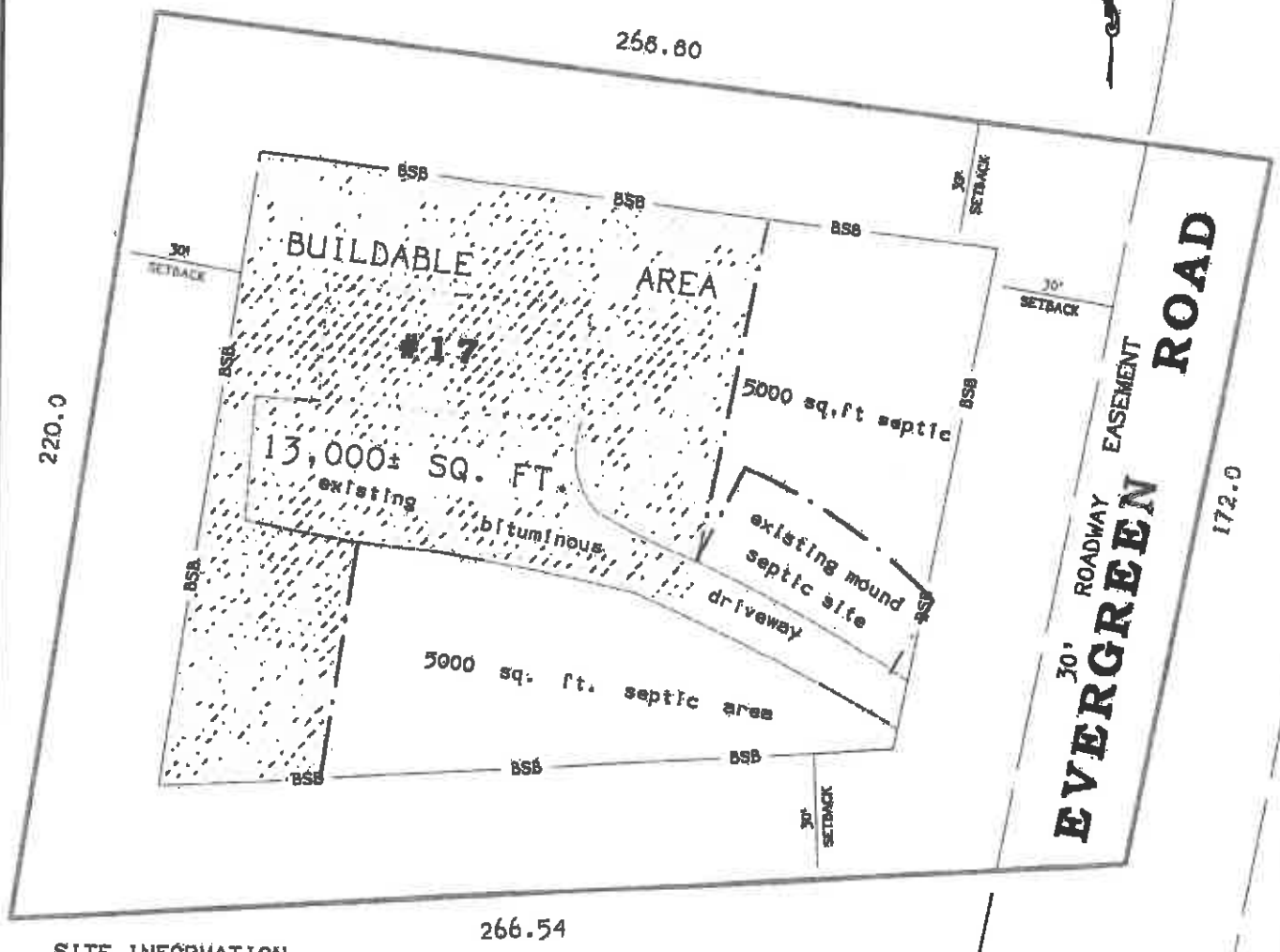
KURTH SURVEYING, INC.
4002 JEFFERSON ST. N.E.
COLUMBIA HEIGHTS, MN. 55421
763-788-9769
Email: ksi@kurthsurveyinginc.com

DATE May 27, 2020

0 40
SCALE IN FEET

ALL LOCATIONS AND AREAS SHOWN ARE APPROXIMATE ONLY AND SUBJECT TO CHANGE UPON AN ACCURATE LAND SURVEY

SEPTIC AREAS ARE SHOWN AS POSSIBLE AREAS ONLY & ARE NOT A PART OF A SEPTIC SITE EVALUATION



SITE INFORMATION

Tract C, R.L.S. No. 158

Address: #17 EVERGREEN ROAD

Total Area of Lot = 51,730± Sq. Ft.

Total Area of Road Easement = 5,245± Sq. Ft.

Net Lot Area = 46,485± Sq. Ft.

Suitable Site Area = 23,980± Sq. Ft.

Minimum Suitable = 80% of 25,000 = 20,000 Sq. Ft.

Total F.A.R Area = 5,578 Sq. Ft. - 12% of Net Lot Area

Soil Observation Log

www.SepticResource.com vers 12.4

Owner Information

Property Owner / project: Rick Brama Date 5/20/2020

Property Address / PID: 31 S. Long Lake Rd., North Oaks

Soil Survey Information

☐ refer to attached soil survey

Parent matl's: ☐ Till ☑ Outwash ☐ Lacustrine ☐ Alluvium ☐ Organic ☐ Bedrock

landscape position: ☐ Summit ☑ Shoulder ☐ Side slope ☐ Toe slope

soil survey map units: 454 slope 13 % direction-

Soil Log #1

☑ Boring ☐ Pit Elevation 110 Depth to SHWT 34"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 8	sandy loam		10YR 3/2		Friable	Weak	Granular
8 - 28	loamy medium sand	0 - 15	10YR 4/3		Loose		Single grain
28 - 34	sandy loam		7.5 5/4		Friable	Weak	Granular
34 -	sandy loam		7.5YR 5/4	10YR 6/8	Friable	Weak	Granular

Comments:

31 S. Long Lake Rd., North Oaks — **Soil Log #2**

☑ Boring ☐ Pit — Elevation 110.2 — Depth to SHWT 42"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	sandy loam		10YR 3/2		Friable	Weak	Granular
6 - 14	loamy fine sand	0 - 15	10YR 4/2		Loose		Single grain
14 - 42	medium sand	0 - 15	10YR 5/3		Loose		Single grain
42 - 60	medium sand	0 - 15	7.5YR 5/4	10YR 6/8	Loose		Single grain
60 - 66	coarse sand	15 - 35	10YR 6/3	10YR 6/8	Loose		Single grain

31 S. Long Lake Rd., North Oaks — **Soil Log #3**

☑ Boring ☐ Pit — Elevation 115.2 — Depth to SHWT 42"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	loamy sand	0 - 15	10YR 3/3		Friable	Weak	Granular
6 - 24	loamy fine sand	0 - 15	10YR 4/3		Loose		Single grain
24 - 36	medium sand	0 - 15	10YR 5/3		Loose		Single grain
36 - 42	medium sand	0 - 15	7.5YR 5/6		Loose		Single grain
42 - 60	medium sand	0 - 15	7.5YR 5/6	10YR 6/8	Loose		Single grain

I hereby certify this work was completed in accordance with MN 7080 and any local req's.

Designer Signature: Stu B. Sch

Company: SP Testing, Inc.

License #: 394

Soil Observation Log

www.SepticResource.com vers 12.4

Owner Information

Property Owner / project: Rick Brama Date 5/20/2020

Property Address / PID:

Soil Survey Information

☐ refer to attached soil survey

Parent matl's: ☐ Till ☑ Outwash ☐ Lacustrine ☐ Alluvium ☐ Organic ☐ Bedrock

landscape position: ☐ Summit ☑ Shoulder ☐ Side slope ☐ Toe slope

soil survey map units: 454 slope 13 % direction-

Soil Log #4

☑ Boring ☐ Pit Elevation 115 Depth to SHWT 46"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	sandy loam		10YR 3/2		Friable	Weak	Granular
6 - 18	loamy fine sand	0 - 15	10YR 4/3		Loose		Single grain
18 - 30	medium sand	0 - 15	10YR 5/3		Loose		Single grain
30 - 46	loamy medium sand	0 - 15	7.5YR 5/4		Loose		Single grain
46 - 54	loamy m edium sand	0 - 15	7.5YR 5/4	10YR 6/8	Loose		Single grain

Comments:

Onsite Sewage Treatment Program

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 04.01.2020

Property Owner/Client: Rick Brama | Date Completed: 5/20/2020

Site Address: 31 S. Long Lake Trail, North Oaks | Project ID:

Email: | Phone:

Mailing Address:

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 information

Attach additional information as necessary.

Design Flow: 600 GPD | Anticipated Waste Type: Residential

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:

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:	
Elevation of ordinary high water level:	ft	Source:	
Classification:		Tank Setback: ft.	STA Setbk: 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:	454D	Slope Range:	13 %
List landforms:	hilly		
Landform position(s):	Back/ Side Slope		
Parent materials:	Outwash		
Depth to Bedrock/Restrictive Feature:	34 in	Depth to Watertable:	34 in
Map Unit Ratings: Septic Tank Absorption Field- At-grade:			
Septic Tank Absorption Field- Mounds:			
Septic Tank Absorption Field- Trench:	Not Limited		

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 Programs

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 04.01.2020

Property Owner/Client: Rick Brama | Project ID:

Site Address: 31 S. Long Lake Trail, North Oaks | Date Completed: 5/20/2020

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: Back/ Side Slope

Percent slope: 13% | 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: TypeIV LIMITED SPACE

Note:

Proposed soil treatment area protected? (Y/N): No | If yes, describe:

4. General Soils Information

Filled, Compacted, Disturbed areas (Y/N): No

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): —

5. Phase I. Reporting Information

	Depth		Elevation FOR TRENCH		
Limiting Condition*:	34	in	112.2	ft	*Most Restrictive Depth Identified from List Below*
Periodically saturated soil:	34	in	107.2	ft Bottom trench	Soil Texture: loamy fine sand
Standing water:	—	in		ft	Percolation Rate: min/inch
Bedrock:	—	in		ft	Soil Hyd Loading Rate: 1.0 gpd/ft²

Benchmark Elevation: 100.0 ft | Elevations and Benchmark on map? (Y/N): YES

Benchmark Elevation Location: WAT. SLAB

Differences between soil survey and field evaluation:

Site evaluation issues / comments:

Anticipated construction issues: TRENCHES 1.3' INTO SOIL PROFILE UPSLOPE SIDE OF TRENCH
bottom trench elevation 109.7
109 " " 113.7

Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

1. PROJECT INFORMATION

v 04.01.2020

Property Owner/Client: Rick Brama | Project ID:

Site Address: 31 S. Long Lake Trail, North Oaks | Date: 05/20/20

Email Address: | Phone:

2. DESIGN FLOW & WASTE STRENGTH

Attach data / estimate basis 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: B *Select Treatment Level C for residential septic tank effluent*

3. HOLDING TANK SIZING

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

Code Minimum Holding Tank Capacity: Gallons in Tanks or Compartments

Recommended Holding Tank Capacity: Gallons in 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: 1500 Gallons in 2 Tanks or Compartments

Recommended Septic Tank Capacity: 1500 Gallons in 2 Tanks or Compartments

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

B. Other Establishments:

Waste received by: GPD x Days Hyd. Retention Time

Code Minimum Septic Tank Capacity: Gallons in Tanks or Compartments

Recommended Septic Tank Capacity: Gallons in Tanks or Compartments

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

5. PUMP TANK SIZING

Pump Tank 1 Capacity (Minimum): 1500 Gal

Pump Tank 1 Capacity (Recommended): 1500 Gal

Pump 1 39.0 GPM Total Head 33.3 ft

Supply Pipe Dia. 2.00 in Dose Vol: 149.0 gal

Pump Tank 2 Capacity (Minimum): 1000 Gal

Pump Tank 2 Capacity (Recommended): 1000 Gal

Pump 2 25.0 GPM Total Head 10.2 ft

Supply Pipe Dia. 2.00 Dose Vol: ~~0.0~~ Gal

12.5 gal / 30 min

Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Trench	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	ft	Benchmark Location:	
MPCA System Type:	Type IV	Distribution Media:	Rock
Type III/IV Details:	Multi-Flo		

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:	34	inches	2.8	ft	112.20	ft
Minimum Req'd Separation:	18	inches	1.5	ft	Elevation	*Critical for system compliance*
Code Max System Depth:	16	inches	1.3	ft	113.70	ft

This is the maximum depth to the bottom of the distribution media for required separation. Negative Depth (ft) means it must be a mound.

Soil Texture:	Loamy Fine Sand		
Soil Hyd. Loading Rate:	1.00 GPD/ft^2	Percolation Rate:	— MPI
Contour Loading Rate:	7	Note:	
Measured Land Slope:	13.0 %	Note:	
Comments:			

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area	600	ft^2	Sidewall Depth	6	in	Trench Width	3 ft
Total Lineal Feet	200	ft	No. of Trenches	4		Code Max. Trench Depth	16.0 in
Contour Loading Rate	7.0	ft	Length	86	ft	Designed Trench Depth	16.0 in

Bed:

Dispersal Area		ft^2	Sidewall Depth		in	Maximum Bed Depth	in
Bed Width		ft	Bed Length		ft	Designed Bed Depth	in

Mound:

Dispersal Area		ft^2	Bed Length		ft	Bed Width	ft
Absorption Width		ft	Clean Sand Lift		ft	Berm Width (0-1%)	ft
Upslope Berm Width		ft	Downslope Berm		ft	Endslope Berm Width	ft
Total System Length		ft	System Width		ft	Contour Loading Rate	gal/ft

Developed for implementation: ONSITE SEWAGE TREATMENT PROGRAM

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

At-Grade:

Bed Width	ft	Bed Length	ft	Finished Height	ft
Contour Loading Rate	gal/ft	Upslope Berm	ft	Downslope Berm	ft
Endslope Berm	ft	System Length	ft	System Width	ft

Level & Equal Pressure Distribution

No. of Laterals	4	Perforation Spacing	3 ft	Perforation Diameter	7/32 in
Lateral Diameter	1.50 in	Min Dose Volume	84 gal	Max Dose Volume	150 gal

Non-Level and Unequal Pressure Distribution

	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

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

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

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

Lbs. BOD To Be Removed:

PreTreatment Technology: *Must Meet or Exceed Target

Disinfection Technology: *Required for Levels A & B

C. Organic Loading to Soil Treatment Area:

mg/L X gpd x 8.35 ÷ 1,000,000 ÷ ft^2 = $lbs./day/ft^2$

10. Comments/Special Design Considerations:

NON-LEVEL TOPSOIL - COMPACTED SQUIRT TEST USING LARGE VALVES AT EACH LATERALS. - SEE COVER LETTER.

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

(Designer)	(Signature)	(License #)	(Date)
STEVEN B. SCHIRMERS	[signature]	394	5-19-20

Trench Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: v 04.01.2020

A. Design Flow: 600 GPD

B. Code Maximum Depth: 16 inches Designers Maximum Depth: 16.0 inches

C. Soil Loading Rate: 1.00 GPD/ft^2 Contour Loading Rate: 7 gal/ft

D. Required Bottom Area: Design Flow ÷ Soil Loading Rate

600 GPD ÷ 1.00 GPD/ft^2 = 600 ft^2

E. Select Dispersal Media: Rock (selection required) Registered Media

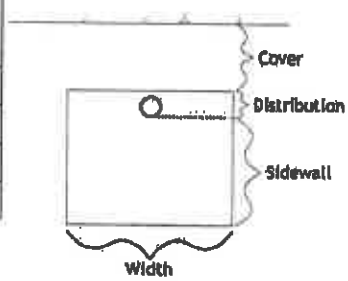
F. Select Distribution Method: Pressure Notes:

G. Is distribution media installed in contact with sand or loamy sand or with a percolation rate of 0.1 to 5 mpi?
If yes, indicate distribution or treatment method: Pressure distribution

2. TRENCH CONFIGURATION

A.

Initial required trench bottom area (ft^2): (from 1.D)	Sidewall Absorption (inches)	Bottom Area Reduction	Bottom Area Multiplier	Design trench bottom area
600	6 to 11	0%	1	600
	12 to 17	20%	0.8	480
	18 to 23	34%	0.66	396
	24	40%	0.6	360



B. Select Sidewall Height: 6 inches = 0.5 ft

C. Design Bottom Area: 600 ft^2

D. Select Trench/Registered Width: 3 ft

Check registered product information for specific application details and design

E. Total Designed Trench Length: Bottom Area ÷ Trench Width

600 ft^2 ÷ 3.0 ft = 200 ft

F. Calculate Minimum length of each trench based on Contour Loading Rate: Design Flow ÷ CLR =

600 gpd ÷ 7.0 gal/ft = 85.7 ft

G. Rapidly Permiable Soil Design Considerations: Pressure distribution

15% Trench Distribution = Required Bottom Area x 15%.

N/A ft^2 x 15% = N/A ft^2

Length Trenches at 15 %: Trench area ÷ Trench Width

N/A ft^2 ÷ N/A ft = N/A ft

H. Number of Trenches: 2 Based on CLR minimum length N/A Based on 15% sections

Designed Number of Trenches: 4

I. Equal Length per Trench = Actual Trench Length ÷ Number of Trenches

200 ft ÷ 4.0 = 50.0 ft

J. Select Trench Spacing : 7 ft (typically 5 - 12 ft from center to center)

K. Calculate Lawn Area: Trench Length X Trench Spacing

200 ft X 7 ft = 1400 ft^2 lawn area

4. ROCK MATERIALS

Project ID:

A. Select Depth Required to Cover Distribution Pipe: 0.33 ft (0.33 ft for pressure, 0.5 ft for gravity)

B. Calculate Rock Volume: (Sidewall Height + Depth to Cover Pipe X Bottom Area = cubic feet ÷ 27 = cubic yards

(0.50 ft + 0.33 ft) X 600 ft^2 = 498 ft^3 ÷ 27 18 yd^3

5. REGISTERED PRODUCTS MATERIALS

A. Registered Product: Model:

B Enter the Registered Product Component Length: ft

C Number of Components = Minimum Total Length Required divided by Component Length (Round up)

ft + ft = components

L Actual Total Trench Length = Number of Components X Component Length:

components X ft = ft

Comments:

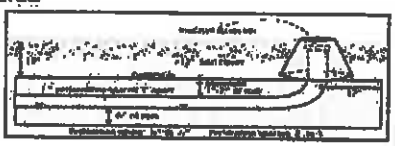
Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 04.01.2020

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

   [(3 ÷ 4) ÷ 3] + 1 = 1 laterals *Does not apply to at-grades*
3. Designer Selected *Number of Laterals*: 4 laterals
   Cannot be less than line 2 (Except in at-grades)
4. Select *Perforation Spacing*: 3.00 ft
5. Select *Perforation Diameter Size:* 7/32 in



6. *Length of Laterals* = Media Bed Length - 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* by the *Perforation Spacing* and round down to the nearest whole number.

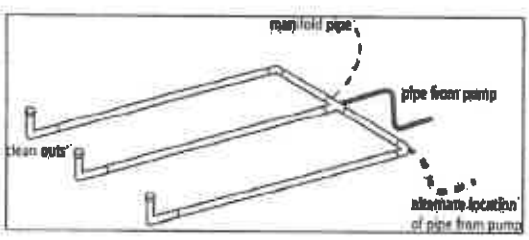
   Number of Perforation Spaces = 48.0 ft ÷ 3.0 ft = 16 Spaces
8. *Number of Perforations per Lateral* is equal to 1.0 plus the *Number of Perforation Spaces*. Check table below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

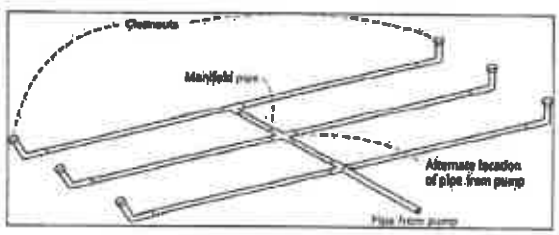
   Perforations Per Lateral = 16 Spaces + 1 = 17 Perfs. Per Lateral

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

1/4 Inch Perforations						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	10	13	18	30	60	2	14	16	21	34	62
2½	8	12	16	28	54	2½	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60

3/16 Inch Perforations						1/8 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	12	18	26	46	87	2	24	33	44	74	149
2½	12	17	24	40	80	2½	20	30	41	69	135
3	12	16	22	37	75	3	20	29	38	64	128





9. *Total Number of Perforations* equals the *Number of Perforations per Lateral* multiplied by the *Number of Perforated Laterals.*

   17 Perf. Per Lat. X 4 Number of Perf, Lat. = 68 Total Number of Perf.
10. Spacing of laterals; Must be greater than 1 foot and no more than 3 feet: 1.0 ft
11. Select *Type of Manifold Connection* (End or Center): End
12. *Select Lateral Diameter (See Table)*: 1.50 in

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)

3 ft X 50 ft = 150 ft^2

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

150 ft^2 + 68 perf = 2.2 ft^2/perf

14. Select *Minimum Average Head*: 1.0 ft

15. Select *Perforation Discharge* based on Table: 0.56 GPM per Perf

16. *Flow Rate = Total Number of Perfs X Perforation Discharge.*

68 Perfs X 0.56 GPM per Perforation = 39 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 X Length of Laterals* X (Volume of Liquid Per Foot of Distribution Piping]

4 X 48 ft. X 0.110 gal/ft = 21.1 Gallons

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

21.1 gals X 4 = 84.5 Gallons

Perforation Discharge (GPM)

Head (ft)	Perforation Diameter			
	1/8	3/16	7/32	1/4
1.0'	0.18	0.41	0.54	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	0.66	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:

Basic Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY Project ID: v 04.01.2020

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: **39.0** GPM

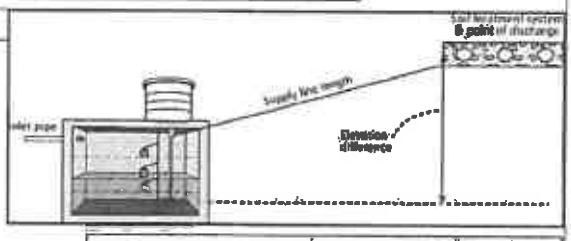
C. Enter pump description: DEMARCO 1½ HP.

2. HEAD REQUIREMENTS

A. Elevation Difference between pump and point of discharge: **23** ft

B. Distribution Head Loss: **5** ft

C. Additional Head Loss: _____ ft (due to special equipment, etc.)



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

D. 1. Supply Pipe Diameter: **2.0** in

2. Supply Pipe Length: **110** ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = **3.85** 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

110 ft X 1.25 = **137.5** ft

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

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* by the *Equivalent Pipe Length* and divide by 100.

Supply Friction Loss =

3.85 ft per 100ft X **137.5** ft ÷ 100 = **5.3** ft

H. *Total Head* requirement is the sum of the *Elevation Difference* + Distribution Head Loss + Additional Head Loss + Supply Friction Loss

23.0 ft + **5.0** ft + _____ ft + **5.3** ft = **33.3** ft

3. PUMP SELECTION

A pump must be selected to deliver at least **39.0** GPM with at least **33.3** feet of total head.

Comments:

Pump #1

Pump Tank Design Worksheet (Demand Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS

Project ID:

v 04.01.2020

1. A. *Design Flow (Design Sum. (A)*: 600 GPD
   C. Tank Use: Dosing
   B. Min. required pump tank capacity: 1500 Gal
   D. Recommended pump tank capacity: 1500 Gal

2. A. Tank Manufacturer:
   B. Tank Model:
   C. Capacity from manufacturer: 1500 Gallons
   D. Gallons per inch from manufacturer: 26.0 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*

(10 in + 2 inches) X 26.0 Gallons Per Inch = 312 Gallons

4 *Minimum Delivered Volume* = 4 X Volume of Distribution Piping:

Item 18 of the Pressure Distribution or Item 11 of Non-level 84 Gallons (Minimum dose) 3.2 Inches/dose

5 Calculate *Maximum Pumpout Volume* (25% of Design Flow)

Design Flow: 600 GPD X 0.25 = 150 Gallons (Maximum dose) 5.8 Inches/dose

6 *Select a pumpout volume that meets both Minimum and Maximum*: 149 Gallons

7 Calculate *Doses Per Day* = Design Flow ÷ *Delivered Volume*

600 gpd ÷ 149 gal = 4.03 *Doses*

8 Calculate Drainback:

A. *Diameter of Supply Pipe* = 2 inches

B. Length of Supply Pipe = 110 feet

C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.170 Gallons/ft

D. *Drainback* = *Length of Supply Pipe* X *Volume of Liquid Per Lineal Foot of Pipe*

110 ft X 0.170 gal/ft = 18.7 Gallons

9. *Total Dosing Volume* = *Delivered Volume* plus *Drainback*

149 gal + 18.7 gal = 168 Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank

2 in X 26.0 gal/in = 52.0 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

11. Calculate *Float Separation Distance* using *Dosing Volume*.

Total Dosing Volume / Gallons Per Inch

168 gal ÷ 26.0 gal/in = 6.5 inches

12. Measuring from bottom of tank:

A. *Distance to set Pump Off Float* = Pump + block height + 2 inches

10 in + 2 in = 12 inches

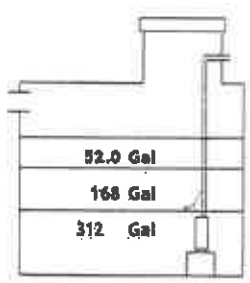
B. *Distance to set Pump On Float* = *Distance to Set Pump-Off Float* + *Float Separation Distance*

12 in + 6.5 in = 18 inches

C. *Distance to set Alarm Float* = *Distance to set Pump-On Float* + *Alarm Depth* (2-3 inches)

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



PUMP #2.

Pump Tank Design Worksheet (Time Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS Project ID: v 04.01.2020

1. A. *Design Flow (Design Sum, 1A)*: 600 GPD B. Tank Use: TIME DOSE
   C. Percentge of Design Flow 70 % 420 Gal Up to 75% design flow is normal for Design percentage
   D. Min. required pump tank capacity: 1000 Gal E. Recommended capacity: 1000 Gal
   1500 gal tank provided
2. A. Tank Manufacturer: B. Tank Model: 1500 gal tank.
   C. Capacity from manufacturer: 1000 Gallons
   D. Gallons per inch: 24 Gallons per inch
   E. Liquid depth of tank from manufacturer: 42 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 in from the bottom of the tank & 2 in covering the pump recommended)
   (Pump and block height + 2 inches) X *Gallons Per Inch*
   (in + 2 inches) X Gallons Per In = Gallons
4. *Minimum Delivered Volume* = 4 X Volume of Distribution Piping:
   -Item 18 of the Pressure Distribution or Item 11 of Non-level Gallons (minimum dose) inches/dose
5. Calculate *Maximum Pumpout Volume* (25% of Design Flow)
   Design Flow: 600 GPD X 0.25 = Gallons (maximum dose) inches/dose
6. *Select a pumpout volume that meets both Minimum and Maximum:* Gallons
7. Calculate *Doses Per Day* = Percentage Design Flow ÷ *Delivered Volume*
   420 gpd ÷ gal = *Doses*
8. Calculate Drainback:
   A. *Diameter of Supply Pipe* = inches
   B. Length of Supply Pipe = feet
   C. *Volume of Liquid Per Lineal Foot of Pipe* = Gallons/ft
   D. *Drainback = Length of Supply Pipe X Volume of Liquid Per Lineal Foot of Pipe*
   ft X gal/ft = Gallons
9. *Total Dosing Volume = Delivered Volume* plus *Drainback*
   gal + gal = Gallons
10. Working Storage Volume = Tank Volume -Volume to Cover Pump - Reserve Capacity
   gal - gal - = 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: GPM*
   B. Calculated GPM = Change in Depth (in) x Gallons Per Inch / Time Interval in Minutes
   in X gal/in ÷ min = GPM
12. Select Flow Rate from Line 11.A or 11.B: GPM*

**Note: This value must be adjusted after installation based on pump calibration.*

PUMP #2

Basic Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY Project ID: v 04.01.2020

Pumping to Gravity or Pressure Distribution: Gravity

A. If pumping to gravity enter the gallon per minute of the pump: 25.0 GPM *(10 - 45 gpm)*

B. If pumping to a pressurized distribution system: GPM

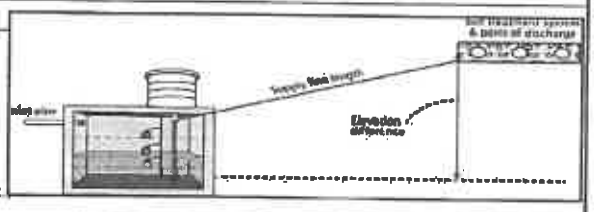
C. Enter pump description: Equalization/Time Dosing

2. HEAD REQUIREMENTS

A. Elevation Difference between pump and point of discharge: 12 ft

B. Distribution Head Loss: 0 ft

C. Additional Head Loss: ft (due to special equipment, etc



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

D. 1. Supply Pipe Diameter: 2.0 in

2. Supply Pipe Length: 48 ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = 1.69 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*

48 ft X 1.25 = 60.0 ft

Table 1. 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

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* by the *Equivalent Pipe Length* divide by 100.

Supply Friction Loss =

1.69 ft per 100ft X 60.0 ft ÷ 100 = 1.0 ft

H. *Total Head* requirement is the sum of the *Elevation Difference* + the Distribution Head Loss Additional Head Loss + Supply Friction Loss

12.0 ft + 0 ft + ft + 1.0 ft = 13.0 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **25.0** GPM (Line 1 or Line 2) with at least **13.0** feet of total head.

Comments:

MANUALLY SET TIMER TO PUMP 12.5 gal / 30 min

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Compliance Inspection Form

Existing Subsurface Sewage Treatment Systems (SSTS)

Doc Type: Compliance and Enforcement

Inspection results based on Minnesota Pollution Control Agency (MPCA) requirements and attached forms – additional local requirements may also apply.

Submit completed form to Local Unit of Government (LUG) and system owner within 15 days

For local tracking purposes:

System Status

System status on date (mm/dd/yyyy): 4/28/2020

☐ **Compliant – Certificate of Compliance**
(Valid for 3 years from report date, unless shorter time frame outlined in Local Ordinance.)

☒ **Noncompliant – Notice of Noncompliance**
(See Upgrade Requirements on page 3.)

Reason(s) for noncompliance ***(check all applicable)***

- ☐ Impact on Public Health *(Compliance Component #1) – Imminent threat to public health and safety*
- ☐ Other Compliance Conditions *(Compliance Component #3) – Imminent threat to public health and safety*
- ☒ Tank Integrity *(Compliance Component #2) – Failing to protect groundwater*
- ☐ Other Compliance Conditions *(Compliance Component #3) – Failing to protect groundwater*
- ☐ Soil Separation *(Compliance Component #4) – Failing to protect groundwater*
- ☐ Operating permit/monitoring plan requirements *(Compliance Component #5) – Noncompliant*

Property Information

Parcel ID# or Sec/Twp/Range: 123023110026

Property address: 31 South Long Lake Trail
Reason for inspection: Point of sale
Property owner: Bank Owned
Owner's phone:
or
Owner's representative: Rick Brama
Representative phone: 952-233-0125
Local regulatory authority: City of North Oaks
Regulatory authority phone: 651-792-7751
Brief system description: 3-seepage pits found.

Comments or recommendations:

Three seepage pits found. I could not find any rock. system. The seepage pit are the system.

Certification

I hereby certify that all the necessary information has been gathered to determine the compliance status of this system. No determination of future system performance has been nor can be made due to unknown conditions during system construction, possible abuse of the system, inadequate maintenance, or future water usage.

Inspector name: Joseph J Olson
Certification number: 1255
Business name: Rusty Olson's Soil & Perc. Testing
License number: 810
Inspector signature:
Phone number: 763-498-8779

Necessary or Locally Required Attachments

☐ Soil boring logs ☒ System/As-built drawing ☐ Forms per local ordinance
☐ Other information (list):

Property address: 31 South Long Lake Trail

Inspector initials/Date: J.O | 4/28/2020 (mm/dd/yyyy)

1. Impact on Public Health – Compliance component #1 of 5

Compliance criteria:

System discharges sewage to the ground surface.	☐ Yes ☒ No
System discharges sewage to drain tile or surface waters.	☐ Yes ☒ No
System causes sewage backup into dwelling or establishment.	☐ Yes ☒ No

Any "yes" answer above indicates the system is an imminent threat to public health and safety.

Comments/Explanation:

No evidence found at this time.

Verification method(s):

- ☐ Searched for surface outlet
- ☐ Searched for seeping in yard/backup in home
- ☐ Excessive ponding in soil system/D-boxes
- ☐ Homeowner testimony *(See Comments/Explanation)*
- ☐ "Black soil" above soil dispersal system
- ☐ System requires "emergency" pumping
- ☐ Performed dye test
- ☐ Unable to verify *(See Comments/Explanation)*
- ☐ Other methods not listed *(See Comments/Explanation)*

2. Tank Integrity – Compliance component #2 of 5

Compliance criteria:

System consists of a seepage pit, cesspool, drywell, or leaching pit. *Seepage pits meeting 7080.2550 may be compliant if allowed in local ordinance.*	☒ Yes ☐ No
Sewage tank(s) leak below their designed operating depth.	☒ Yes ☐ No
If yes, which sewage tank(s) leaks:	1,2 &3

Any "yes" answer above indicates the system is failing to protect groundwater.

Comments/Explanation:

Verification method(s):

- ☒ Probed tank(s) bottom
- ☐ Examined construction records
- ☐ Examined Tank Integrity Form *(Attach)*
- ☐ Observed liquid level below operating depth
- ☐ Examined empty (pumped) tanks(s)
- ☐ Probed outside tank(s) for "black soil"
- ☐ Unable to verify *(See Comments/Explanation)*
- ☐ Other methods not listed *(See Comments/Explanation)*

3. Other Compliance Conditions – Compliance component #3 of 5

a. Maintenance hole covers are damaged, cracked, unsecured, or appear to be structurally unsound. ☐ Yes* ☒ No ☐ Unknown

b. Other issues *(electrical hazards, etc.)* to immediately and adversely impact public health or safety. ☐ Yes* ☒ No ☐ Unknown
System is an imminent threat to public health and safety.

Explain:

c. System is non-protective of ground water for other conditions as determined by inspector ☐ Yes* ☒ No
System is failing to protect groundwater.

Explain:

Property address: 31 South Long Lake Trail

Inspector initials/Date: J.O | 4/28/2020 (mm/dd/yyyy)

4. Soil Separation – Compliance component #4 of 5

Date of installation: _____ (mm/dd/yyyy) ☒ Unknown

Shoreland/Wellhead protection/Food beverage lodging? ☐ Yes ☐ No

Compliance criteria:

For systems built prior to April 1, 1996, and not located in Shoreland or Wellhead Protection Area or not serving a food, beverage or lodging establishment: Drainfield has at least a two-foot vertical separation distance from periodically saturated soil or bedrock.	☐ Yes ☐ No
Non-performance systems built April 1, 1996, or later or for non-performance systems located in Shoreland or Wellhead Protection Areas or serving a food, beverage, or lodging establishment: Drainfield has a three-foot vertical separation distance from periodically saturated soil or bedrock.*	☐ Yes ☐ No
"Experimental", "Other", or "Performance" systems built under pre-2008 Rules; Type IV or V systems built under 2008 Rules (7080. 2350 or 7080.2400 (Advanced Inspector License required) Drainfield meets the designed vertical separation distance from periodically saturated soil or bedrock.	☐ Yes ☐ No

Any "no" answer above indicates the system is failing to protect groundwater.

Verification method(s):

Soil observation does not expire. Previous soil observations by two independent parties are sufficient, unless site conditions have been altered or local requirements differ.

☐ Conducted soil observation(s) *(Attach boring logs)*

☐ Two previous verifications (*Attach boring logs)*

☐ Not applicable *(Holding tank(s), no drainfield)*

☐ Unable to verify *(See Comments/Explanation)*

☐ Other *(See Comments/Explanation)*

Comments/Explanation:

Indicate depths or elevations

A. Bottom of distribution media	
B. Periodically saturated soil/bedrock	
C. System separation	
D. Required compliance separation*	

*May be reduced up to 15 percent if allowed by Local Ordinance.

5. Operating Permit and Nitrogen BMP* – Compliance component #5 of 5 ☐ Not applicable

Is the system operated under an Operating Permit? ☐ Yes ☐ No **If "yes", A below is required**

Is the system required to employ a Nitrogen BMP? ☐ Yes ☐ No **If "yes", B below is required**

BMP = Best Management Practice(s) specified in the system design

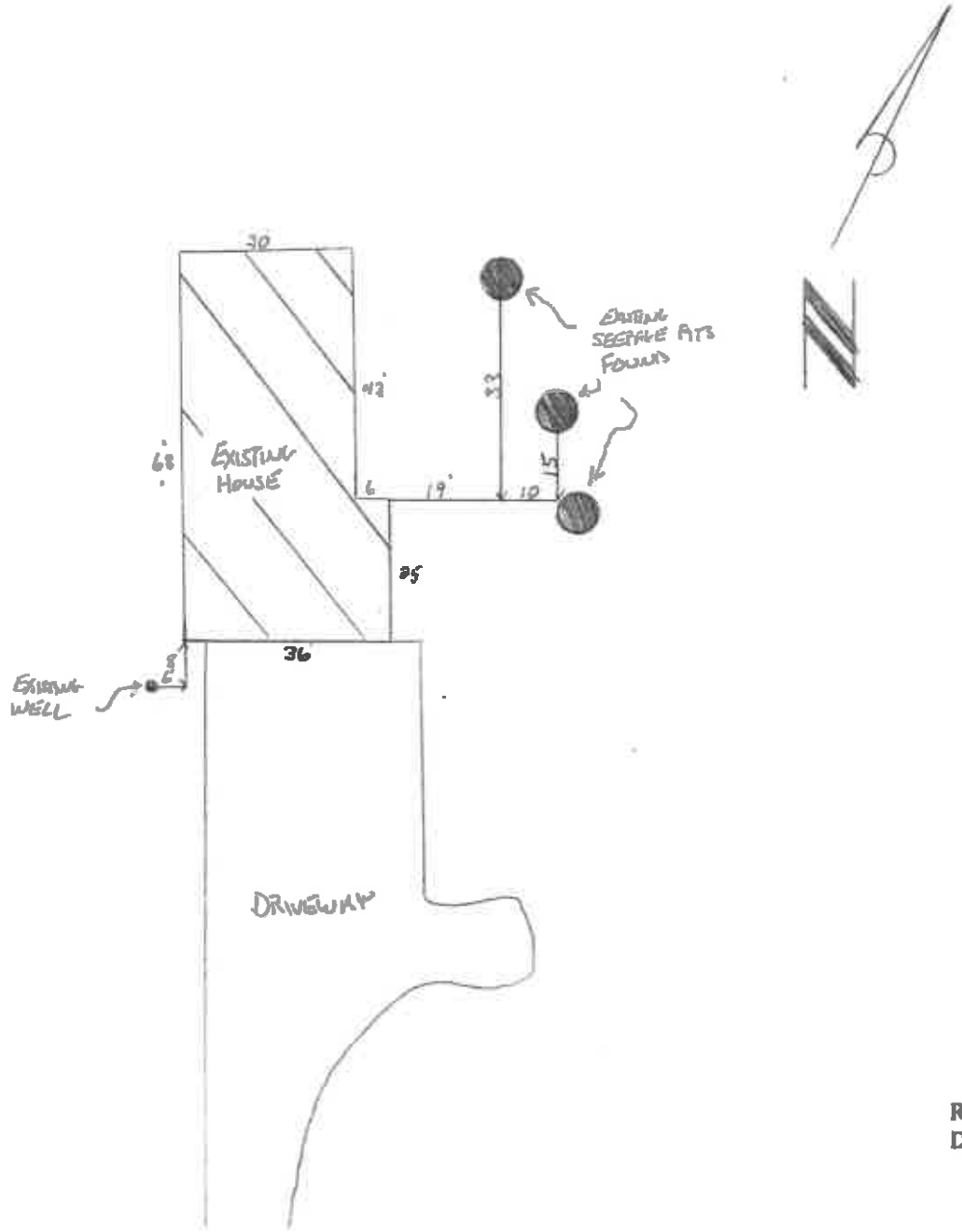
If the answer to both questions is "no", this section does not need to be completed.

Compliance criteria

a. Operating Permit number: _____ Have the Operating Permit requirements been met?	☐ Yes ☐ No
b. Is the required nitrogen BMP in place and properly functioning?	☐ Yes ☐ No

Any "no" answer indicates Noncompliance.

Upgrade Requirements *(Minn. Stat. § 115.55) An imminent threat to public health and safety (ITPHS) must be upgraded, replaced, or its use discontinued within ten months of receipt of this notice or within a shorter period if required by local ordinance. If the system is failing to protect ground water, the system must be upgraded, replaced, or its use discontinued within the time required by local ordinance. If an existing system is not failing as defined in law, and has at least two feet of design soil separation, then the system need not be upgraded, repaired, replaced, or its use discontinued, notwithstanding any local ordinance that is more strict. This provision does not apply to systems in shoreland areas, Wellhead Protection Areas, or those used in connection with food, beverage, and lodging establishments as defined in law.*



TBM _____

Scale: 1" = 30'

Percolation Test
Soil Boring
Bench Mark
Check all underground utilities

Property of: BANK OWNED
31 SOUTH LONG LAKE TRAIL
NORTH OAKS, RAMSEY COUNTY

Date 4/28/20 PH (763) 498-8779
Rusty Olson's soil and percolation testing
Designed by: _____

CITY OF
NorthOaks

North Oaks, MN 551276
Tel: 651-792-7750
noaks@cityofnorthoaks.com

Date:	6/17/2020		
Received from:	Peterson Family Trust		
Amount:	450.00	**Check #:**	90152

	Animal License
	Arborist/Mechanical License Application
X	ISTS Variance 20-07
	Recycling
	Water bill
	Variance/CUP
	Reimbursement
	Other: 31 S. Long Lake Trail

NOTES:

Signed: Des Green

UNION BANK & TRUST

COMMUNITY BANKING IN THE HEART OF THE TWIN CITIES

TRUST DEPARTMENT
312 CENTRAL AVENUE
MINNEAPOLIS, MN 55414

17-191
910

No. 090152

ACCT. NO. 1344322002

DATE 06/10/2020

PAY Four Hundred Fifty DOLLARS AND NO CENTS

AMOUNT $450.00

TO THE ORDER OF
CITY OF NORTH OAKS
100 VILLAGE CENTER DRIVE #230
NORTH OAKS, MN 5512710631

AUTHORIZED SIGNATURE

VOID

⑆090152⑆ ⑆091001319⑈00000940 1⑈

PLEASE DETACH AND RETAIN FOR YOUR RECORDS.

A/C NAME
PETERSON FAM TR

901520 90152

A/C NO.
1344322002

DATE
06/10/2020

DISP 902 ATTACHMENT
OFF 20 LEONETTA RENCE
FOR

REMITTANCE AMOUNT	
INCOME	PRINCIPAL
	$450.00

REMITTANCE TO

CITY OF NORTH OAKS
100 VILLAGE CENTER DRIVE #230
NORTH OAKS, MN 5512710631

VARIANCE APPLICATION FEE

UNION BANK AND TRUST • TRUST DEPARTMENT • 312 CENTRAL AVENUE • MINNEAPOLIS, MN 55414

City of NorthOaks

City of North Oaks
100 Village Center Drive, Suite 230
North Oaks, MN 55127

COPY

June 24, 2020

Peterson Family Trust
31 S. Long Lake Trail
North Oaks, MN 55127

PLANNING COMMISSION PUBLIC HEARING INFORMATION
July 30, 2020 at 7 p.m.
Electronic Means only, and viewing via live CTV broadcast

Dear Peterson Family Trust:

Your application for a Septic Variance has been received by the City of North Oaks; this is Variance No. 20-06. We have received your check $450 for the application fee and your application will be discussed at a Planning Commission public hearing on this topic, which is **Thursday, July 30, 2020 at 7:00 pm.** The City Council will then decide whether to approve or disapprove your application at their meeting on **Thursday, August 6, 2020.** If the application is approved, work could commence immediately after the Council meeting.

You are encouraged to attend these meetings to be available to answer any questions which may arise. To access the Planning Commission meeting on July 30th:

Please click the link below to join the webinar:
https://us02web.zoom.us/j/82978289659?pwd=RGhXTjh6b1pQanE0Z3NGV3dSd0RQUT09
Password: 724124
Or Telephone: +1 312 626 6799 Webinar ID: 829 7828 9659

Letters will be sent to abutting neighbors 10 business days before Planning Commission meeting. Please contact our office with any questions about your application process.

Sincerely,

Deb Breen

Debbie Breen
Administrative Assistant
City of North Oaks

COPY

CUP 20-07

31 S. Long Lake Trail
Applicant: Peterson Family Trust

Abutters:

20, 22, 27, 29 South Long Lake Trail
1, 3 High Circle Way
3 Bluebird Lane
121 West Pleasant Lake Road

COPY

City of NorthOaks

City of North Oaks
100 Village Center Drive, Suite 230
North Oaks, MN 55127

July 16, 2020

Current Resident
27 South Long Lake Trail
North Oaks, MN 55127

PLANNING COMMISSION MEETING INFORMATION
July 30, 2020 at 7:00 p.m.
Electronic Means only, and viewing via live CTV broadcast

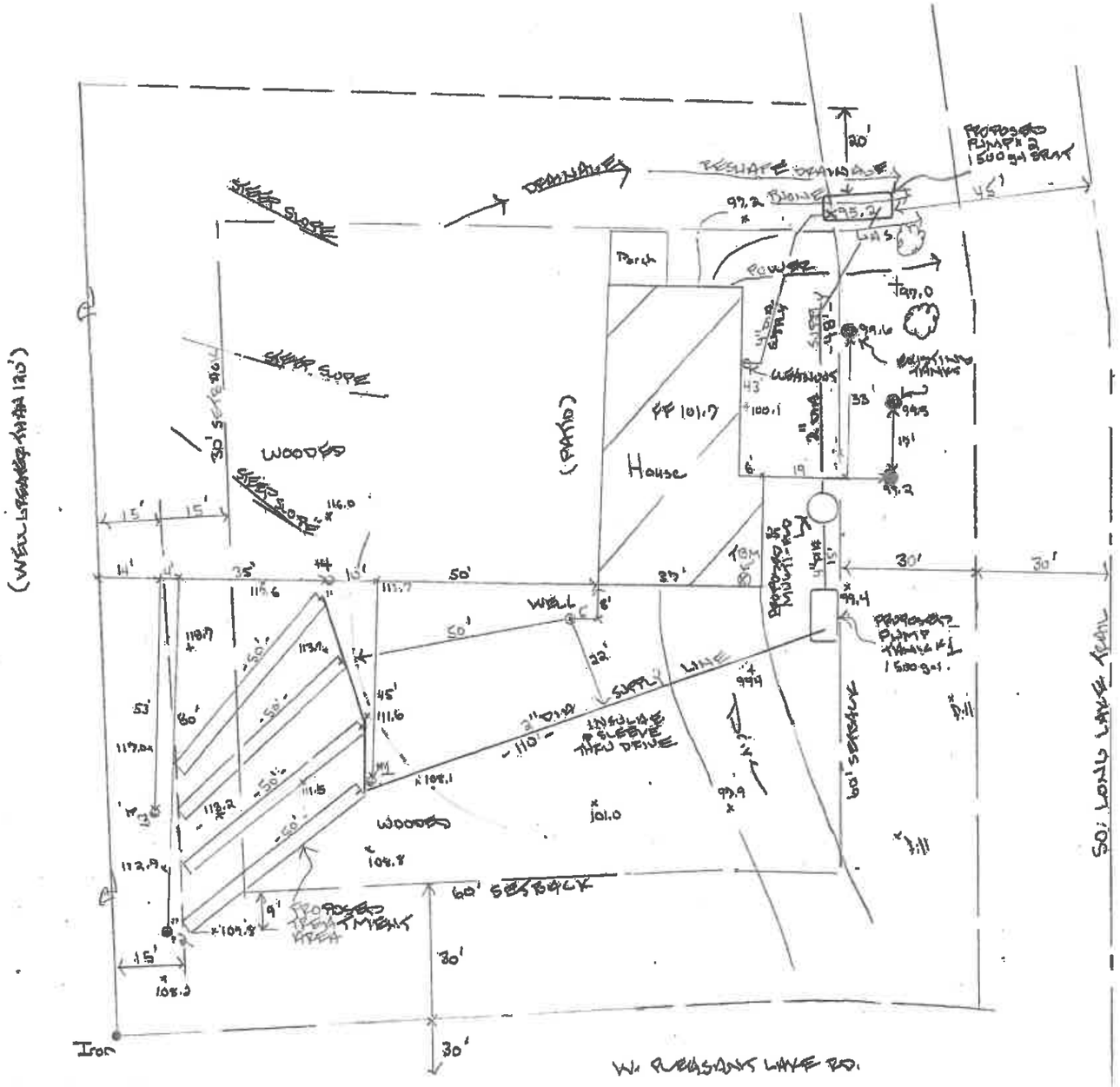
Dear Current Resident:

An application for Septic Variance at 31 South Long Lake Road has been received by the City of North Oaks. The North Oaks Planning Commission will consider this request at their next meeting on July 30, 2020 at 7:00 p.m.

Applicant: Peterson Family Trust
Site Location: 31 S. Long Lake Trail
Request: Subsurface Sewage Treatment System ordinance 51.02, section 11 requires a septic variance application, for purposes of addressing a replacement septic system 15' into the 30' South property line setback, as well as 9' into the 60' setback of West Pleasant Lake Road.
Notification: You are hereby notified of a meeting before the City of North Oaks Planning Commission.
Information: The final information packet will be available for review after 7/24/2020 at www.cityofnorthoaks.com.

Those persons having an interest in said meeting are encouraged to participate. The meeting will take place by remote telephone or other electronic means only as meeting in-person has been deemed to be neither practical nor prudent, and it is unfeasible to have any members of the Planning Commission or public present at the physical meeting location, namely the Community Room, 100 Village Center Drive, North Oaks, MN, due to the health pandemic and emergency declaration.

Those wishing to submit written public comment as part of the meeting packet on the Septic Variance application may email the City Administrator, Kevin Kress at kkress@cityofnorthoaks.com by July 23, 2020 at 4:00 p.m. **Individuals wishing to provide public comment/make a presentation at the meeting may do so by calling the following these instructions:**



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* KEEP ALL HEAVY EQUIPMENT OFF OF THE PROPOSED TREATMENT AREA.

TBM = 100.0 Top of Garage Slab

⊙ 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

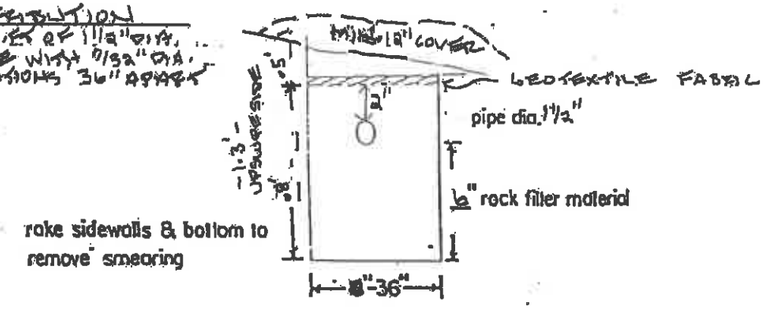
REVISED 6-5-20

PROPERTY OF: RILY BRAMA
#31 SO. LONG LAKE TRAIL
NO. OAKS MN. RAMSEY CO.

S-P TESTING INC.
Designed By: [illegible]
Date: 5/19/20 PH 763-497-3566

MULTI-FLO 600 gal
DIAMETER - 71"
TOTAL HEIGHT - 86"
HEADS TO INLET INVERT - 16"
HEADS TO OUTLET INVERT - 18"
EXCAVATION DEPTH - 74 1/2"
SHIPPING WEIGHT - 350 lbs
INLET INVERT - 56"
OUTLET INVERT - 56"

DISTRIBUTION
192 LINEAL FT OF 1 1/2" DIA. DIST. PIPE WITH 9/32" DIA. PERFORATIONS 36" APART



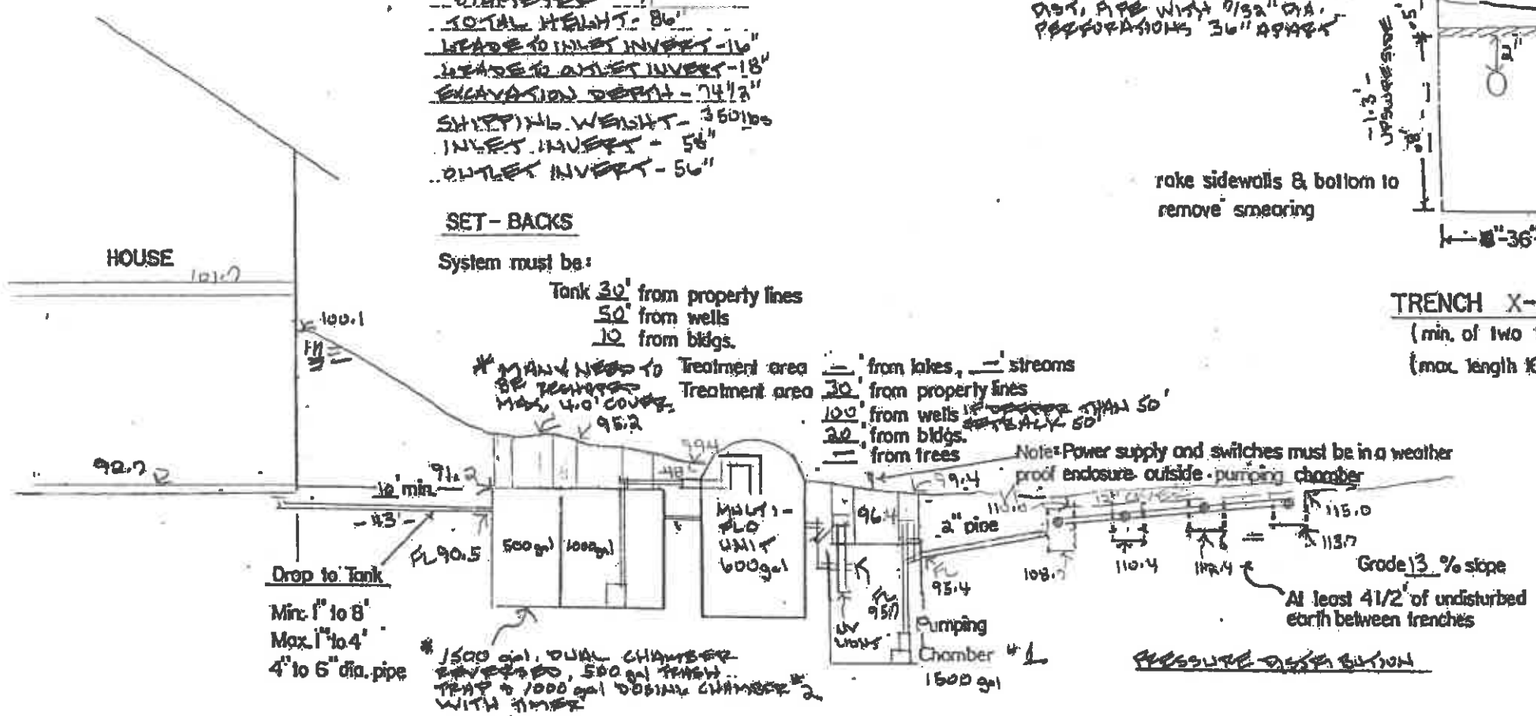
TRENCH X-SECTION
(min. of two trenches)
(max. length 100')

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

* MANY NEED TO BE REDUCED MAX. 4.0' COVER.

Note: Power supply and switches must be in a weather proof enclosure outside pumping chamber



* 1500 gal. DUAL CHAMBER REVERSED, 500 gal TRASH TRAP & 1000 gal DOSING CHAMBER #2 WITH TIMER

SOIL BORING ELEVATIONS

TH #1 EL. - 110.0
TH #2 EL. - 110.3
TH #3 EL. - 116.2
TH #4 EL. - 115.0
TH #5 EL. - ____

ELEVATION at PROPOSED PUMPING #2 CHAMBER - 99.4 (ground elev.) 91.0
FIRST FLOOR ELEV - 101.7
BASEMENT LIVE FLOOR 97.7±

SYSTEM DESIGN USE IV SYSTEM 1.0 gal/SQ.FT.
TYPE - 1, 4 BEDROOM - Percolation rate — min./inch (design — min./inch)

Treatment area required w/ 6" of rock filter material — + 10% = 1000 sq.ft. of trench bottom area needed ÷ 36" trench width = 200 lin. ft. of trench needed, number of drop boxes —

Number of tanks required 1, 1st tank 1500 gal., 2nd tank - gal. minimums
DUAL CHAMBER REVERSED

Clean rock 10 cu.yds. (3/4" to 2 1/2" dia., includes 2" above pipe) 1/2 CU.YD. REQUIRED BELOW UNIT.

PUMP #1 Pumping chamber capacity = 25% of daily sewage flow of 600 gal. = 150 gal. + Reserve storage 900 gal. + Pipe back drainage 19 gal. = 1069 gal. cap.
USE MIN. 1500 gal. CAP.
(Reserve storage = 150 gal. 1.5 DAYS / bedroom = 900 gal. + pipe back drainage - 17 gal./100 lin.ft. 2" pipe - length of pipe needed approx 110 ft = 19 gal.)

PUMP #1 Pump size 1/2 hp w/ mercury float pump controls USE 33' HEAD PRESS, DISCHARGE 39 gal/min. 1/2 hp
PUMP #2 WITH TIMER " 1 1/2 " " " 25 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'

REVISED 6-5-20 SPS.
PROPERTY OF: BILL BRAMA
#31 SOUTH LONG LAKE TRAIL
NO. OAKS MN RAMSEY CO.

S-P TESTING INC.
Designed By: ____
Date: 5/19/20, PH. 612-497-3566

July 22, 2020
VARIANCE 20-07
Royce and Kristin Pavelka
31 South Long Lake Trl
North Oaks, MN 55127
RSL Zoning

Date Application Determined Complete:	June 22, 2020
Planning Commission Meeting Date	July 30, 2020
City Council Meeting Date:	August 13, 2020
120 Day Review Date:	November 19, 2020

Description of Request

The applicant is requesting a variance to install a sub-surface sewage treatment system (SSTS), which would encroach 15 feet into the required 30 foot southwest property line setback, 10 feet into the required 30 foot northwest property line setback, and 15 feet into the required 30 southeast property line setback.

The applicable regulations are as follows:

§ 151.050 RSL - RESIDENTIAL SINGLE-FAMILY LOW DENSITY DISTRICT.

(F) Setbacks.

(1) No building or structure (except fences, screening, planting strips, and landscaping in compliance with Sections 151.033 and 151.034), individual sewage treatment system, or well shall be located within thirty (30) feet of the lot lines, the nearest edge of any road easement(s), or any wetland(s), except that additions which do not exceed twenty five (25) percent of the existing building footprint area, on buildings or structures lawfully existing upon the effective date of this chapter shall be excluded from wetland setback requirements.

Staff Review

The current system has been classified as non-compliant under MPCA Rule 7080.1500 Subp. 4 (B) due to the cesspools.

Based on these facts, it is the staff's opinion that the applicant has met the requirements for a variance as outlined in Section 151.078 of the code. We are in agreement with the designer, Steve Schirmers, that the proposed location of the new system appears to be the most viable location for an SSTS. This would be the minimum variance, which would alleviate the practical difficulties.

Action Requested

That the Planning Commission make a recommendation to the City Council to approve or deny Variance #20-07 to encroach 15 feet into the required 30 foot south property line setback, 10 feet into the required 30 foot north property line setback, and 15 feet into the required 30 east property line setback.

Motions

Motion to Approve

MOTION_____SECOND_____

That Variance #20-07, for 31 South Long Lake Trl:

be APPROVED with the following conditions:

1. Completion date 120 days after approval.
2. System to be located per the design dated June 5, 2020 by Steve Schirmers.

Motion to Deny

MOTION_____ SECOND_____

That Variance #20-07, for 31 South Long Lake Trl:

be DENIED with the following findings:

1.

2.

No. 20-06

CITY OF NORTH OAKS, MINNESOTA
APPLICATION FOR CUP, VARIANCE, APPEAL, AMENDMENT, PLAN REVIEW

Location of Property: (address) 33 EAGLE RIDGE RD, NORTH OAKS

Legal Description of Property: Tract _____ RLS _____

Fee Owner: LAWRENCE E. EATON (Name) 2217 Gulf Shore Blvd N Apt 131 (Address)

Naples (City) FL (State) 34102 (Zip) 651-483-3482 (Apr-6/12) 239-262-8243 (To 6/12) (Contact Numbers)

Signature of Fee Owner: L. E. Eaton Date 6/3/2020

Applicant: _____
(if different from owner) Name Address

City State Zip Contact Numbers/s

Signature of Applicant: _____ Date _____

Type of Request: ***(Please circle correct request)***

CONDITIONAL USE PERMIT (as provided for in Chapter 151.076 of Code of Ordinances)

VARIANCE Septic System

APPEAL

AMENDMENT

BUILDING / SITE PLAN REVIEW

OTHER

Please attach **fifteen (10)** copies of detailed written and graphic material fully explaining the proposed request and include the reason for the request, present zoning classification and existing use of the property.

(For office use)

Application received with $450 fee on 6/3/2020 CC Check# 3411 Amt# 450.00

Date for review of completeness fifteen (15) business days from initial receipt 6/24/2020

* If application is deemed incomplete, written notice must be sent to the applicant by above date stating the items that need to be submitted for the application to be deemed complete.

Updated 3/20

Deadline for action sixty (60) days from initial receipt _____

Extended deadline _____

** City may extend the review period by up to sixty days from the end of deadline for action only if applicant is notified in **writing** prior to the end of the initial sixty (60) day review period. The deadline may be extended beyond sixty days with applicant's approval.

Conditional Use or **Amendment** **request - Public Hearing date** _____

Planning Commission action:

Approval or disapproval on _____ with conditions _____

City Council Action:

Approval or disapproval on _____ with conditions _____

Variance, Appeal, Building/Site Plan Review, Other

Action of Board of Adjustment and Appeals:

Approval or disapproval on _____

Bond Required _____ Bond Received on _____

CITY REIMBURSEMENT POLICY

In connection with your request and submittal of material to be reviewed by the City of North Oaks, please be informed that if the City incurs any additional expense in the course of this application review beyond the normal processing fee, the cost will be assessed to the applicant. As authorized in Chapter 151.083 of the Ordinance Code, an applicant will be responsible for full reimbursement of incurred costs to the City of North Oaks. (A copy of this section of the Ordinance is available upon request.)

Your initial application fee of **$450.00** covers the processing of a typical zoning action. A typical process for reviewing a zoning action may include some or all of the following: City employee help in explaining the application process, City employee receipt of completed application and proper scheduling on appropriate agenda, one legal notice for a public hearing (if applicable), written notice to abutting property owners (if applicable) generation of a staff report, presentation of the staff report to the Planning Commission and presentation of the staff report and Planning Commission recommendation to the City Council.

If the scope of your application goes beyond a typical review process, you will be asked for an additional escrow deposit. At that time, you will be advised of the additional review necessary to complete your zoning action request and the potential cost for completing said review. You will be provided written documentation for your acknowledgement that outlines the above two items.

An applicant will be allowed to remove their request at any time during said further review process. Any remaining escrow deposit that is not needed to pay incurred costs to the date of application removal will be refunded to the applicant within sixty days.

I acknowledge that I have read and fully understand the above statements.

L. E. Ernst

Applicant's Signature

Date 6/3/2020

Updated 3/20

CITY OF NORTH OAKS

100 Village Center Dr., Suite 230, North Oaks, MN 55127
(651) 792-7750 Fax: (651) 792-7751

INDIVIDUAL SEWAGE TREATMENT SYSTEM APPLICATION/PERMIT

Application Date 6/3/2020

Job Address 33 Eagle Ridge Rd Permit No. 20-338

Owner Lawrence Eaton Fee Type I, II, III $450
Type IV $450 plus $85/hr.

Installer Capras Utilities Inc

Address 2340 Leibel St WSL MN 55110

Phone No. 651-762-2500 MPCA Certificate No. 1510

Legal Description: RLS_____ Tract_____

Proposed Work

Description Replacement System
(New System, Alteration, Repair)

Type of System Type IV No. of Bedrooms 4

Variance No. (if applicable) yes #20-06 No. of TANKS 3

Signature of Applicant

Mike Capra
Print Name

(For Office Use Only)
Date PD 6/4/2020 *Amt* 450.00 *Ck #* 6206

This permit is granted upon the express condition that the person, partnership, firm or corporation to whom it is granted, together with the agents, employees, workers, and sub-contractors agree to abide by and conform to all Ordinances of the City of North Oaks regarding the construction, alteration, and repair of sewage treatment systems within the City; and that this permit may be revoked at any time upon evidence of violations of any of the provisions of said ordinances.

PERMITS ARE VALID FOR 180 DAYS

Approval Date *Sanitary Inspector*

CUP 20-06

33 Eagle Ridge Road
Applicant: Lawrence Eaton

Abutters:

29, 32, 35, 36 Eagle Ridge Road
13, 15 Spring Farm Lane
38, 40 East Pleasant Lake Road

COPY

City of North Oaks
100 Village Center Drive, Suite 230
North Oaks, MN 55127

July 17, 2020

Current Resident
29 Eagle Ridge Road
North Oaks, MN 55127

PLANNING COMMISSION MEETING INFORMATION
July 30, 2020 at 7:00 p.m.
Electronic Means only, and viewing via live CTV broadcast

Dear Current Resident:

An application for Septic Variance at 33 Eagle Ridge Road has been received by the City of North Oaks. The North Oaks Planning Commission will consider this request at their next meeting on July 30, 2020 at 7:00 p.m.

Applicant: Lawrence Eaton
Site Location: 33 Eagle Ridge Road
Request: Subsurface Sewage Treatment System ordinance 51.02, section 11 requires a septic variance application, for purposes of addressing a replacement septic system with a variance from the setback to the South property border and the right of way from Eagle Ridge Road.
Notification: You are hereby notified of a meeting before the City of North Oaks Planning Commission.
Information: The final information packet will be available for review after 7/24/2020 at www.cityofnorthoaks.com.

Those persons having an interest in said meeting are encouraged to participate. The meeting will take place by remote telephone or other electronic means only as meeting in-person has been deemed to be neither practical nor prudent, and it is unfeasible to have any members of the Planning Commission or public present at the physical meeting location, namely the Community Room, 100 Village Center Drive, North Oaks, MN, due to the health pandemic and emergency declaration.

Those wishing to submit written public comment as part of the meeting packet on the Septic Variance application may email the City Administrator, Kevin Kress at kkress@cityofnorthoaks.com by July 23, 2020 at 4:00 p.m. **Individuals wishing to provide public comment/make a presentation at the meeting may do so by calling the following these instructions:**

Please click the link below to join the webinar:
https://us02web.zoom.us/j/82978289659?pwd=RGhXTjh6b1pQanE0Z3NGV3dSd0RQUT09
Password: 724124
Or Telephone: US: +1 312 626 6799 Webinar ID: 829 7828 9659

Individuals wishing to monitor the meeting remotely may do so in real time by watching the livestream of the meeting on North Oaks Channel 16 and on the City's website.

In addition, you may call the City offices if you have any questions at 651-792-7750.

Sincerely,

Deb Breen

Debbie Breen, Administrative Assistant

100 Village Center Drive, Suite 230 • North Oaks, Minnesota 55127
Office: 651-792-7750 • Fax: 651-792-7751 • noaks@cityofnorthoaks.com • www.cityofnorthoaks.com

5/16/2020

KSD

Your water. Our neighbors.

SSTS Design

33 Eagle Ridge Road,
North Oaks, MN 55127

PID # 083022330020

Version 2.0

Kloeppner Services & Designs, LLC
MPCA LICENSE # 4043

763.843.4114
CONNECT@KSD-MN.COM

Prepared by KSD @ 2020

SSTS Design Summary Report

5/16/20

On May 1st, 2020, a site evaluation was conducted at 33 Eagle Ridge Road, North Oaks, MN 55127 in Ramsey County to create a replacement Subsurface Sewage Treatment System (SSTS) for the existing 4-bedroom home. The PID number is 083022330020. The new SSTS is a Type IV system with Level A treated effluent and a new Mound dispersal bed. The system will require a new Trash Tank, a new ECOPOD E60-N Reactor Tank and a new Dose Tank.

This design will require a variance from the setback to the property border and the right of way from Eagle Ridge Road. A separate variance document will need to be completed and sent to the City of North Oaks with the application. No survey or wetland delineations were completed prior to the design. All measurements should be confirmed by the owner and the installing contractor.

Prior to submitting for permit from City of North Oaks) please review and sign all pages which require a signature. An Operating Permit must be received by City of North Oaks prior to construction and usage of this design.

Wastewater Sources & Peak Flow Rate

The expected waste strength is Residential Wastewater with a Peak flow of 600 gallons per day (GPD) for a 4-bedroom house. The Actual Expected Daily Flow should be less than 70% of the Peak Flow (420 GPD).

Septic Tanks

The existing tank must be pumped, crushed and filled. The new septic, reactor tanks and Dose Tank are as follows:

- 1,000-gallon – Trash / Settling Tank w/ Effluent Filter
- 1,050-gallon – E60-N Reactor Tank
- 1,000-gallon - Dose Tank

Type IV – Level A Treatment Technology

Due to the size of the available space, this system will use pretreatment technology to clean the effluent prior to dispersal to reduce the required 36" of vertical separation to 12" in depth. The reduced separation will allow for the installation of a Mound dispersal bed with a much smaller footprint. The Type IV technology – Level A Treatment System will require additional operation, maintenance, and management than a standard Type I SSTS solution for treating wastewater.

There are some changes to the usage and operation of this septic system worth noting. Here are some estimated costs for the inclusion and maintenance of an ECOPOD E60-N on this site:

- An Operating Permit will be required by City of North Oaks ~ $100 annually.
- Two maintenance visits per year. Approx. $750 - $1,000 annually.
- Consumable parts: UV Bulbs ($100) & Aeration Blowers ($600).

Infiltrator Systems (Delta Products) – ECOPOD E60-N w/ Salcor UV Assembly

Infiltrator Systems' ECOPOD Dealer - Dakota Supply Group (DSG) will supply the required unit to the installer. All tanks and components must follow the requirements in the ECOPOD manual and specifications in the Product Registration from MPCA for Type IV systems.

The Dealer will also provide the owner of the system with the following:

- Owner's Manual
- Contact Information to hire Local Service Provider for warrantied and non-warrantied maintenance.
- All required components for Installer to properly install the system.
- Training for Installer, as necessary

A Salcor UV light assemblies will need to be included with the E60-N treatment system. The UV Assemblies must be installed at the inlet of Dose Tank. See attached Drawings for details.

Time Dose Control Panel

A time-dosing control panel must be installed to operate all dosing pump cycles. The panel must include the ability to record cycle events and set the cycle intervals to specified On and Off times.

Type III – Mound

The dispersal area will be a Type III – Mound. The Mound Soil Absorption Area required is 1,000 sqft. The mound absorption area was increased to account for disturbed soil removal and replacement.

The reason for the Type III dispersal bed is due to the limited space on the property and the lack of 12" of soil separation to the limiting soil condition in absorption area.

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.

Other Considerations

1. Type IV Level A SSTS is necessary due to lack available land space, extreme 18% slope for mound absorption area and wet soil requires building smallest system possible.
2. Variance request necessary for Setbacks to property boundary, Road Right of Way and pond/wetland. The variance needed from the Property Boundary is 30' on SE border. A variance is needed for the use of the Right of Way along Eagle Ridge Road.
3. Access around the house will be difficult. The area is often wet and will required extra measures by contractor to protect ground and equipment.
4. Sewerline will need to be directionally bore to an Inlet Elevation of ~ 85.5' to South of house.
5. The current ground elevation of the area for the new tanks is 93.0' and would require the tanks to be buried 6.5' deep. It is recommended to lower the grade to 90.5'.
6. It is advised to lower the SW corner of the the lot and the hillside on the West to allow for drainage from SW corner of property at the elevation of 90.0'.
7. The required tankage and system components are detailed in ECOPOD specifications with this design. All requirements by manufacturer must be followed.

8. System will require semi-annual maintenance and testing to remain compliant with City of North Oaks septic program.

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 final survey or location of system components.

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.

MapRamsey

33 Eagle Ridge Road, North Oaks

100.0 0 50.00 100.0 Feet

NAD_1983_HARN_Adj_MN_Ramsey_Feet

© Ramsey County Enterprise GIS Division

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

LEGEND:

W = Well
SB = Soil Boring
SP = Soil Pit

= Benchmark

NOTES:

1. Type IV Level A SSTS is necessary due to lack available land space, extreme 18% slope for mound absorption area and wet soil requires building smallest system possible.
2. Variance request necessary for Setbacks to property boundary, Road Right of Way and pond/wetland. The variance needed from the Property Boundary is 30' on SE border. A variance is needed for the use of the Right of Way along Eagle Ridge Road.
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6. It is advised to lower the SW corner of the the lot and the hillside on the West to allow for drainage from SW corner of property at the elevation of 90.0'.
7. The required tankage and system components are detailed in ECOPOD specifications with this design.

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

MOUND DIMENSIONS
Rockbed - 10' x 50'
Absorption Bed - 20' x 50'
Total Mound - 50.4' x 80.6'
Mound Slope Ratio - 3:1

Upslope Elev. - 99.9'
Min: Sand Height - 12" @ 100.9'
Rockbed Laterals Elev. - 101.7'
Height @ Crown Elev. - 103.2'

LATERALS
3 - Laterals @ 48' of 1-1/2" SCH40
Spacing - 3'
Drilled Holes - 3/16"

KSD

Kloeppner Services & Designs, LLC
Lic # 4043

Approved by: Jesse Kloeppner

Date - 5/16/20

Materials & Specifications

33 Eagle Ridge Road, North Oaks

KSD
Your water. Our neighbors.

Tankage

- 1,000-gallon Trash Tank w/ Effluent Filter
- 1,050-gallon Reactor Tank
- 1,000-gallon Dose Tank

ECOPOD E60N w/ Salcor UV Light Assembly

- E60-N Unit from Dealer (DSG) installed in Reactor Tank
- 1 - Salcor UV Assembly installed at Dose Tank inlet

Effluent Filter & Alarm

- Polylok 525 w/ Reed Switch for Alarm
- Singlel-Alarm Box located in or near house (or Installer equivalent)
- Electrical wire & Junction Box
- Dedicated 120V circuit from house for alarm

Sewer Line

- 120' - 4" Sch 40 dia. Pipe (Directional Bore ~ 100')
- Fittings, as necessary

Pump – Installer Choice

- Pump Specs: 22 GPM -23 TDH

Timed-Dose Control Panel

- Timed-Dose Panel with ETM & CT counters and floats
- Dedicated 20 amp, 120V circuit from house to Control Panel
- Electrical wire, as necessary

Supply Line to Pressure Laterals

- 120' - 2" sch 40 pipe
- Fittings, as necessary

Pressure Laterals

- 3 –48' long 1-1/2" sch 40 pipe
- 3' spacing (orifices)
- 3/16" diameter orifices (drilled holes)
- Clean-outs at end of each lateral
- 1 ½" Bends, couplings, sweeps and fittings, as necessary

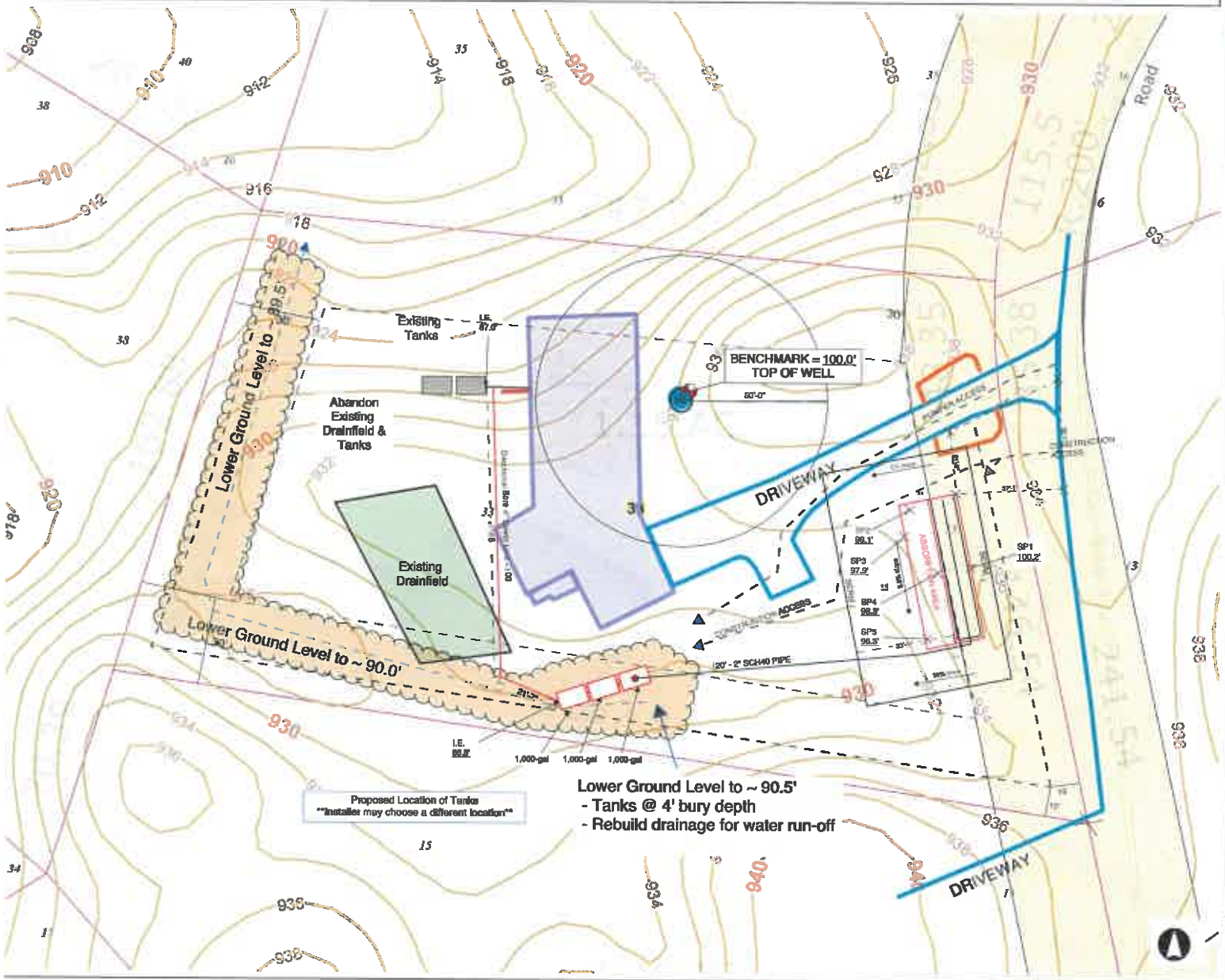
Dispersal Area

- Absorption Area – 20' x 50'
- Rock depth of 6" + min 3.5" to cover pipe
- Washed-Mound Sand – Min. Height: 12"
- Backfill & Black dirt – See Mound Calculation worksheets

*Note: All materials quantities for pipe, sand, rock, etc. are only estimates.
**Tonnage calculations for materials may differ from actual volume used onsite.#

MapRamsey

33 Eagle Ridge Road, North Oaks



100.0 0 50.00 100.0 Feet

NAD_1983_HARN_Adj_MN_Ramsey_Feet
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LEGEND:

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

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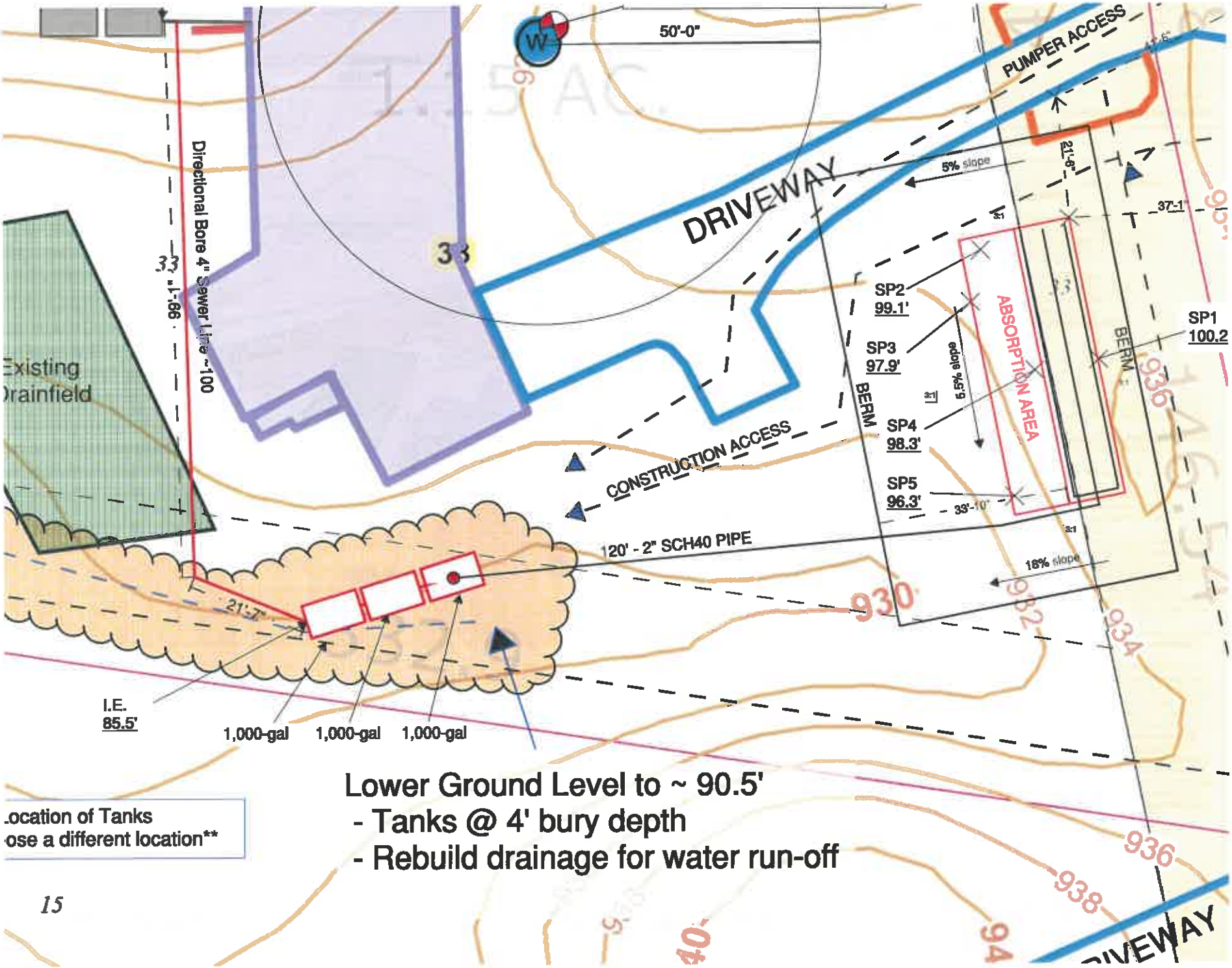
Rockbed Laterals Elev. - 101.7'
Height @ Crown Elev. - 103.2'

LATERALS
3 - Laterals @ 48' of 1-1/2" SCH40
Spacing - 3'
Drilled Holes - 3/16"

KSD
Kloeppner Services & Designs, LLC
Lic # 4043

Approved by: Jesse Kloeppner

Date - 5/16/20


50'-0"
PUMPER ACCESS
DRIVEWAY
5% slope
21'-8"
37'-1"
Directional Bore 4" Sewer Line ~100
33'-1"-66'
Existing Drainfield
SP2
99.1'
SP3
97.9'
SP4
98.3'
SP5
96.3'
SP1
100.2
ABSORPTION AREA
BERM
BERM
CONSTRUCTION ACCESS
33'-10"
120' - 2" SCH40 PIPE
18% slope
21'-7"
930
932
934
936
938
I.E.
85.5'
1,000-gal
1,000-gal
1,000-gal
Location of Tanks
ose a different location**
Lower Ground Level to ~ 90.5'
- Tanks @ 4' bury depth
- Rebuild drainage for water run-off
15

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 04.02.2019

Property Owner/Client: Lawrence Eaton | Date Completed: 11/6/2019

Site Address: 33 Eagle Ridge Rd, North Oaks, MN 55127 | Project ID:

Legal Description: SUB TO AND WITH PVT RD ESMTS TRACT H

Parcel ID: 083022330020 | TWP: 30 | SEC: 8 | 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: 4 | Dwelling Sq.ft.: 2787 | Unfinished Sq. Ft.:

Adults: | # Children: | # Teenagers:

In-home business (Y/N): NA | 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 information

Attach additional information as necessary.

Design Flow: 600 GPD | Anticipated Waste Type: Residential

BOD: 170 mg/L | TSS 60 mg/L | Oil & Grease 20 mg/L

3. Well Information

#	Description	Mn. ID#	Well Depth (ft.)	Casing Depth (ft.)	Confining Layer	STA Setback	Source
1	33 Eagle Ridge Rd	14258	205	176		50	MN Well Index
2	18 Spring Farm La	13892	195	161		50	MN Well Index
3							
4							

Additional Well Information: New non-sensitive well must be >50' from tanks & STA

Onsite Sewage Treatment Program

Preliminary Evaluation Worksheet

MINNESOTA POLLUTIO 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 a 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:	
Elevation of ordinary high water level:	ft	Source:	
Classification:	Tank Setback: ft.	STA Setbk: ft.	
C. Site located in a floodplain?	No	Yes, Type(s):	
Floodplain designation/elevation (10 Year):	ft	Source:	
Floodplain designation/elevation (100 Year):	ft	Source:	

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: 342C, Kingsley sandy loam — Slope Range: 6-12 %

List landforms: Moraines

Landform position(s): Shoulder

Parent materials: Till

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

Map Unit Ratings

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

5. Local Government Unit Information

Name of LGU:	City of Dellwood
LGU Contact:	Midwest Soil Testing
LGU-specific setbacks:	
LGU-specific design requirements:	1,500 & 1,000 gallon Septic Tanks for 4 Bedroom House
LGU-specific installation requirements:	
Notes:	

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 04.02.2019

Property Owner/Client: Lawrence Eaton | Project ID:

Site Address: 33 Eagle Ridge Rd, North Oaks, MN 55127 | Date Completed: 5/1/2020

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 / Forest | Landscape position: Back/ Side Slope

Percent slope: 20 % | Slope shape: Concave, Concave | Slope direction: northwest

Describe the flooding or run-on potential of site: Direct run-off around upslope of mound

Describe the need for Type III or Type IV system: The small lot does not provide enough space for Type I.

Note: Additionally, the steep slopes and wet soil requires building smallest system possible.

Elevations and Benchmarks identified on map? (Y/N): Yes | If yes, describe: See Site Plan

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

4. General Soils Information

Filled, Compacted, Disturbed areas (Y/N): No

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				
Periodically saturated soil:		in	99.9	ft	Soil Texture:	Fine sandy loam	
Standing water:		in		ft	Percolation Rate:		min/inch
Bedrock:		in		ft	Soil Hyd Loading Rate:	0.6	gpd/ft^2
Benchmark:			100	ft			

Benchmarck Location: Top of Well

Differences between soil survey and field evaluation:

Site evaluation issues / comments:

Anticipated construction issues: Steep Slope, Tank positioning, Wall

Design Summary Worksheet

1. PROJECT INFORMATION v 04.02.2019

Property Owner/Client: Lawrence Eaton | Project ID:

Site Address: 33 Eagle Ridge Rd, North Oaks, MN 55127 | Date: 05/16/20

2. DESIGN FLOW & WASTE STRENGTH *Attach data / estimate basis for Other Establishments*

Design Flow: 600 GPD | Anticipated Waste Type: Residential

BOD: 170 mg/L TSS: 60 mg/L Oil & Grease: 20 mg/L

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

3. HOLDING TANK SIZING

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

Code Minimum Holding Tank Capacity: Gallons in Tanks or Compartments

Recommended Holding Tank Capacity: Gallons in 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: 1000 Gallons in 1 Tanks or Compartments

Recommended Septic Tank Capacity: 1000 Gallons in 1 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 in Tanks or Compartments

Recommended Septic Tank Capacity: Gallons in Tanks or Compartments

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

5. PUMP TANK SIZING

Pump Tank 1 Capacity (Minimum): 600 Gal

Pump Tank 1 Capacity (Recommended): 1000 Gal

Pump 1 22.0 GPM Total Head 23.0 ft

Supply Pipe Dia. 2.00 in Dose Vol: 70.0 gal

Pump Tank 2 Capacity (Minimum): Gal

Pump Tank 2 Capacity (Recommended): Gal

Pump 2 GPM Total Head ft

Supply Pipe Dia. Dose Vol: Gal

Design Summary Worksheet

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Mound	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	100 ft	Benchmark Location:	Top of Well
MPCA System Type:	Type IV	Distribution Media:	Rock
Type III/IV Details:	See Site Plan		

7. SITE EVALUATION SUMMARY:

Describe Limiting Condition: Redoximorphic Features/Saturated Soils

Layers with >35% Rock Fragments? (yes/no) Yes 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 Boring Logs

	Depth		Depth		Elevation	
Limiting Condition:	0	inches	0.0	ft	99.9	ft
Minimum Req'd Separation:	12	inches	1.0	ft		
Code Max System Depth:	Mound	inches	-1.0	ft	Elevation 100.9	ft

Critical for system compliance

This is the maximimum depth to the bottom of the distribution media. Negative Depth (ft) means it must be a mound.

Soil Texture:	Fine Sandy Loam		
Soil Hyd. Loading Rate:	0.60 GPD/ft^2	Percolation Rate:	MPI
Contour Loading Rate:	12	Note:	
Measured Land Slope:	18.0 %	Note:	
Comments:			

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area	ft^2	Sidewall Depth	in	Trench Width	ft
Total Lineal Feet	ft	No. of Trenches		Code Max. Trench Depth	in
Contour Loading Rate	ft	Min. Length	ft	Designed Trench Depth	in

Bed:

Dispersal Area	ft^2	Sidewall Depth	in	Maximum Bed Depth	in
Bed Width	ft	Bed Length	ft	Designed Bed Depth	in

Mound:

Dispersal Area	500.0 ft^2	Bed Length	50.0 ft	Bed Width	10.0 ft
Absorption Width	20.0 ft	Clean Sand Lift	3.0 ft	Berm Width (0-1%)	ft
Upslope Berm Width	6.6 ft	Downslope Berm	33.8 ft	Endslope Berm Width	15.3 ft
Total System Length	80.6 ft	System Width	50.4 ft	Contour Loading Rate	12.0 gal/ft

Design Summary Worksheet

Project ID:

At-Grade:

Bed Width	ft	Bed Length	ft	Finished Height	ft
Contour Loading Rate	gal/ft	Upslope Berm	ft	Downslope Berm	ft
Endslope Berm	ft	System Length	ft	System Width	ft

Level & Equal Pressure Distribution

No. of Laterals	3	Perforation Spacing	3 ft	Perforation Diameter	3/16 in
Lateral Diameter	1.50 in	Min Dose Volume	63 gal	Max Dose Volume	150 gal

Non-Level and Unequal Pressure Distribution

	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

Design Summary Worksheet

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

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

600 gpd X 300 mg/L X 8.35 ÷ 1,000,000 = 1.50 lbs. BOD/day

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

600 gpd X 15 mg/L X 8.35 ÷ 1,000,000 = 0.08 lbs. BOD/day

Lbs. BOD To Be Removed: 1.43

PreTreatment Technology: ECOPOD - E60N *Must Meet or Exceed Target

Disinfection Technology: Salcor UV *Required for Levels A & B

C. Organic Loading to Soil Treatment Area:

15 mg/L X 600 gpd x 8.35 ÷ 1,000,000 ÷ 500 ft^2 = 0.00015 lbs./day/ft^2

10. Comments/Special Design Considerations:

1. Type IV Level A SSTS is necessary due to lack available land space, extreme 18% slope for mound absorption area and wet soil requires building smallest system possible.
2. Variance request necessary for Setbacks to property boundary, Road Right of Way and pond/wetland. The variance needed from the Property Boundary is 30' on SE border. A variance is needed for the use of the Right of Way along Eagle Ridge Road.
3. Access around the house will be difficult. The area is often wet and will required extra measures by contractor to protect ground and equipment.
4. Sewerline will need to be directionally bore to an Inlet Elevation of ~ 85.5' to South of house.
5. The current ground elevation of the area for the new tanks is 93.0' and would require the tanks to be buried 6.5' deep. It is recommended to lower the grade to 90.5'.
6. It is advised to lower the SW corner of the the lot and the hillside on the West to allow for drainage from SW corner of property at the elevation of 90.0'.
7. The required tankage and system components are detailed in ECOPOD specifications with this design. All requirements by manufacturer must be followed.
8. System will require semi-annual maintenance and testing to remain compliant with City of North Oaks septic program.

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

Jesse Kloeppner		L4043	5/16/2020
(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 04.02.2019

A. Design Flow:	600	GPD
B. Soil Loading Rate:	0.60	GPD/ft^2
C. Depth to Limiting Condition	0.0	ft
D. Percent Land Slope:	18.0	%
E. Design Media Loading Rate:	1.2	GPD/ft^2
F. Mound Absorption Ratio:	2.00	

Table I
MOUND CONTOUR LOADING RATES:

Measured Perc Rate	OR	Texture - derived mound absorption ratio		Contour Loading Rate:
≤ 60mpi	OR	1.0, 1.3, 2.0, 2.4, 2.6	→	≤12
61-120 mpi	OR	5.0	→	≤12
≥ 120 mpi*	OR	>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/ft^2)	Treatment Level C: Mound Absorption Ratio	Treatment Level A, A-2, B: Absorption Area Loading Rate (gpd/ft^2)	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. Calculate Dispersal Bed Area: Design Flow ÷ Design Media Loading Rate = ft^2

600 GPD ÷ 1.2 GPD/ft^2 = 500 ft^2

If a larger dispersal media area is desired, enter size: ____ ft^2

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

C. Calculate Contour Loading Rate: Bed Width X Design Media Loading Rate

10 ft^2 X 1.2 GPD/ft^2 = 12.0 gal/ft *Can not exceed Table 1*

D. Calculate Minimum Dispersal Bed Length: Dispersal Bed Area ÷ Bed Width = Bed Length

500 ft^2 ÷ 10.0 ft = 50.0 ft

3. ABSORPTION AREA SIZING

A. Calculate Absorption Width: Bed Width X Mound Absorption Ratio = Absorption Width

10.0 ft X 2.0 = 20.0 ft

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

Calculate Downslope Absorption Width: Absorption Width - Bed Width

20.0 ft - 10.0 ft = 10.0 ft

4. DISTRIBUTION MEDIA: ROCK

Project ID:

A. Rock Depth Below Distribution Pipe

6 in 0.50 ft

5. DISTRIBUTION MEDIA: REGISTERED TREATMENT PRODUCTS: CHAMBERS AND EZFLOW

A. Enter Dispersal Media:

B. Enter the Component: Length: ft Width: ft Depth: ft

C. Number of Components per Row = Bed Length divided by Component Length (Round up)

ft ÷ ft = components/row

D. Actual Bed Length = Number of Components/row X Component Length:

components X ft =

Check registered product information for specific application details and design

E. Number of Rows = Bed Width divided by Component Width (Round up)

ft ÷ ft = rows *Adjust width so this is a whole number.*

F. Total Number of Components = Number of Components per Row X Number of Rows

X = components

6. MOUND SIZING

A. Calculate Minimum Clean Sand Lift: 3 feet minus Depth to Limiting Condition = Clean Sand Lift

3.0 ft - ft = 3.0 ft Design Sand Lift (optional): 1 ft

B. Upslope Height: Clean Sand Lift + Depth of Media + Depth of Cover cover (1 ft.)

1.0 ft + 0.8 ft + 1.5 ft = 3.3 ft

C. Select Upslope Berm Multiplier (based on land slope): 2.00

D. Calculate Upslope Berm Width: Multiplier X Upslope Mound Height = Upslope Berm Width

2.00 ft X 3.3 ft = 6.6 ft

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

10.0 ft X 18.0 % ÷ 100 = 1.80 ft

F. Calculate Downslope Mound Height: Upslope Height + Drop in Elevation = Downslope Height

3.3 ft + 1.80 ft = 5.1 ft

G. Select Downslope Berm Multiplier (based on land slope): 6.63

H. Calculate Downslope Berm Width: Multiplier X Downslope Height = Downslope Berm Width

6.63 x 5.1 ft = 33.8 ft

I. Calculate Minimum Berm to Cover Absorption Area: Downslope Absorption Width + 4 feet

10.0 ft + 4 ft = 14.0 ft

J. Design Downslope Berm = greater of 4H and 4I: 33.8 ft

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

L. Calculate Endslope Berm X Downslope Mound Height = Endslope Berm Width

3.00 ft X 5.1 ft = 15.3 ft

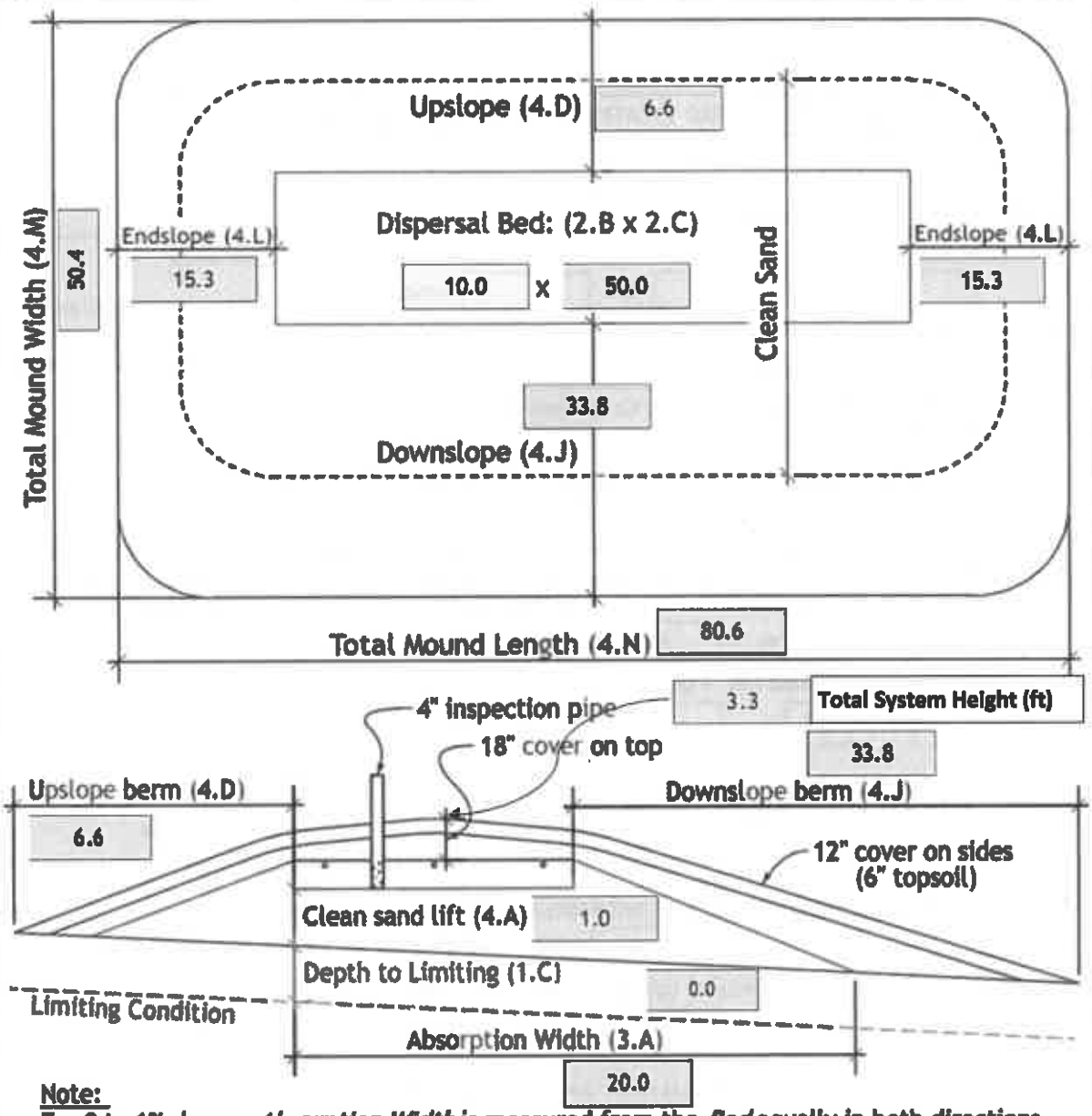
M. Calculate Mound Width: Upslope Berm Width + Bed Width + Downslope Berm Width

6.6 ft + 10.0 ft + 33.8 ft = 50.4 ft

N. Calculate Mound Length: Endslope Berm Width + Bed Length + Endslope Berm Width

15.3 ft + 50.0 ft + 15.3 ft = 80.6 ft

7. MOUND DIMENSIONS Project ID:



Note:
For 0 to 1% slopes, ***Absorption Width*** is measured from the ***Bed*** equally in both directions.
For slopes >1%, ***Absorption Width*** is measured downhill from the upslope edge of the ***Bed***.

Comments:

There are large trees which will need to be removed. All berms calculated at 3:1 ratio.

ONSITE SEWAGE TREATMENT PROGRAM

Mound Materials Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

v 04.02.2019

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

(6 in + 3.5) ÷ 12 50.0 ft X 10.0 ft = 395.8 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 395.8 ft^3 ÷ 27 = 14.7 yd^3

Add 30% for constructability: 14.7 yd^3 X 1.3 = 19.1 yd^3

B. Calculate *Clean Sand Volume:*

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

2.2 ft X 10.0 ft X 50.0 ft = 1100.0 ft^3

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*

ft^3 + ft^3 + ft^3 = ft^3

For a Mound on a slope greater than 1%

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

((3.3 ft - 1) X 3.0 ft X 50.0) ÷ 2 = 172.5 ft^3

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

((5.1 ft - 1) X 10.0 ft X 50.0) ÷ 2 = 1025.0 ft^3

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

(5.1 ft - 1) X 3.0 ft X 10.0 ft = 123.0 ft^3

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

172.5 ft^3 + 1025.0 ft^3 + 123.0 ft^3 + 1100.0 ft^3 = 2420.5 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 2420.5 ft^3 ÷ 27 = 89.6 yd^3

Add 30% for constructability: 89.6 yd^3 X 1.3 = 116.5 yd^3

C. Calculate *Sandy Berm Volume:*

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

(4.2 - 0.5)ft X 50.4 ft X 80.6) ÷ 2 = 7517.1 ft^3

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

7517.1 ft^3 - 2420.5 ft^3 - 395.8 ft^3 = 4700.7 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 4700.7 ft^3 ÷ 27 = 174.1 yd^3

Add 30% for constructability: 174.1 yd^3 x 1.2 = 226.3 yd^3

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

50.4 ft X 80.6 ft X 0.5 ft = 2031.6 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 2031.6 ft^3 ÷ 27 = 75.2 yd^3

Add 30% for constructability: 75.2 yd^3 x 1.3 = 57.9 yd^3

Onsite Sewage Treatment Program

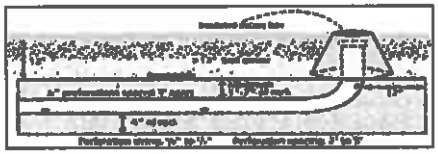
Pressure Distribution Design Worksheet

Minnesota Pollution Control Agency

Project ID: v 04.02.2019

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 - 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* by the *Perforation Spacing* 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*. 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						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	10	13	18	30	60	2	11	16	21	34	68
2½	8	12	16	28	54	2½	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60
3/16 Inch Perforations						**1/8 Inch Perforations**					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	12	18	26	46	87	2	21	33	44	74	149
2½	12	17	24	40	80	2½	20	30	41	69	135
3	12	16	22	37	75	3	20	29	38	64	128

9. *Total Number of Perforations* equals the *Number of Perforations per Lateral* multiplied by the *Number of Perforated Laterals.*

   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
10. Select *Type of Manifold Connection* (End or Center): End
11. *Select Lateral Diameter (See Table)*: 1.50 in

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

12. 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 ft²

    b. *Square Foot per Perforation* = *Bed Area* divided by the *Total Number of Perforations*.

    500 ft² ÷ 51 perforations = 9.8 ft²/perforations

13. Select *Minimum Average Head*: 1.0 ft

14. Select *Perforation Discharge* (GPM) based on Table: 0.41 GPM per Perforation

15. Determine required *Flow Rate* by multiplying the *Total Number of Perfs.* by the *Perforation Discharge*.

    51 Perfs X 0.41 GPM per Perforation = 22 GPM

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

17. *Volume of Distribution Piping* =
    = [*Number of Perforated Laterals* X *Length of Laterals* X (Volume of Liquid Per Foot of Distribution Piping]

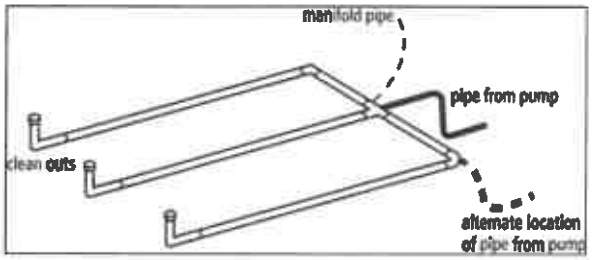
    3 X 48 ft X 0.110 gal/ft = 15.8 Gallons

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

    15.8 gals X 4 = 63.4 Gallons

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 Pump Selection Design Worksheet

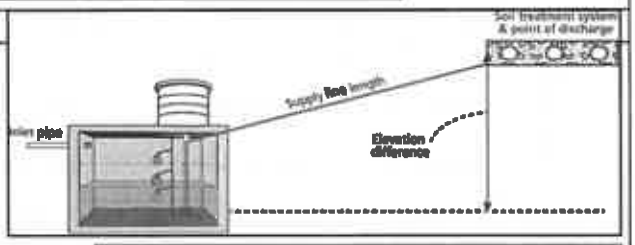
MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY Project ID: v 04.02.2019

Pumping to Gravity or Pressure Distribution: **Pressure**

1. If pumping to gravity enter the gallon per minute of the pump: _____ GPM *(10 - 45 gpm)*
2. If pumping to a pressurized distribution system: 22.0 GPM
3. Enter pump description: Equalization/Time Dosing

2. HEAD REQUIREMENTS



A. Elevation Difference between pump and point of discharge: 16 ft

B. Distribution Head Loss: 5 ft

C. Additional Head Loss: 0.0 ft (due to special equipment, etc.)

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: 120 ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = 1.34 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 (D.2)* X 1.25 = *Equivalent Pipe Length*

120 ft X 1.25 = 150.0 ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* (Line E) by the *Equivalent Pipe Length* (Line F) and divide by 100.

Supply Friction Loss =

1.34 ft per 100ft X 150.0 ft ÷ 100 = 2.0 ft

H. *Total Head* requirement is the sum of the *Elevation Difference* (Line A), the Distribution Head Loss (Line B), Additional Head Loss (Line C), and the Supply Friction Loss (Line G)

16.0 ft + 5.0 ft + 0.0 ft + 2.0 ft = 23.0 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **22.0** GPM (Line 1 or Line 2) with at least **23.0** feet of total head.

Comments:

Pump Tank Design Worksheet (Time Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS | Project ID: | v 04.02.2019

1. A. *Design Flow (Design Sum. 1A)*: 600 GPD B. Tank Use: Dosing
   C. 70% of Design Flow: 420 Gal
   D. Min. required pump tank capacity: 600 Gal E. Recommended capacity: 1000 Gal

2. A. Tank Manufacturer: Minnesota Precast B. Tank Model: 1,000 Gallon Dose Tank
   C. Capacity from manufacturer: 1000 Gallons
   D. Gallons per inch: 25.0 Gallons per inch
   E. Liquid depth of tank from manufacturer: 40.0 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 pump should be 4 in from the bottom of the 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 25.0 Gallons Per Inch = 300 Gallons

4 *Minimum Delivered Volume* = 4 X Volume of Distribution Piping:
-Item 18 of the Pressure Distribution or Item 11 of Non-level 63 Gallons (minimum dose) 2.5 inches/dose

5 Calculate *Maximum Pumpout Volume* (25% of Design Flow)
Design Flow: 600 GPD X 0.25 = 150 Gallons (maximum dose) 6.0 inches/dose

6 *Select a pumpout volume that meets both Minimum and Maximum:* 70 Gallons

7 Calculate *Doses Per Day* = Design Flow X 70% ÷ *Delivered Volume*
420 gpd ÷ 70 gal = 4.2 *Doses*

8 Calculate Drainback:
A. *Diameter of Supply Pipe* = 2 inches
B. Length of Supply Pipe = 120 feet
C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.170 Gallons/ft
D. *Drainback = Length of Supply Pipe X Volume of Liquid Per Lineal Foot of Pipe*
120 ft X 0.170 gal/ft = 20.4 Gallons

9. *Total Dosing Volume = Delivered Volume plus Drainback*
70 gal + 20.4 gal = 90 Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank
3 in X 25.0 gal/in = 75.0 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

TIMER FLOAT SETTINGS*

11. Required *Flow Rate*:
A. From Pump Curve - Must be Validated after Installation: 42 GPM
B. Calculated GPM = Change in Depth (in) x Gallons Per Inch / Time Interval in Minutes
in X 25.0 gal/in ÷ min = GPM

**Note: This value must be adjusted after installation based on pump calibration.*

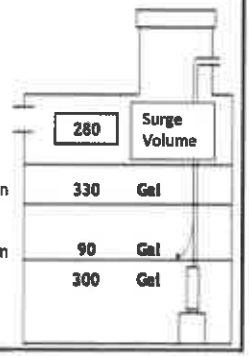
12. Select Flow Rate from Line 11.A or 11.B above: 42.0 GPM*

13. Calculate TIMER ON setting:
Total Dosing Volume x GPM
90 gal x 42.0 gpm = 2.2 Minutes ON*

14. Calculate TIMER OFF setting:
Minutes Per Day (1440)/*Doses Per Day* - Minutes On
1440 min ÷ 4 doses/day - 2.2 min = 340.7 Minutes OFF*

15. Pump Off Float - Measuring from bottom of tank:
Distance to set Pump Off Float=Gallons to Cover Pump / Gallons Per Inch:
300 gal ÷ 25.0 gal/in = 12.0 inches

16. Alarm Float - Measuring from bottom of tank (90% recommended):
Distance to set Alarm Float = Tank Depth X % of Tank Depth (0.9 recommended)
40.0 in X 0.72 = 28.8 in 420 gallons from Off to HLA



NOTE: The High Level Alarm float should be set at 420 gallons above the Timer Off float. There should be enough tank volume above High Level Alarm float to handle 280 gallons of surge flow before over-flowing.

Soil Observation Log

Project ID:

v 04.02.2019

Client:	Lawrence Eaton	Location / Address:	33 Eagle Ridge Rd, North Oaks, MN 55127

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

Landscape Position: (check one) ☐ Summit ☒ Shoulder ☐ Back/Side Slope ☐ Foot Slope ☐ Toe Slope | Slope shape: Convex, Linear

Vegetation:	Lawn	Soil survey map units:	342C	Slope %:	12%
Elevation (ft):	100.2'				

Weather Conditions/Time of Day:	Sunny / 1:45pm	Date:	05/01/20 [redacted]
Observation #/Location:	SP1 [redacted] / see map	Observation Type:	Soil Pit [redacted]

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-4	FSL	0%	10YR 3/2				GR	W	FR
4-10	LFS	5%	2.5Y 5/3				GR	W	FR
10-18	CL	5%	2.5Y 5/4	10YR 5/6	C	S1	B	M	FM
				2.5Y 5/2	D	S1			
18-24	SCL	5%	10YR 5/2	10YR 6/2	D	S1	B	M	EX FM
				7.5YR 6/6	C	S1			
24-36	CL	5%	7.5YR 5/6	5YR 5/6	C	S1	B	M	EX FM
				7.5YR 6/2	D	S1			

Comments LL = 10" - 99.4'

Additional Soil Observation Logs

Project ID:

Client:	Lawrence Eaton	Location / Address:	33 Eagle Ridge Rd, North Oaks, MN 55127

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

Landscape Position: (check one) ☐ Summit ☒ Shoulder ☐ Back/Side Slope ☐ Foot Slope ☐ Toe Slope | Slope shape: Convex, Linear

Vegetation:	Lawn	Soil survey map units:	342C	Slope %:	5 %
Elevation (ft):	99.1				

Weather Conditions/Time of Day: Sunny / 2:00 pm | Date: 05/01/23

Observation #/Location: SP2 / See Map | Observation Type: Soil Pit

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-5	FSL	5%	10YR 3/2				GR	W	FR
5-12	LFS	10%	2.5Y 5/3	10YR 5/4	C	S1	SG	STRW	L
				10YR 5/2	D	S1			
12-24	SCL	10%	10YR 5/3	5YR 5/6	C	S1	B	M	FM
				10YR 5/2	D	S1			
24-36	SCL	5%	5YR 4/4	10YR 5/2	D	S1	B	M	FM

Comments LL = 5" ~ 0" credit - 99.1'

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*

Subsoil Indicator(s) of Saturation:

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

***Sand Modifiers**

co-coarse
m-medium
f-fine
vf-very fine

If yes to one of the above indicators then:
Topsoil Indicator(s) of Saturation:

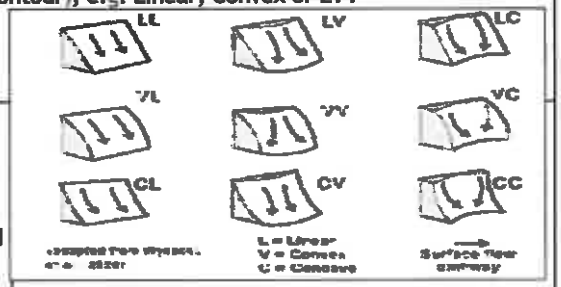
T1. Wetland Vegetation
T2. Depressional Landscape
T3. Organic texture or organic modifiers
T4. N 2.5/ 0 color
T5. Redox features in topsoil
T6. Hydric Soil

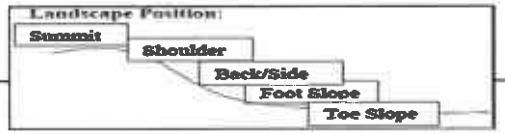
Consistence:

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

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'.





Soil Structure
Grade:

Massive-	No observable aggregates, or no orderly arrangement of natural lines of weakness
Weak-	Poorly formed, indistinct peds, barely observable in place
Moderate-	Well formed, distinct peds, moderately durable and evident, but not distinct in undisturbed
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
Loose-	No peds, sandy soil

Soil Structure
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
Platy-	The peds are flat and plate like. They are oriented horizontally and are usually overlapping. Platy structure is commonly found in forested areas
Blocky-	The peds are block-like or polyhedral, and are bounded by flat or slightly rounded surface that are casting of the faces of surrounding peds.
Prismatic-	Flat or slightly rounded vertical faces bound the individual peds. Peds are distinctly longer vertically, and faces are typically cast or molds of
Single Grain-	The structure found in a sandy soil. The individual particles are not held together.

Soil Observation Log

Project ID:

v 04.02.2019

Client:	Lawrence Eaton	Location / Address:	33 Eagle Ridge Rd, North Oaks, MN 55127

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

Landscape Position: (check one) ☐ Summit ☒ Shoulder ☐ Back/Side Slope ☐ Foot Slope ☐ Toe Slope — Slope shape: Convex, Linear

Vegetation:	Lawn	Soil survey map units:	342C	Slope %:	8%
Elevation (ft):	97.9'				

Weather Conditions/Time of Day:	Sunny / 2:20pm	Date:	03/01/20
Observation #/Location:	SP3 / See Map	Observation Type:	Soil 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	FSL	5%	10YR 3/2				GR	W	FR
6-12	LFS	5%	2.5Y 5/3	10YR 5/2	D	S1	GR	W	FR
				10YR 7/4	C	S1			
12-24	SCL	10%	10YR 5/6	7.5YR 4/4	C	S1	B	M	FM
				10YR 4/2	D	S1			
24-30	CL	5%	10YR 5/8	10YR 5/2	D	S1	B	M	ER FM

Comments: LL = 6' - 0" crack - 97.9'

Additional Soil Observation Logs

Project ID:

Client:	Lawrence Eaton	Location / Address:	33 Eagle Ridge Rd. North Oaks, MN 55127
Soil parent material(s): (Check all that apply)	☐ Outwash ☐ Lacustrine ☐ Loess ☒ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter		
Landscape Position: (check one)	☐ Summit ☒ Shoulder ☐ Back/Side Slope ☐ Foot Slope ☐ Toe Slope	Slope shape	Convex, Linear
Vegetation: Lawn	Soil survey map units: 342C	Slope %: 12%	Elevation (ft): 983
Weather Conditions/Time of Day:	Sunny / 2:45 pm	Date: 05/01/20	
Observation #/Location:	SP4 / See Map	Observation Type:	Soil 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	FSL	5%	10YR 3/2				GR	W	FR
4-8	LFS	10%	2.5Y 5/4	10YR 5/6	C	S1	GR	W	FR
				2.5Y 5/2	D	S1			
8-16	CL	5%	2.5Y 5/6	10YR 6/4	C	S1	B	M	FM
				10YR 6/2	D	S1			
16-30	SCL	10%	10YR 5/6	10YR 6/2	D	S1	B	M	CX FM
				10YR 6/8	C	S1			

Comments LL - 4" - 0" SAL CREDIT - 98.3

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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	Larry Eaton	Email	
Property Address	33 Eagle Ridge Road, North Oaks, MN 55127	Property ID	083022330020
System Designer	Kloeppner Services & Designs	Contact Info	763-843-4114
System Installer		Contact Info	
Service Provider/Maintainer		Contact Info	
Permitting Authority	City of North Oaks - Septic Inspector	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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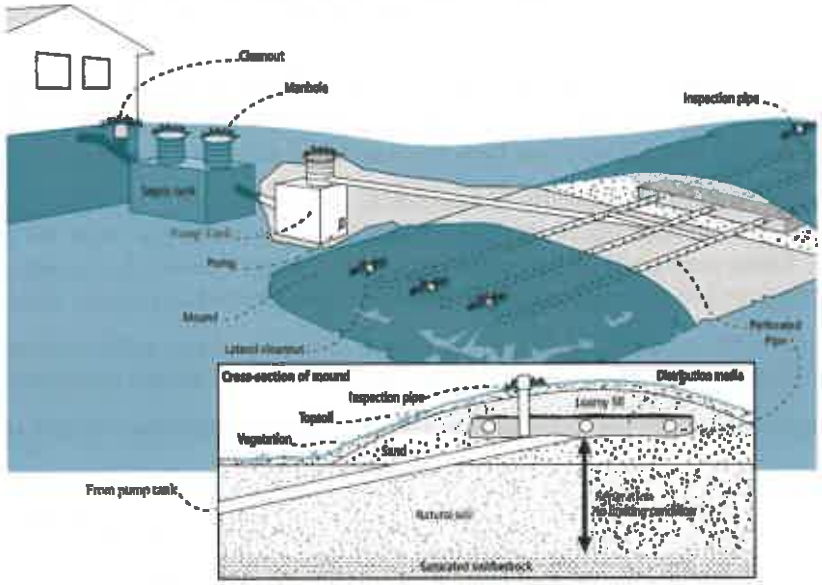
Septic System Management Plan for Above Grade Systems

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 1 - Salcor UV Light

Dwelling Type

Number of bedrooms: 4

System capacity/ design flow (gpd): 600

Anticipated average daily flow (gpd): 420

Comments

Business? : ○ Y ◉ N What type?

Well Construction

Well depth (ft): 205

☐ Cased well Casing depth: 176

☐ Other (specify):

Distance from septic (ft): > 50

Is the well on the design drawing? ◉ Y ○ N

Septic Tank

☐ First tank *Tank volume:* 1,000 *gallons*

☐ Does tank have two compartments? ○ Y ◉ N

☐ ECOPOD tank *Tank volume:* 1,050 *gallons*

☐ Tank is constructed of Concrete

☐ Effluent screen: ◉ Y ○ N Alarm ◉ Y ○ N

☐ Pump Tank 1,000 *gallons*

☐ Effluent Pump *make/model:* Installer Choice

Pump capacity 22 GPM

TDH 23 Feet of head

☐ Alarm location TBD

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 50.4 ft x 80.6 ft

Rock bed size (width x length): 10 ft x 50 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 __6__ 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: 70 gallons: Pump run time: 2.50 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:

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Septic System Management Plan for Above 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. 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

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Onsite Sewage Treatment Program
Septic System Management Plan
Delta Environmental Products
Ecopod Fixed Film Aerobic Treatment Unit

This Management Plan identifies some basic requirements for proper operation and maintenance of the ECOPOD wastewater treatment device for residential use. Refer to the manufacturer's Operation and Maintenance Manual for ECOPOD wastewater treatment products for detailed instructions on proper system operation and maintenance. Refer to your soil treatment system management plan (below or above-grade) for additional management requirements.

The ECOPOD Manual, submitted by the manufacturer (Delta Environmental Products) as part of the registration of this product in Minnesota, can be found at the Minnesota Pollution Control Agency's website http://www.pca.state.mn.us/programs/ists/productregistration.html.

SYSTEM COMPONENT	TASK	FREQUENCY	RESPONSIBLE PARTY
ECOPOD Wastewater Treatment Device **Model: E60-N**	Monitor alarm	On-going	Homeowner
	Keep vents on blower housing clear of obstruction	On-going	Homeowner
	Check and clean air filter on the air pump	Every three months	Homeowner or Service Provider
	Monitor flow	Every six months	Service Provider
	Check mechanical and electrical components	Every six months	Service Provider
	Perform operational field tests on influent/effluent quality including odor, color, turbidity, temperature, dissolved oxygen and pH as appropriate	Every six months	Service Provider
	Sample effluent as required in the local Operating Permit	See Operating Permit*	Service Provider
	Check sludge level in all sewage tanks; follow manufacturers recommendations for solids removal	Every six months	Service Provider & Maintainer
	For seasonal use, follow manufacturers guidelines	As required based on seasonal usage	Service Provider

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* Systems designed to meet treatment level A or B with UV disinfection must collect effluent sample for fecal coliform annually at a minimum.

At the time of each service visit, Form 7-2: Aerobic Treatment Unit should be completed. See http://www.onsiteconsortium.org/omspchecklists.html

Items not permitted in the ECOPOD wastewater systems are specified in the ECOPOD Manual for Minnesota.

Sampling requirements may be specified in local operating permits. The protocol for collection of wastewater samples is specified in the ECOPOD Manual for Minnesota.

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This publication/material is available in alternative formats upon request. Direct requests to OSTP at 800-322-8642 or septic@umn.edu. Last Update: 10/26/2010

UNIVERSITY OF MINNESOTA

Onsite Sewage Treatment Program
Septic System Management Plan
Salcor
Ultraviolet Light Disinfection Device

This Management Plan identifies some basic requirements for proper operation and maintenance of the Salcor 3G Ultraviolet Light (UV) disinfection device for residential use. Refer to Salcor's detailed Operation and Maintenance Manual for detailed instructions on proper operation and maintenance requirements.

Information regarding the Salcor UV disinfection device can be found at the Minnesota Pollution Control Agency's website at: http://www.pca.state.mn.us/programs/ists/productregistration.html.

SYSTEM COMPONENT	TASK	FREQUENCY	RESPONSIBLE PARTY
Salcor UV disinfection device	Monitor alarm[1]	On-going	Homeowner
	Check influent/effluent quality odor, color, turbidity	Every six months before cleaning and replacing the bulb	Service Provider
	Collect sample for fecal coliform bacteria	Every six months before cleaning and/or replacing the bulb	Service Provider
	Clean bulb[2]	Every six months	Service Provider
	Replace bulb[2]	May be needed if sampling results do not meet prescribed Treatment Level A or B	Service Provider
		A minimum of every two years per manufacturer requirements	Service Provider

1 Alarm activation as indicated by an audible or visual sign indicates the UV light bulb which disinfects the effluent may be malfunctioning. The homeowner is required to contact the Service Provider immediately to have the bulb assessed and fixed. This is a condition of the operating permit – to keep the UV bulb in working order.

2 The UV light on this wastewater treatment system has the potential to cause serious eye damage if you look directly at the UV light. The UV light **should never** be looked at directly. Only trained Service Providers can clean and replace UV light bulbs.

Additional sampling requirements are specified in local operating permits. The protocol for collection of wastewater samples is specified in the Salcor O&M manual.

delta™
treatment systems

DELTA TREATMENT SYSTEMS

ECOPOD-N®IM-1060

NSF/ANSI 40 AND 245 CERTIFIED RESIDENTIAL WASTEWATER TREATMENT SYSTEM

NSF

WWW.DELTATREATMENT.COM

DELTA TREATMENT SYSTEMS

NSF/ANSI 40 AND 245 Residential Wastewater Treatment System

ECOPOD-N® Advanced Wastewater Treatment In The Infiltrator IM-1060 Tank

ECOPOD-N is the clear choice for an on-site wastewater disposal system where nitrogen reduction is required. It was tested under Standard 40 and 245 of NSF/ANSI with an average nitrogen reduction of greater than 50% and met and exceeded Class 1 requirements with an average effluent quality of 9 mg/L BOD5 and 8 mg/L TSS.

ECOPOD-N directly contributes to a cleaner, safer environment using the bacteria nature provides. As a result of air being pumped into the system, the bacteria thrive and grow in much greater numbers than would occur naturally. This optimum popluation of bacteria accelerates the process of breaking down the sewage, making it safe for release into the environment.

ECOPOD-N significantly reduces BOD, TSS, fecal coliforms, and nutrients in the wastewater. Nitrification and denitrification occur in a single tank.

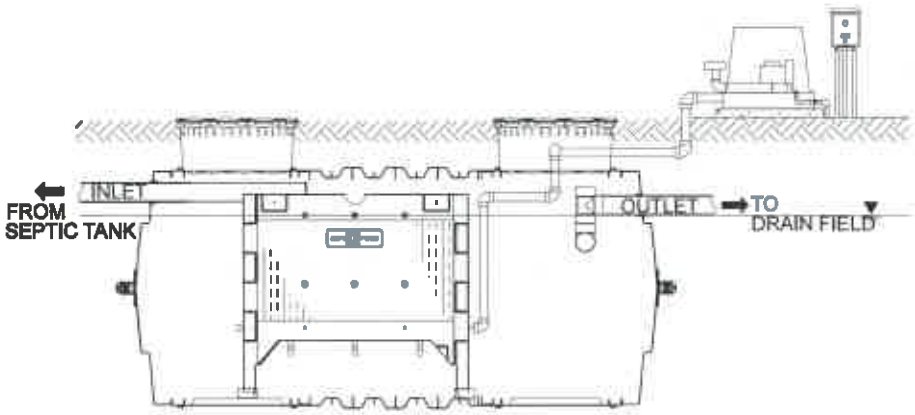
ECOPOD-N series uses a fixed film process which is characteristically stable, reliable and sturdy due to its stability. Fixed film is the preferred treatment process for wastewater treatment systems.

ECOPOD-N Available Offering In the Infiltrator IM-1060 Tank

ECOPOD-N Units are manufactured to specifications according to wastewater flow requirements. Units are available in the following sizes:

- Model E50-N IM-1060 treating 500 gallons per day
- Model E60-N IM-1060 treating 600 gallons per day
- Model E75-N IM-1060 treating 750 gallons per day

ECOPOD-N and Infiltrator IM-1060 TANK An Easy, Transportable and Installed Onsite Treatment Package



Why Use ECOPOD-N® Advanced Wastewater Treatment?

- Built with technology which meets NSF/ANSI 40 and 245 – Class 1
- Completely submerged reactor disposes of wastewater quietly, efficiently, and with no odor
- Effluent quality of 9 mg/L BOD5 and 8 mg/L TSS (per NSF testing)
- No inner tank filters, screens or diffusers to service
- Patented non-clogging air delivery system
- Remote mount air compressor
- Low initial capital cost and operation
- Complete on-site system designs
- ECOPOD-N treatment systems are pre-engineered, requiring no special expertise to design, specify, or install
- True attached growth system – no mixed liquor
- Integral clarifier - no external clarifier required
- Lightweight
- Water tight

Design Components Material Specifications Shown is the ECOPOD-N 50 IM-1060	
Treatment Capacity	500 GPD
Electrical Requirement	115/1/60
Aerator Compressor	EN50

Salcor Inc.
P. O. Box 1090
Fallbrook, CA 92028-1080
Tel: (760) 731-0746 Fax: (760) 731-2405

ONSITE WASTEWATER EFFLUENT UV DISINFECTION UNIT MODEL 3G

INSTALLATION INSTRUCTIONS

I. First, unpack the unit and check for any damage in shipping. There are 7 sub-assemblies that comprise the UV system, which are:

1. Disinfection, chamber – 3 inch ABS with 4-inch inlet and outlet hubs.
2. Disinfection subassembly – anodized aluminum frame, pure fused quartz sleeve, Teflon ® cover, packed inside the disinfection chamber.
3. PVC handle for disinfection subassembly.
4. Long Life_ UV lamp- packed inside the PVC handle.
5. Riser pipe 4 inch ABS with a ¾ inch PVC nipple at one end. The PVC handle and UV lamp are packed inside.
6. Electrical subassembly- junction box with pre wired alarm board, electronic ballast, and UV lamp power cable.
7. Two 4-inch Sch 40 ABS pipe couplings.

Note: Inspect the unit upon receipt and report any damage.

There will be some additional items needed for installation, which are:

1. ABS cement (also multipurpose cement if bonding to PVC pipe)
2. Silicone sealant
3. Teflon tape
4. Isopropyl (rubbing) alcohol
5. Glycerin (available from drug stores)
6. Wires

A schematic drawing of the unit is shown in figure 1.

II INSTALLATION ALTERNATIVES

1. In ground – couple the 4-inch inlet to the exit pipe of the pretreatment unit, and couple the 4-inch outlet to the drain field pipe.
2. Pump tank - couple the UV unit inlet pipe to the pretreatment unit exit pipe at the entrance of the pump tank.
3. Figure 1 shows that the electrical junction box should be above ground level. If this should pose a problem with lawn mowers, the box could be placed below grade in an irrigation or water meter box. Or an artificial rock could cover the junction box.

The Junction box is rated NEMA 4X. However, to be safe it should be protected from flooding.

In pump tank installations care should be taken to prevent flooding of the junction box or the ballast suspended below it.

III DETAILED STEPS

1 Cut 4 inch riser pipe and lamp handle to meet job needs. Use the 4-inch connection to the pretreatment unit as a reference point. The lamp handle upper end should be slightly below the ¾ inch nipple and the riser pipe.

2 Attach the threaded end of the lamp handle to the 1 inch threaded nipple on the upper end of the disinfection subassembly, which is packed inside the disinfection chamber. Teflon tape should be used to seal the threads. Then remove the disinfection subassembly by pulling the handle upward.

3 Bond the riser pipes and couplings and connect the disinfection chamber to the upstream and downstream (if any) pipes. The unit symmetrical and either port can be used as the inlet (or outlet)

4 Inspect the disinfection subassembly. Using a clean, soft cloth and isopropyl (rubbing) alcohol, clean the Teflon ® cover and remove any fingerprints. Then lubricate the rubber gaskets with either water or glycerin.

Note: Do not use silicone or petroleum based lubricants.

5. Slide the disinfection subassembly through the riser pipe into the disinfection chamber using the handle. Make sure that the subassembly is at a right angle to the inlet and outlet pipes, and that the holes on the upper hub of the subassembly lock into two pins in the disinfection chamber. The orientation is very important for successful UV unit operation

6. The UV unit operates on 120 VAC single phase (50 or 60 HZ) power and consumes 30 watts. A dedicated 10-15-amp breaker on the main electrical panel should be used for service.

7. An electrical junction wiring diagram is shown in figure 2. Inlet power, ground and alarm wires are fed through conduit to the ¾ inch nipple on the riser pipe. Enough wire should be pulled through the riser pipe to reach about one foot above it.

8. The wires should then be fed through the cord grip on the bottom side of the electrical junction box. The cord grip can accommodate five 12 AWG wires in addition to those pre-wired.
9. Attach the wires to the terminal block as shown in figure 2. The wiring schematic is also shown on the inside of the junction box cover.
10. The alarm contacts are compatible with both normally open (N/O) and normally closed (N/C) external alarm units (furnished by others). They accommodate up to 120 volts and up to 500 milliamps. Select the common and the contact that complies with the receiving alarm panel.
11. Tighten the cord grip, attach the four pin connector to the UV lamp and carefully lower the lamp through the handle. Be careful to not damage the quartz tube during insertation
12. Lower the ballast so that it is loosely attached to the PVC handle by the two tie wraps.
13. Place the electrical junction box on top of the 4 inch riser pipe. tuck excess wire into the riser pipe.
14. Turn the breaker at the main electrical panel on. The LED light on the side of the junction box should now be on, indicating that the unit is operational.
15. Fill the recess in the bottom of the electrical junction box where the wires feed into the cord grip with silicone sealant. Then, replace the electrical junction box lid.

MAINTENANCE AND SERVICE

The Salcor UV 3G disinfection unit is designed to provide long service life. It is recommended that the UV lamp be replaced every two years to insure proper disinfection. To replace the lamp:

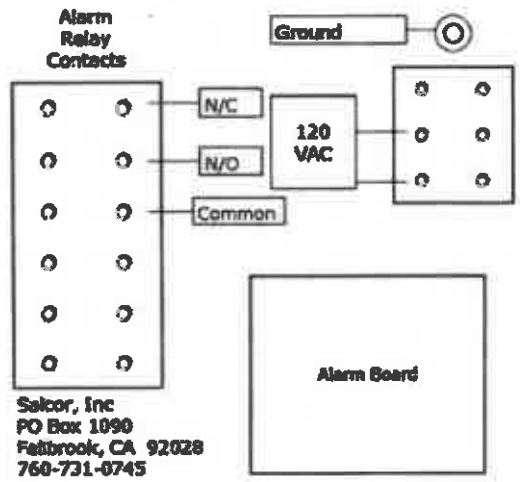
1. Turn off the dedicated breaker located in the main electrical panel that supplies power to the UV system.
2. Remove the electrical junction box and ballast from the UV disinfection chamber and carefully set it aside.
3. Using the power line connected to the UV lamp, lift the lamp out of the disinfection subassembly.
4. Disconnect the four pin connector attaching the power line to the UV lamp.
5. Connect the new lamp to the four pin connector and completely lower the new lamp into the UV subassembly.
6. Tuck the remaining power line into the riser pipe.
7. Make sure the ballast is still in position on subassembly handle and insert the plastic section on the back side of the control center enclosure into the top of the riser pipe.
8. Turn on the dedicated breaker located in the main electrical panel that supplies power to the UV system.

It is recommended that the disinfection subassembly be removed and serviced a minimum of once per year to insure proper effiuent disinfection. To clean the Teflon® sheath and disinfection subassembly:

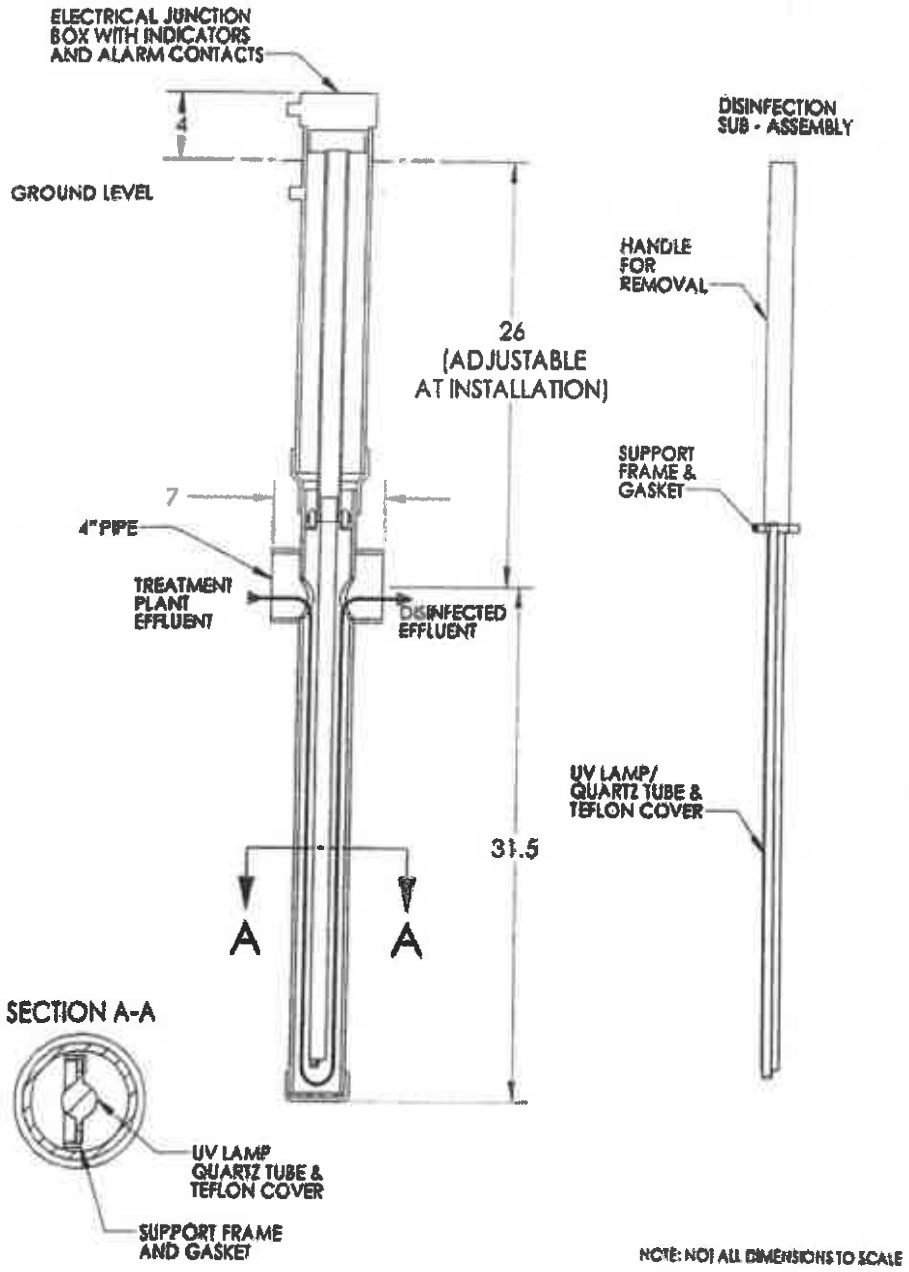
1. Clean with a soft sponge and detergent.
2. Use isopropyl alcohol on a soft cloth to remove difficult stains like finger prints and other films.

.

Electrical Junction Box



SALCOR UV DISINFECTION UNIT



LIMITED WARRANTY

Delta Environmental warrants the parts in each treatment system for a limited two year period. All warranty questions shall be resolved through Delta Environmental. The warranty on the treatment device is that the device is free from defects in material and workmanship from the date of installation treating household wastewater. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. Sole obligation under this warranty is as follows: Delta Environmental shall fulfill this warranty by repairing or exchanging any component part, F.O.B. factory that in Delta Environmental judgment shows evidence of defects, provided said component part has been paid for and is returned through an authorized dealer, transportation prepaid. The warrantee must also specify the nature of the defect to the manufacturer.

The warranty does not cover treatment processes/devices that have been flooded, by external means, or that have been disassembled by unauthorized persons, improperly installed, subjected to external damage or damaged due to altered or improper wiring or overload protection.

This warranty applies only to the treatment process/device and does not include any of the house wiring, plumbing, drainage, or disposal system. Delta Environmental is not responsible for any delay or damages caused by defective components or material, or for loss incurred because of interruption of service, or for any other special or consequential damages or incidental expenses arising from the manufacture, sale or use of this process/device.

Delta Environmental reserves the right to revise, change or modify the construction and design of the treatment process/device for household wastewater or any component part or parts thereof without incurring any obligation to make such changes or modifications in previously sold equipment. Delta Environmental also reserves the right, in making replacements of component parts under this warranty, to furnish a component part which, in its judgment is equivalent to the part replaced.

Under no circumstances will Delta Environmental be responsible to the warrantee for any other direct or consequential damages, including but not limited to lost profits, lost income, labor charges, delays in production, and/or idle production, which damages are cause by a defect in material and/or workmanship in its parts. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty is expressly in lieu of any other express or implied warranty, excluding any warranty of merchantability or fitness and of any other obligation on the part of Delta Environmental.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Rev 5/2012

Delta Environmental™
Pentair Water

Delta Environmental Products Checklist for Minnesota Regulators

Delta Environmental Products™
Pentair Water

Regulator: _____ Date of Inspection: _____

Project Information

Permit#: _____

Owner: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____

Designer/Engineer: _____

Phone Number: _____

Authorized Installer: _____

Phone Number: _____

Delta Distributor: _____

Phone Number: _____

Electrician:: _____

Phone Number: _____

Residential System Information

Number of Bedrooms: _____

Number of Occupants: _____

NSF Certification Labeling on Panel & Tank? _____

Serial #: _____

Disposal Method: _____

Primary Treatment

Primary Tank. Verify the following:

Number of Tanks: _____ Tank size: _____ gallons

Number of compartments: _____

Tank construction: □ Concrete □ Fiberglass

Tank manufacturer: _____

Effluent Tank Pumping Equipment. Verify the following:

□ Pumping equipment installed property.

□ Discharge plumbing properly installed through watertight grommet and ball valve is in open position.

□ Float assembly mounted in and properly set per Delta Installation Guide. Float cords neatly wrapped around splice box and tied.

□ Floats operate properly.

□ Floats set properly at _____" _____" _____"

□ Splice box mounted on access riser. Watertight connectors used.

Pump Verification. Verify proper operation of the pumps.

□ Pumps operate in Manual.

□ Pumps operate in Automatic.

Delta Environmental Products Checklist for Minnesota Regulators

Delta Environmental Products™
Pentair Water

Ecopod

Secondary Treatment System

Delta Model Number (_____). Verify the following:

- ☐ All tanks installed level.
- ☐ All piping properly covered and compacted.

Air Vents. Verify the following:

- ☐ Ventilation properly located and installed.

Air Unit Operation.

- ☐ Visually check aeration.

Secondary Treatment Notes: _____

_____

_____

_____

_____

SALCOR 3G ULTRAVIOLET UNIT. Verify the following:

- ☐ 3G Unit installed level.
- ☐ Inlet & Outlet connection properly glued.
- ☐ 4" riser pipe at proper level.
- ☐ Disinfection sub-assembly properly installed.
- ☐ Visually check aeration.
- ☐ Electrical wiring properly connected.
- ☐ LED light inside junciton box on when power is connected.

3G Notes:

_____

_____

_____

_____

Controls

Note: Refer to the control panel instructions for detailed operational features of the control panel itself.

CP Number: _____

Control Panel model installed: _____

_____

- ☐ Proper wire size used based on information provided by code.
- ☐ Conduit to local code installed.
- ☐ All electrical connections in panel are secure.
- ☐ Panel wired per manufacturer's wiring diagram.
- ☐ Control panel start-up procedures, as detailed in the Delta Installation Guide, have been followed.
- ☐ Appropriate diagrams left in panel for future review.

Control Notes: _____

_____

_____

_____

_____

Final/Safety Inspection

Verify the following:

- ☐ Lid is secured on all splice boxes.
- ☐ All access riser hardware is in place. Lids are secured.
- ☐ Control panel documentation is left at site; panel is set for automatic operation and secured.

Final Notes: _____

_____

_____

_____

Revised 09/23/2008

Delta Environmental Products
Installer/Service Provider Checklist

Delta Environmental Products™
Pentair Water

Proprietary Treatment Unit / Reaeration

Delta Model Number(_____). Verify the following:

☐ All tanks installed level.

☐ All piping properly covered and compacted.

Air Vents. Verify the following:

☐ Ventilation intake(s) properly located and installed.

Air Unit Operation.

☐ Visually check aeration.

Proprietary Treatment Notes: _____

_____

_____

Primary Treatment

Primary Tank. Verify the following:

Number of Tanks: _____ Tank size: _____ gallons

Number of compartments: _____

Tank construction: ☐ Concrete ☐ Fiberglass

Tank manufacturer: _____

Effluent Tank Pumping Equipment. Verify the following:

☐ Pumping equipment installed property.

☐ Discharge plumbing properly installed through watertight grommet and ball valve is in open position.

☐ Float assembly mounted in and properly set per Delta Installation Guide. Float cords neatly wrapped around splice box and tied.

☐ Floats operate properly.

☐ Floats set properly at _____" _____" _____"

☐ Splice box mounted on access riser. Watertight connectors used.

Pump Verification. Verify proper operation of the pumps.

☐ Pumps operate in Manual.

☐ Pumps operate in Automatic.

Proprietary Treatment Unit / Reaeration

SALCOR 3G ULTRAVIOLET UNIT. Verify the following:

☐ 3G Unit installed level.

☐ Inlet & Outlet connection properly glued.

☐ 4" riser pipe at proper level.

☐ Disinfection sub-assembly properly installed.

☐ Visually check aeration.

☐ Electrical wiring properly connected.

☐ LED light inside junction box on when power is connected.

3G Notes:

_____

_____

_____

Controls

Note: Refer to the control panel instructions for detailed operational features of the control panel itself.

Control Panel model installed: _____

_____

☐ Proper wire size used based on information provided by code.

☐ Appropriate diagrams left in panel for future review.

☐ All electrical connections in panel are secure.

☐ Panel wired per manufacturer's wiring diagram.

☐ Control panel start-up procedures, as detailed in the Delta Installation Guide, have been followed.

Control Notes: _____

_____

_____

_____

_____

Final/Safety Inspection

Verify the following:

- ☐ Lid is secured on all splice boxes.
- ☐ All access riser hardware is in place. Lids are secured.
- ☐ Control panel documentation is left at site; panel is set for automatic operation and secured.

Final Notes: _____

_____

_____

_____

Homeowner's Package

- ☐ Homeowner's Package (and manual) has been reviewed with homeowner by...(check one)

  - ☐ Installer
  - ☐ Service Provider
  - ☐ Dealer

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ramsey County, Minnesota

33 Eagle Ridge Rd, North Oaks

October 7, 2019

Custom Soil Resource Report
Soil Map (33 Eagle Ridge Rd, North Oaks)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ramsey County, Minnesota
Survey Area Data: Version 14, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 3, 2015—Sep 13, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (33 Eagle Ridge Rd, North Oaks)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
132C	Hayden fine sandy loam, 6 to 12 percent slopes	0.0	0.4%
169C	Braham loamy fine sand, 6 to 15 percent slopes	0.1	9.6%
342C	Kingsley sandy loam, 6 to 12 percent slopes	1.3	90.0%
Totals for Area of Interest		1.5	100.0%

Map Unit Descriptions (33 Eagle Ridge Rd, North Oaks)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

Ramsey County, Minnesota

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: 27 to 33 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 135 to 180 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
Natural 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 in profile: 25 percent
Available water storage in profile: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Forage suitability group: 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

169C—Braham loamy fine sand, 6 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1t98m
Elevation: 1,000 to 1,570 feet
Mean annual precipitation: 27 to 33 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 135 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Braham and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Braham

Setting

Landform: Moraines
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Outwash over till

Typical profile

Ap - 0 to 9 inches: loamy fine sand
E - 9 to 28 inches: loamy fine sand
2Bt - 28 to 39 inches: sandy clay loam
2C - 39 to 60 inches: loam

Properties and qualities

Slope: 6 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Forage suitability group: Sloping Upland, Acid (G090XN006MN)
Hydric soil rating: No

Minor Components

Zimmerman
Percent of map unit: 3 percent
Hydric soil rating: No

Blomford
Percent of map unit: 3 percent
Landform: Drainageways on moraines
Hydric soil rating: Yes

Kratka
Percent of map unit: 2 percent
Landform: Depressions on moraines, drainageways on moraines
Hydric soil rating: Yes

Cathro
Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

342C—Kingsley sandy loam, 6 to 12 percent slopes

Map Unit Setting
National map unit symbol: 1t99g
Elevation: 1,000 to 1,300 feet
Mean annual precipitation: 27 to 33 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 135 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Kingsley and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kingsley

Setting

Landform: Moraines
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Till

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt - 6 to 32 inches: sandy loam
C - 32 to 60 inches: sandy loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Forage suitability group: Sloping Upland, Acid (G090XN006MN)
Hydric soil rating: No

Minor Components

Freeon

Percent of map unit: 4 percent
Hydric soil rating: No

Ronneby

Percent of map unit: 3 percent
Hydric soil rating: No

Rosholt

Percent of map unit: 3 percent
Hydric soil rating: No

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
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
169C—Braham loamy fine sand, 6 to 15 percent slopes							
Braham	90	Slightly limited		Very limited		Moderately limited	
		Slope	0.05	Slope	0.85	Fine Sands	0.21
						Excessive percolation	0.11
						Slope	0.05
342C—Kingsley sandy loam, 6 to 12 percent slopes							
Kingsley	90	Extremely limited		Extremely limited		Moderately limited	
		Restricted percolation	1.00	Restricted percolation	1.00	Restricted percolation	0.30
		Slope	0.05	Slope	0.85	Slope	0.05

Minnesota Department of Health

Minnesota Well Index

Search by | Zoom to | Tools | Base Maps | Other Links | Help

33 Eagle Ridge Rd, Saint Paul, MN, 55127,

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

MDH Minnesota Department of Health

Minnesota Well Index

33 Eagle Ridge Rd, Saint Paul, MN, 55127,

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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

Well List selected

Highlighted are Field Verified Wells. Click Unique Well ID to see detailed well infomation

Unique Number	Well Name	Address	City	County	Township	Range	Section	Depth(ft)	Elevation(ft)	Casing Depth(ft)	Casing Diamete
14258	RAY ANDERSON	EAGLE RIDGE RD	null	Ramsey	30	22	8	205	940	176	4
13892	ARTHUR HEDSTROM	18 SPRING FARM LA	NORTH OAKS	Ramsey	30	22	17	195	930	161	4

0 150 300ft

UTM: 493615 (x), 4993485 (y) Latitude/Longitude: 45.09480 / -93.08114
Click map to get township, range and section

MN Department of Health | Minnesota Geological Survey,

July 22, 2020
VARIANCE 20-06
Lawrence and Ruth Eaton
33 Eagle Ridge Rd
North Oaks, MN 55127
RSL Zoning

Date Application Determined Complete:	June 3, 2020
Planning Commission Meeting Date	July 30, 2020
City Council Meeting Date:	August 13, 2020
120 Day Review Date:	November 19, 2020

Description of Request

The applicant is requesting a variance to install a sub-surface sewage treatment system (SSTS), which would encroach 20 feet into the required 30 foot south property line setback and 15 feet into the 30 Eagle Ridge Road right of way.

The applicable regulations are as follows:

§ 151.050 RSL - RESIDENTIAL SINGLE-FAMILY LOW DENSITY DISTRICT.

(F) Setbacks.

(1) No building or structure (except fences, screening, planting strips, and landscaping in compliance with Sections 151.033 and 151.034), individual sewage treatment system, or well shall be located within thirty (30) feet of the lot lines, the nearest edge of any road easement(s), or any wetland(s), except that additions which do not exceed twenty five (25) percent of the existing building footprint area, on buildings or structures lawfully existing upon the effective date of this chapter shall be excluded from wetland setback requirements.

Staff Review

The current system has been classified as non-compliant under MPCA Rule 7080.1500 Subp. 4 (E) due to the lack of the required three foot separation between the bottom of the drainfield and the limiting soil conditions.

At the current time, it is the staff's opinion that there may be adequate area in which to install a replacement SSTS on this property which would not extend into the road right of way. However, this may require the installation of a type IV system and may require additional variances.

Based on these facts, it is staff's opinion that the applicant has not met the requirements for a variance as outlined in Section 151.078 of the code since this would not be the minimum variance, which would alleviate the hardship.

Action Requested

That the Planning Commission make a recommendation to the City Council to approve or deny Variance #20-06 to install a sub-surface sewage treatment system in the Right of Way.

Motions

Motion to Approve

MOTION_____SECOND_____

That Variance #20-06, for 33 Eagle Ridge Rd:

be APPROVED with the following conditions:

1. Completion date 120 days after approval
2. System to be located per the design dated November 6, 2019 by Jesse Kloeppner.

Motion to Deny

MOTION_____ SECOND_____

That Variance #20-06, for 33 Eagle Ridge Rd:

be DENIED with the following findings:

1.

2.

No. 20-08

CITY OF NORTH OAKS, MINNESOTA
APPLICATION FOR CUP, VARIANCE, APPEAL, AMENDMENT, PLAN REVIEW

Location of Property: (address) 2 Island Rd., North Oaks, MN 55127

Legal Description of Property: Tract _____ RLS _____

Fee Owner: ILYA Berchenko (Name) 2 Island Rd (Address)

North Oaks (City) MN (State) 55127 (Zip) 5135108047 (Contact Number/s)

Signature of Fee Owner: _____ Date 07/07/20

Applicant: _____
(if different from owner) Name Address

City State Zip Contact Numbers/s

Signature of Applicant: _____ Date _____

Type of Request: ***(Please circle correct request)***

CONDITIONAL USE PERMIT (as provided for in Chapter 151.076 of Code of Ordinances)

VARIANCE

APPEAL

AMENDMENT

BUILDING / SITE PLAN REVIEW

OTHER

Please attach **fifteen (15)** copies of detailed written and graphic material fully explaining the proposed request and include the reason for the request, present zoning classification and existing use of the property.

(For office use)

Application received with $450 fee on 7/9/2020 **Check#** 1031 **Amt#** 450-00

Date for review of completeness fifteen (15) business days from initial receipt 7/28/2020

* If application is deemed incomplete, **written** notice must be sent to the applicant by above date stating the items that need to be submitted for the application to be deemed complete.

Updated 9/18

Deadline for action sixty (60) days from initial receipt _____

Extended deadline _____

** City may extend the review period by up to sixty days from the end of deadline for action only if applicant is notified in writing prior to the end of the initial sixty (60) day review period. The deadline may be extended beyond sixty days with applicant's approval.

Conditional Use or Amendment request - Public Hearing date _____

Planning Commission action:

Approval or disapproval on _____ with conditions _____

City Council Action:

Approval or disapproval on _____ with conditions _____

Variance, Appeal, Building/Site Plan Review, Other

Action of Board of Adjustment and Appeals:

Approval or disapproval on _____

Bond Required _____ Bond Received on _____

CITY REIMBURSEMENT POLICY

In connection with your request and submittal of material to be reviewed by the City of North Oaks, please be informed that if the City incurs any additional expense in the course of this application review beyond the normal processing fee, the cost will be assessed to the applicant. As authorized in Chapter 151.083 of the Ordinance Code, an applicant will be responsible for full reimbursement of incurred costs to the City of North Oaks. (A copy of this section of the Ordinance is available upon request.)

Your initial application fee of **$450.00** covers the processing of a typical zoning action. A typical process for reviewing a zoning action may include some or all of the following: City employee help in explaining the application process, City employee receipt of completed application and proper scheduling on appropriate agenda, one legal notice for a public hearing (if applicable), written notice to abutting property owners (if applicable) generation of a staff report, presentation of the staff report to the Planning Commission and presentation of the staff report and Planning Commission recommendation to the City Council.

If the scope of your application goes beyond a typical review process, you will be asked for an additional escrow deposit. At that time, you will be advised of the additional review necessary to complete your zoning action request and the potential cost for completing said review. You will be provided written documentation for your acknowledgement that outlines the above two items.

An applicant will be allowed to remove their request at any time during said further review process. Any remaining escrow deposit that is not needed to pay incurred costs to the date of application removal will be refunded to the applicant within sixty days.

I acknowledge that I have read and fully understand the above statements.

_____ Date 07/07/2020

Applicant's Signature

Updated 9/18

CITY OF NORTH OAKS

100 Village Center Dr., Suite 230, North Oaks, MN 55127
(651) 792-7760 Fax: (651) 792-7751

INDIVIDUAL SEWAGE TREATMENT SYSTEM APPLICATION/PERMIT

Application Date 5-26-2020

Job Address 2 Island Rd Permit No. 20-333

Owner ILya Berchenko Fee Type I, II, (III) $450
Type IV $450 plus $85/hr.

Installer Bill Wolfe Excavating

Address PO Box 715 Stillwater, MN 55082

Phone No. 651 430 2256 MPCA Certificate No. 3902

Legal Description: RLS_____ Tract_____

Proposed Work

Description Replacement Septic system
(New System, Alteration, Repair)

Type of System III No. of Bedrooms 4

Variance No. (If applicable)_____ No. of TANKS 3

Signature of Applicant

Jon Bell
Print Name

(For Office Use Only)
Date PD 6/1/20 Amt $450 Ck # 13434

This permit is granted upon the express condition that the person, partnership, firm or corporation to whom it is granted, together with the agents, employees, workers, and sub-contractors agree to abide by and conform to all Ordinances of the City of North Oaks regarding the construction, alteration, and repair of sewage treatment systems within the City; and that this permit may be revoked at any time upon evidence of violations of any of the provisions of said ordinances.

PERMITS ARE VALID FOR 180 DAYS

7/10/2020
Approval Date

Sanitary Inspector

CUP 20-08

2 Island Road
Applicant: Ilya Berchenko

Abutters:
1, 3, 4, 5, 6, 7, 9 Island Road

COPY

City of North Oaks
100 Village Center Drive, Suite 230
North Oaks, MN 55127

July 17, 2020

Current Resident
6 Island Road
North Oaks, MN 55127

PLANNING COMMISSION MEETING INFORMATION
July 30, 2020 at 7:00 p.m.
Electronic Means only, and viewing via live CTV broadcast

Dear Current Resident:

An application for Septic Variance at 2 Island Road has been received by the City of North Oaks. The North Oaks Planning Commission will consider this request at their next meeting on July 30, 2020 at 7:00 p.m.

Applicant: Ilya Berchenko
Site Location: 2 Island Road
Request: Subsurface Sewage Treatment System ordinance 51.02, section 11 requires a septic variance application, for purposes of addressing a replacement septic system within the 30 foot setback of the Southwest and West property border. All system components are to be >10 feet from property lines for this Type III mound system.
Notification: You are hereby notified of a meeting before the City of North Oaks Planning Commission.
Information: The final information packet will be available for review after 7/24/2020 at www.cityofnorthoaks.com.

Those persons having an interest in said meeting are encouraged to participate. The meeting will take place by remote telephone or other electronic means only as meeting in-person has been deemed to be neither practical nor prudent, and it is unfeasible to have any members of the Planning Commission or public present at the physical meeting location, namely the Community Room, 100 Village Center Drive, North Oaks, MN, due to the health pandemic and emergency declaration.

Those wishing to submit written public comment as part of the meeting packet on the Septic Variance application may email the City Administrator, Kevin Kress at kkress@cityofnorthoaks.com by July 23, 2020 at 4:00 p.m. **Individuals wishing to provide public comment/make a presentation at the meeting may do so by calling the following these instructions:**

Please click the link below to join the webinar:
https://us02web.zoom.us/j/82978289659?pwd=RGhXTjh6b1pQanE0Z3NGV3dSd0RQUT09
Password: 724124
Or Telephone: US: +1 312 626 6799 Webinar ID: 829 7828 9659

Individuals wishing to monitor the meeting remotely may do so in real time by watching the livestream of the meeting on North Oaks Channel 16 and on the City's website.

In addition, you may call the City offices if you have any questions at 651-792-7750.

Sincerely,

Debbie Breen, Administrative Assistant

100 Village Center Drive, Suite 230 • North Oaks, Minnesota 55127
Office: 651-792-7750 • Fax: 651-792-7751 • noaks@cityofnorthoaks.com • www.cityofnorthoaks.com

City of North Oaks
100 Village Center Drive, Suite 230
North Oaks, MN 55127

COPY

July 16, 2020

Ilya Berchenko
2 Island Road
North Oaks, MN 55127

PLANNING COMMISSION PUBLIC HEARING INFORMATION
July 30, 2020 at 7 p.m.
Electronic Means only, and viewing via live CTV broadcast

Dear Ms. Berchenko:

Your application for a Septic Variance has been received by the City of North Oaks; this is Variance No. 20-08. We have received your check $450 for the application fee and your application will be discussed at a Planning Commission public hearing on this topic, which is **Thursday, July 30, 2020 at 7:00 pm.** The City Council will then decide whether to approve or disapprove your application at their meeting on **Thursday, August 6, 2020.** If the application is approved, work could commence immediately after the Council meeting.

You are encouraged to attend these meetings to be available to answer any questions which may arise. To access the Planning Commission meeting on July 30th:

Please click the link below to join the webinar:
https://us02web.zoom.us/j/82978289659?pwd=RGhXTjh6b1pQanE0Z3NGV3dSd0RQUT09
Password: 724124
Or Telephone: +1 312 626 6799 Webinar ID: 829 7828 9659

Letters will be sent to abutting neighbors 10 business days before Planning Commission meeting. Please contact our office with any questions about your application process.

Sincerely,

Debbie Breen
Administrative Assistant
City of North Oaks

1/18/2020

KSD

Your water. Our neighbors.

SSTS Design

2 Island Road
North Oaks, MN 55127

PID # 073022330001

Version 1.0

Kloeppner Services & Designs, LLC
MPCA LICENSE # 4043

763.843.4114
CONNECT@KSD-MN.COM

SSTS Design Summary Report

1/18/20

On January 13th, 2020, a site evaluation was conducted at 2 Island Road, North Oaks, MN 55127 to design a replacement Subsurface Sewage Treatment System (SSTS) for a 4-bedroom home. The PID number is 073022330001. The new replacement SSTS will use a Type III Mound dispersal bed with a two new Septic Tanks & a new Dose Tank to pump the effluent to the Mound.

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

Wastewater Sources & Peak Flow Rate
The expected waste strength is Residential Wastewater with a Peak flow of 600 gallons per day (GPD) for a 4-bedroom house. The Actual Expected Daily Flow should be less than 70% of the Peak Flow (420 GPD).

Septic Tanks
The existing Septic Tank must be removed or abandoned. If the new tanks are placed in the same location as a current tank, the tanks must be pumped crushed and removed.

Type III Mound
The dispersal area will be a Type III Mound. The Mound Soil Absorption Area (STA) required is 1,000 sqft (15' x 50').

The reason for a Type III SSTS is due to the small lot size, the steep slopes throughout the property, setback from the lake and the shallow limiting layer in the soil. The best available soil is located at the top of the hill to the Northwest corner of the lot near the existing drainfield.

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.

Special Design Notes

1. A variance request will be necessary from City of North before implementation of this design due to infringement of required 30-foot setback for septic tanks & Mound Absorption Area. However, to meet Minnesota setback requirements, all septic system components are > 10 feet from property lines.
2. The existing tank and pump will need to be removed or abandoned. The new septic tank volumes will meet or exceed required standards set by City of North Oaks.
3. Prior to construction of the mound, trees will need to be removed in and around the Absorption Area, including the two very large Oak trees. Additionally, there are many other small trees throughout the hillside which will need to be cleared.
4. Prior to adding the washed-mound sand, the Mound Absorption Area will require a soil correction with a digout of material. Digout disturbed & natural soil below Absorption Area to elevation of 100.5' then add washed-mound sand to elevation 103.8'. The

digout area below 15' x 50' Absorption Area must be leveled to be able to construct a 0% Mound with equally sloped bermed on all sides.

5. Additional 3" of soil, below mound separation of 36" from limiting layer, is required to avoid direct contact with treatment media (washed sand) and the soil horizon with >50% fragments at Soil Pits SP1 & SP2. (see Soil Boring Logs)
6. Additional soil will be needed at the South end of the mound to blend into hillside due to slope.
7. A portion of the Mound Absorption Area will be located above the existing Trenches. Any contaminated soil by sewage, must be handled properly to protect the public and construction staff from exposure
8. The Mound Berms are calculated at 3:1 ratio ensure system will fit on property.

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

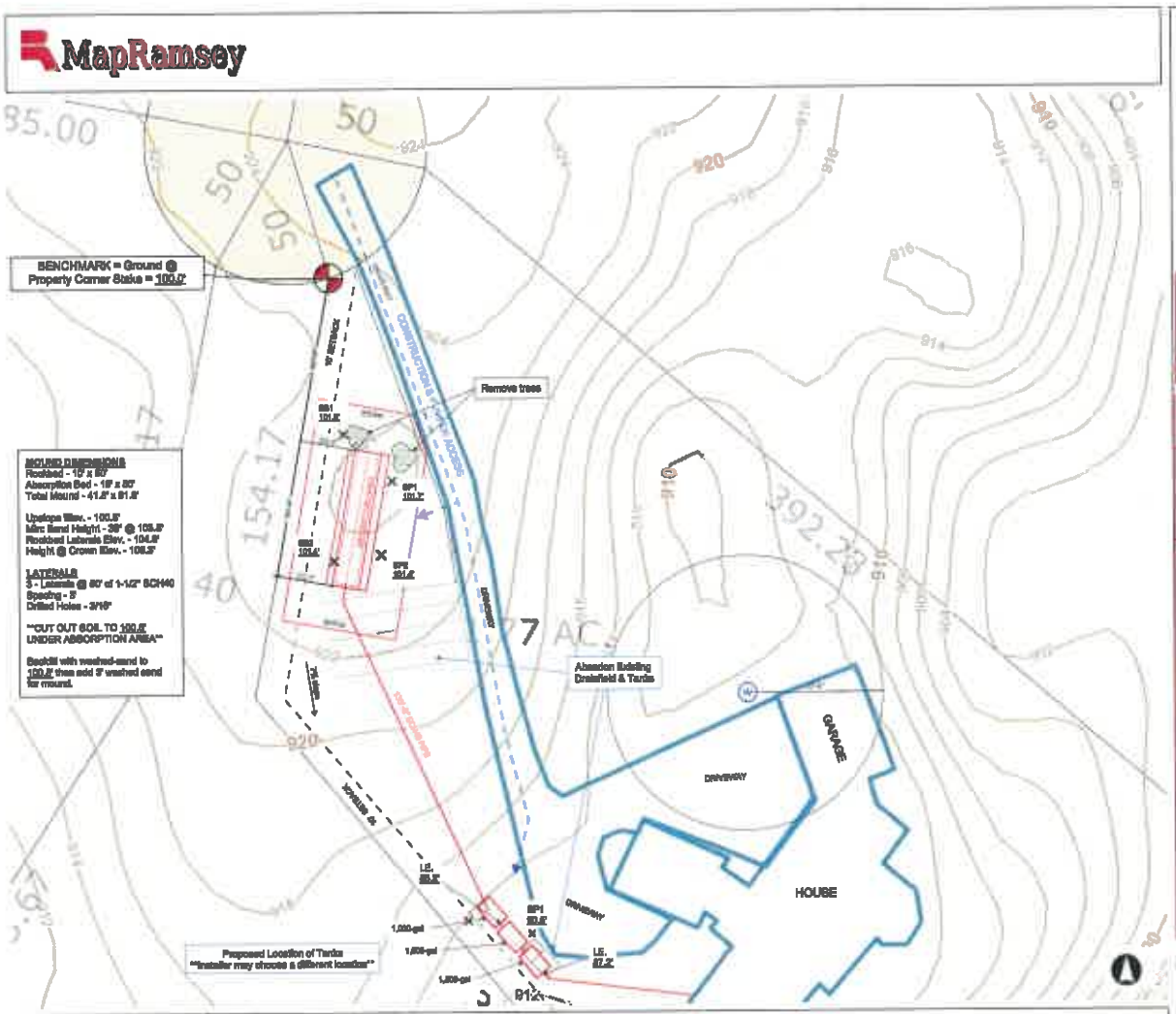
The Licensed Installer must provide an As-Built of the final location of all components. The attached Site Plan is only for reference and should not be considered as final survey or location of system components.

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.



Legend

LEGEND:

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

Kloppner Services & Designs, LLC
KSD
Lic # 4049

Certified by: Jesse Kloppner

Date - 1/18/20

NOTES:

1. Variance request required for the design for SBTS tanks and mound are within 30' setback.
2. Location of the New Tanks are only proposed. Actual location may vary.
3. Construction access along Driveway may require weight distribution protection for new tanks and construction equipment. .
4. Any part of Absorption Area in contact with current trenches must have soil correction.
5. Soil Correction needed under Absorption Area to remove > 50% Rock Fragments to elevation of 100.5'.
6. NE corner of berm may need small retaining wall to keep off driveway.
7. Mound will be built as 0% mound after tree removal and soil correction.

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

Notes

2 Island Road, North Oaks

MapRamsey

100.0 0 50.00 100.0 Feet

NAD_1983_HARN_Adj_MN_Ramsey_Feet

© Ramsey County Enterprise GIS Division

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Legend

LEGEND:

W = Well
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= Benchmark

Notes

2 Island Road, North Oaks

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 04.02.2019

Property Owner/Client: Ilya & Tara Berchenko | Date Completed: 1/8/2020

Site Address: 2 Island Rd, North Oaks, MN 55127 | Project ID:

Legal Description: Lot TRACT I of REGISTERED LAND SURVEY 295, SUBJ TO ESMTS TRACT I

Parcel ID: 073022330001 | TWP: 30 | SEC: 7 | 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: 4 | 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:

Anticipated non-domestic waste:

The above is complete & accurate: SIGN HERE

Client signature & date

B. Designer-determined flow information

Attach additional information as necessary.

Design Flow: 600 GPD | Anticipated Waste Type: Residential

BOD: 170 mg/L | TSS 60 mg/L | Oil & Grease 20 mg/L

3. Well Information

#	Description	Mn. ID#	Well Depth (ft.)	Casing Depth (ft.)	Confining Layer	STA Setback	Source
1	2 Island Rd	139253	210	183		50'	MN Well Index
2	1 Island Rd	176041	200	170		50'	MN Well Index
3	3 Island Rd	176043	200	173		50'	MN Well Index
4							

Additional Well Information: New non-sensitive well must be >50' from tanks & STA

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 a 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:	
Elevation of ordinary high water level:	ft	Source:	
Classification:	Tank Setback: ft.	STA Setbk: ft.	
C. Site located in a floodplain?	No	Yes, Type(s):	
Floodplain designation/elevation (10 Year):	ft	Source:	
Floodplain designation/elevation (100 Year):	ft	Source:	

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: 132C—Hayden fine sandy loam, Slope Range: 6-12 %

List landforms: Moraines

Landform position(s): Shoulder

Parent materials: Till

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

Map Unit Ratings

Septic Tank Absorption Field- At-grade:	Slightly Limited
Septic Tank Absorption Field- Mound:	Very Limited
Septic Tank Absorption Field- Trench:	Slightly Limited

5. Local Government Unit Information

Name of LGU: City of North Oaks

LGU Contact: Midwest Soil Testing & Inpsect Minnesota

LGU-specific setbacks:

LGU-specific design requirements:

LGU-specific installation requirements:

Notes:

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 04.02.2019

Property Owner/Client:	Ilya & Tara Berchenko	Project ID:	
Site Address:	2 Island Rd, North Oaks, MN 55127	Date Completed:	1/13/2020

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): Forest Landscape position: Back/ Side Slope

Percent slope: % Slope shape: Linear, Linear Slope direction: east

Describe the flooding or run-on potential of site:

Describe the need for Type III or Type IV system: The soil is disturbed and has rock fragments > 50%.

Note: The mound washed sand must have 1" - 3" separation from depth and horizon w/ > 50% rock frag.

Elevations and Benchmarks identified on map? (Y/N): Yes If yes, describe: See Site Plan

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: Soil near existing trenches is disturbed. The disturbed soil must be digout.

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				
Periodically saturated soil:		in	100.8	ft	Soil Texture:	Fine sandy loam	
Standing water:		in		ft	Percolation Rate:		min/inch
Bedrock:		in		ft	Soil Hyd Loading Rate:	0.78	gpd/ft^2
Benchmark:			100	ft			

Benchmarck Location: Grade at North Property Corner - See Site Plan

Differences between soil survey and field evaluation:

Site evaluation issues / comments:

Anticipated construction issues: Soil Correction - remove disturbed soil to 100.5'

Soil Observation Log

Project ID:

v 04.02.2019

Client:	Ilya Berchenko	Location / Address:	2 Island Rd, North Oaks, MN 55127

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

Landscape Position: (check one) ☐ Summit ☐ Shoulder ☒ Back/Side Slope ☐ Foot Slope ☐ Toe Slope | Slope shape: L, L

Vegetation:	GRASS	Soil survey map units:	132 B	Slope %:	0%
Elevation:	101.8'				

Weather Conditions/Time of Day: OVERCAST [redacted] / 3:00 pm | Date: 01/13/20

Observation #/Location: SB1 / See Map - [redacted] | 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
9"	0-4	FSL	20%	10YR 3/2				GR	W	FR
CREDIT	4-9	FSL	20%	10 YR 4/3				GR	W	FR
↑	9-14	FSL	15%	10 YR 5/3	10YR 5/6	C	S2	SG	STRW	L
	14-19	SCL	15%	7.5 YR 5/3	7.5YR 6/2	D	S1			
					5YR 5/6	C	S2	B	M	FM
	19-26	SCL	10%	5YR 5/4	7.5YR 5/6	C	S2			
					5YR 4/3	D	S1	B	M	FM

Comments: Limiting Layer = 9" -Dig out to 100.5'

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

Jesse Kloeppner	[signature]	L4043	01/13/20
(Designer/Inspector)	(Signature)	(License #)	(Date)

Additional Soil Observation Logs

Project ID:

Client:	Ilya Berchenko	Location / Address:	2 Island Rd, North Oaks, MN 55127

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

Landscape Position: (check one) ☐ Summit ☐ Shoulder ☒ Back/Side Slope ☐ Foot Slope ☐ Toe Slope Slope shape: C, L

Vegetation:	FOREST	Soil survey map units:	132B	Slope %:	1 %	Elevation:	101.4'
Weather Conditions/Time of Day:	Overcast [redacted] / 3:05 pm					Date:	01/13/20
Observation #/Location:	582 / See Map - [redacted]					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	FSL	>50%	10YR 3/2 10YR 4/3		DISTURBED SOIL		GR	W	FR
6-9	SIL	10%	10YR 4/3 10YR 5/3		DISTURBED SOIL		B	M	FM
9-16	SCL	15%	10YR 4/[illegible] 10YR 5/3		DISTURBED SOIL		B	M	FM
16-24	SCL	10%	7.5YR 4/4	7.5YR 5/6 10YR 5/4	C C	S2 S2	B	M	FM

0" CREDIT

Comments: Limiting Layer = 0" SOIL CREDIT - Type II - MOUND — DIGOUT to 100.5'

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*

Subsoil Indicator(s) of Saturation:

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

***Sand Modifiers**

co-coarse
m-medium
f-fine
vf-very fine

If yes to one of the above indicators then:

Topsoil Indicator(s) of Saturation:

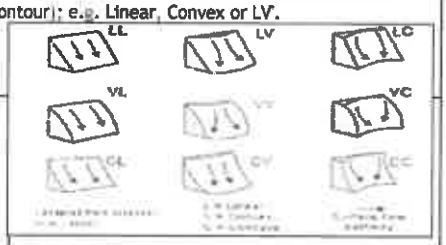
T1. Wetland Vegetation
T2. Depressional Landscape
T3. Organic texture or organic modifiers
T4. N 2.5/ 0 color
T5. Redox features in topsoil
T6. Hydric Soil

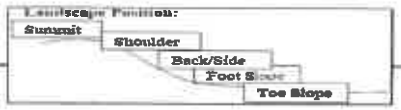
Consistence:

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

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.





Soil Structure
Grade:

Massive-	No observable aggregates, or no orderly arrangement of natural lines of weakness
Weak-	Poorly formed, indistinct peds, barely observable in place
Moderate-	Well formed, distinct peds, moderately durable and evident, but not distinct in undisturbed
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
Loose-	No peds, sandy soil

Soil Structure
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
Platy-	The peds are flat and plate like. They are oriented horizontally and are usually overlapping. Platy structure is commonly found in forested areas
Blocky-	The peds are block-like or polyhedral, and are bounded by flat or slightly rounded surface that are casting of the faces of surrounding peds.
Prismatic-	Flat or slightly rounded vertical faces bound the individual peds. Peds are distinctly longer vertically, and faces are typically cast or molds of
Single Grain-	The structure found in a sandy soil. The individual particles are not held together.

Soil Observation Log

Project ID:

v 04.02.2019

Client:	Ilya Berchenko	Location / Address:	2 Island Rd, North Oaks, MN 55127

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

Landscape Position: (check one) ☐ Summit ☐ Shoulder ☒ Back/Side Slope ☐ Foot Slope ☐ Toe Slope — Slope shape: L, L

Vegetation:	GRASS	Soil survey map units:	132B	Slope %:	0 %
Elevation (ft):	101.7'				

Weather Conditions/Time of Day:	Overcast [redacted] / 3:12 pm	Date:	01/13/20
Observation #/Location:	SP1 / See Map - [redacted]	Observation Type:	Soil Pit

	Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0" CREDIT	0-5	FSL	>50	10YR 3/2		DIST. SOIL		GR	W	FR
6" CREDIT	5-11	FSL	3[illegible]%	10YR 3/4				GR	W	[illegible]
0" CREDIT	11-18	FSL	>50%	10YR 4/3				GR	M	FM
↑	18-25	FSL	>50%	10YR 4/4	10YR 6/2	D	S1	GR	M	FM
					7.5YR 5/3	C	S2			

Comments Limiting Layer = 0" SOIL CREDIT - Type III - MOUND DIGOUT TO 100.5'

* Dig extra soil to create 3" separation for 36" mound.

Additional Soil Observation Logs

Project ID:

Onsite Sewage Treatment Program

Client:	Ilya Berchenko	Location / Address:	2 Island Rd, North Oaks, MN 55127

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

Landscape Position: (check one) ☐ Summit ☐ Shoulder ☒ Back/Side Slope ☐ Foot Slope ☐ Toe Slope | Slope shape: C L

Vegetation: FOREST | Soil survey map units: 132B | Slope %: 1 % | Elevation (ft): 101.4'

Weather Conditions/Time of Day: OVERCAST [redacted] / 3:45 pm | Date: 01 / 13 / 20

Observation #/Location: SP2 / See Map - [redacted] | Observation Type: Soil Pit

	Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0" CRCOIT	0-7	FSL	>50%	10YR 3/3				GR	W	FR
↑	7-11	FSL	>50%	10YR 4/3	10YR 6/2	D	S1	GR	W	FR
	11-17	Loam	25%	10YR 4/4	10YR 5/6	C	S2	GR	M	FR
	17-22	Loam	25%	10YR 4/6	10YR 4/1	D	S1	GR	M	FR

Comments Limiting Layer = 0" SOIL CRCOIT - 101.4' - Type III - MOUND

Design Summary Worksheet

1. PROJECT INFORMATION

v 04.02.2019

Property Owner/Client: Ilya & Tara Berchenko

Project ID:

Site Address: 2 Island Rd, North Oaks, MN 55127

Date: 01/18/20

2. DESIGN FLOW & WASTE STRENGTH

Attach data / estimate basis for Other Establishments

Design Flow: 600 GPD

Anticipated Waste Type: Residential

BOD: 170 mg/L TSS: 60 mg/L Oil & Grease: 20 mg/L

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

3. HOLDING TANK SIZING

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

Code Minimum Holding Tank Capacity: Gallons in Tanks or Compartments

Recommended Holding Tank Capacity: Gallons in 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 in 2 Tanks or Compartments

Recommended Septic Tank Capacity: 2500 Gallons in 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 in Tanks or Compartments

Recommended Septic Tank Capacity: Gallons in Tanks or Compartments

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

5. PUMP TANK SIZING

Pump Tank 1 Capacity (Minimum): 1000 Gal

Pump Tank 1 Capacity (Recommended): 1000 Gal

Pump 1 22.0 GPM Total Head 32.3 ft

Supply Pipe Dia. 2.00 in Dose Vol: 80.0 gal

Pump Tank 2 Capacity (Minimum): Gal

Pump Tank 2 Capacity (Recommended): Gal

Pump 2 GPM Total Head ft

Supply Pipe Dia. Dose Vol: Gal

Design Summary Worksheet

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Mound	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	100 ft	Benchmark Location:	Grade at North Property Corner -
MPCA System Type:	Type III	Distribution Media:	Rock
Type III/IV Details:	See Site Plan		

7. SITE EVALUATION SUMMARY:

Describe Limiting Condition: Redoximorphic Features/Saturated Soils

Layers with >35% Rock Fragments? (yes/no) Yes 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	
Limiting Condition:	0	inches	0.0	ft	100.8	ft
Minimum Req'd Separation:	36	inches	3.0	ft		
Code Max System Depth:	Mound	inches	-3.0	ft	Elevation 103.8	ft

Critical for system compliance

This is the maximimum depth to the bottom of the distribution media. Negative Depth (ft) means it must be a mound.

Soil Texture:	Fine Sandy Loam		
Soil Hyd. Loading Rate:	0.78 GPD/ft^2	Percolation Rate:	MPI
Contour Loading Rate:	12	Note:	
Measured Land Slope:	0.0 %	Note:	Area must be dugout and leveled below 36" of separation.
Comments:			

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area	ft^2	Sidewall Depth	in	Trench Width	ft
Total Lineal Feet	ft	No. of Trenches		Code Max. Trench Depth	in
Contour Loading Rate	ft	Min. Length	ft	Designed Trench Depth	in

Bed:

Dispersal Area	ft^2	Sidewall Depth	in	Maximum Bed Depth	in
Bed Width	ft	Bed Length	ft	Designed Bed Depth	in

Mound:

Dispersal Area	500.0 ft^2	Bed Length	50.0 ft	Bed Width	10.0 ft
Absorption Width	15.0 ft	Clean Sand Lift	3.0 ft	Berm Width (0-1%)	15.9 ft
Upslope Berm Width	15.9 ft	Downslope Berm	15.9 ft	Endslope Berm Width	15.9 ft
Total System Length	81.8 ft	System Width	41.8 ft	Contour Loading Rate	12.0 gal/ft

Design Summary Worksheet

Project ID:

At-Grade:

Bed Width	ft	Bed Length	ft	Finished Height	ft
Contour Loading Rate	gal/ft	Upslope Berm	ft	Downslope Berm	ft
Endslope Berm	ft	System Length	ft	System Width	ft

Level & Equal Pressure Distribution

No. of Laterals	3	Perforation Spacing	3 ft	Perforation Diameter	3/16 in
Lateral Diameter	1.50 in	Min Dose Volume	63 gal	Max Dose Volume	150 gal

Non-Level and Unequal Pressure Distribution

	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

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

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 = lbs. BOD/day

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

Lbs. BOD To Be Removed:

PreTreatment Technology: *Must Meet or Exceed Target

Disinfection Technology: *Required for Levels A & B

C. Organic Loading to Soil Treatment Area:

mg/L X gpd x 8.35 ÷ 1,000,000 ÷ ft^2 = lbs./day/ft^2

Design Summary Worksheet

10. Comments/Special Design Considerations:

1. The existing tank and pump will need to be removed or abandoned. The new septic tank volumes will meet or exceed required standards set by City of North Oaks.

2. Prior to construction of the mound, trees will need to be removed in and around the Absorption Area, including the two very large Oak trees.

3. Prior to adding the washed-mound sand, the Mound Absorption Area will require a soil correction with a digout of material. Digout disturbed & natural soil below Absorption Area to elevation of 100.5' then add washed-mound sand to elevation 103.8'. The digout area below 15' x 50' Absorption Area must be leveled to be able to construct a 0% Mound with equally sloped bermed on all sides.

4. Additional 3" of soil, below mound separation of 36" from limiting layer, is required to avoid direct contact with treatment media (washed sand) and the soil horizon with >50% fragments at Soil Pits SP1 & SP2. (see Soil Boring Logs)

5. A variance request will be necessary from City of North before implementation of this design due to infringement of required 30-foot setback for septic tanks & Mound Absorption Area. However, to meet Minnesota setback requirements, all septic system components are > 10 feet from property lines.

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

Jesse Kloeppner		L4043	1/18/2020
(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 04.02.2019

A. Design Flow :	600	GPD
B. Soil Loading Rate:	0.78	GPD/ft^2
C. Depth to Limiting Condition:	0.0	ft
D. Percent Land Slope:	0.0	%
E. Design Media Loading Rate:	1.2	GPD/ft^2
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	OR	1.0, 1.3, 2.0, 2.4, 2.6	→	≤12
61-120 mpi		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		Treatment Level A, A-2, B,	
	Absorption Area Loading Rate (gpd/ft^2)	Mound Absorption Ratio	Absorption Area Loading Rate (gpd/ft^2)	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	1.5
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. Calculate Dispersal Bed Area: Design Flow (1.A) ÷ Design Media Loading Rate (1.E) = ft^2

600 GPD ÷ 1.2 GPD/ft^2 = 500 ft^2

If a larger dispersal media area is desired, enter size: _____ ft^2

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

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

10 ft^2 X 1.2 GPD/ft^2 = 12.0 gal/ft *Can not exceed Table 1*

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

500 ft^2 ÷ 10 ft = 50.0 ft

3. ABSORPTION AREA SIZING

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

10.0 ft X 1.5 = 15.0 ft

B. For slopes from 0 to 1%, the Absorption Width is measured from the bed equally in both directions.

Absorption Width Beyond the Bed: Absorption Width (3.A) - Bed Width (2.B) ÷ 2 = Width beyond Bed

(15.0 ft - 10.0 ft) ÷ 2 = 2.5 ft

4. DISTRIBUTION MEDIA: ROCK

Project ID:

A. Rock Depth Below Distribution Pipe

6 in 0.50 ft

5. DISTRIBUTION MEDIA: REGISTERED TREATMENT PRODUCTS: CHAMBERS AND EZFLOW

A. Enter Dispersal Media:

B. Enter the Component: Length: ft Width: ft Depth: ft

C. Number of Components per Row = Bed Length divided by Component Length (Round up)

ft ÷ ft = components/row

D. Actual Bed Length = Number of Components/row X Component Length:

components X ft =

Check registered product information for specific application and design

E. Number of Rows = Bed Width divided by Component Width

ft ÷ ft = rows *Adjust width so this is a whole number.*

F. Total Number of Components = Number of Components per Row X Number of Rows

X = components

6. MOUND SIZING

A. Calculate Clean Sand Lift: 3 feet minus Depth to Limiting Condition = Clean Sand Lift (1 ft minimum)

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

B. Upslope Mound Height = Clean Sand Lift + Depth of Media + Depth of Cover (1 ft)

3.0 ft + 0.80 ft + 1.50 ft = 5.3 ft

C. Berm Width = Upslope Mound Height (4.B) X 4 (4 is recommended, but could be 3-12)

5.3 ft X 3.0 ft = 15.9 ft

D. Total Landscape Width = Berm Width + Dispersal Bed Width + Berm Width

15.9 ft + 10.0 ft + 15.9 ft = 41.8 ft

E. Additional Berm Width necessary for absorption - Absorption Width - Total Landscape Width

15.0 ft - 41.8 ft = 0 ft if number is negative (<0), value is **ZERO**

F. Final Berm Width = Additional Berm Width + Berm Width

0 ft + 15.9 ft = 15.9 ft

G. Total Mound Width = Final Berm Width + Dispersal Bed Width + Final Berm Width

15.9 ft + 10.0 ft + 15.9 ft = 41.8 ft

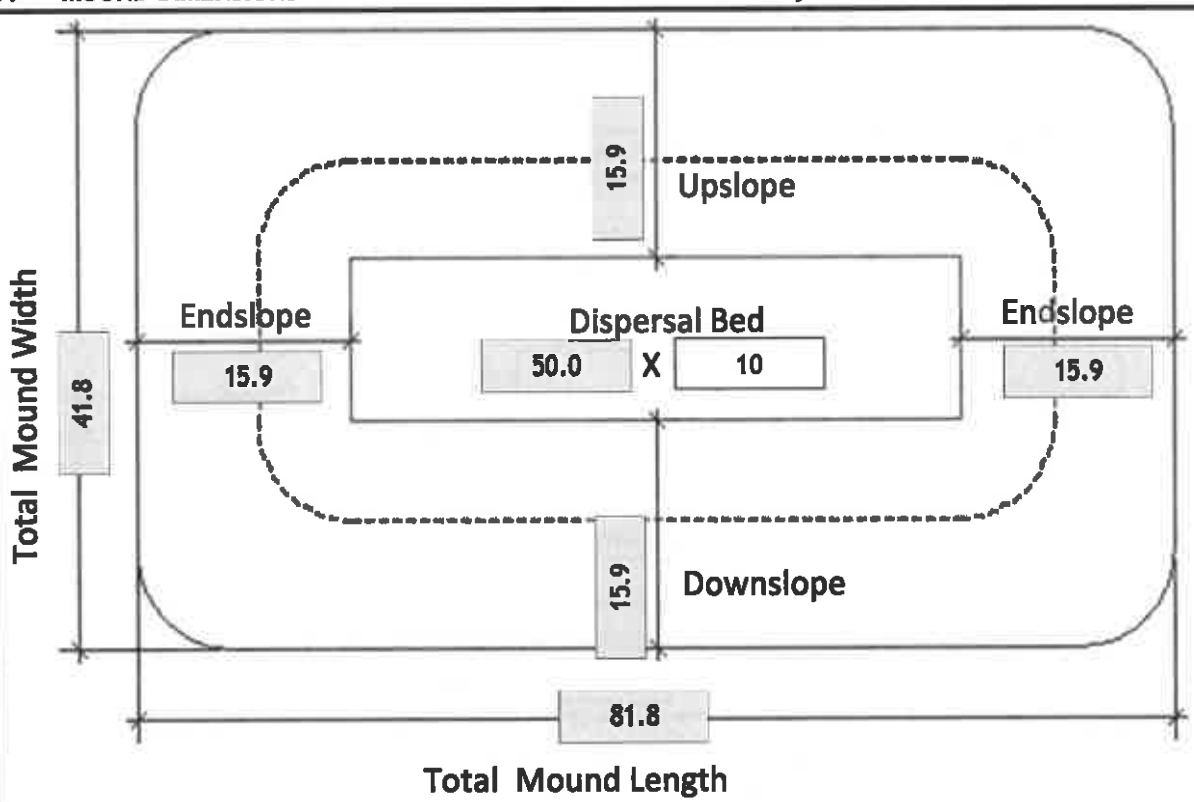
H. Total Mound Length = Final Berm Width + Dispersal Bed Length + Final Berm Width

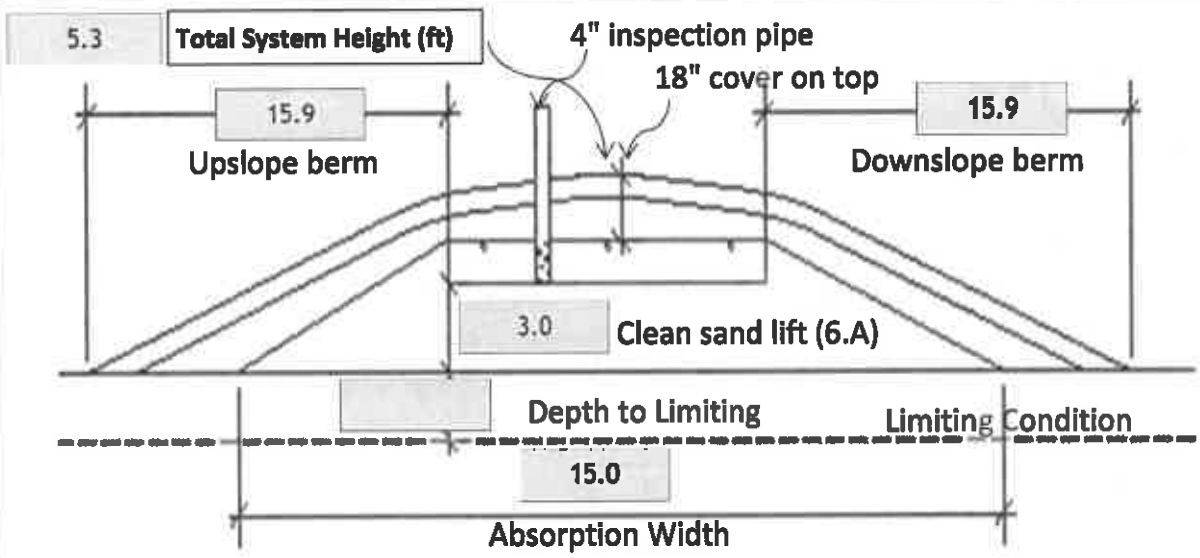
15.9 ft + 50.0 ft + 15.9 ft = 81.8 ft

I. Setbacks from the Bed: Absorption Width - Dispersal Bed Width divided by 2

(15.0 ft - 10.0) / 2 = 2.5 ft

7. MOUND DIMENSIONS Project ID:





Comments:

There are a few large Oak trees which will need to be removed. All berms calculated at 3:1 ratio.

Area must be dugout and leveled below 36" of separation. Extra washed-mound sand will be required to backfill removed soil needed for soil correction & separation from soil horizon with >50% rock fragements. The depth of the additional sand is 3" of below design elevation of 100.8'.

University of Minnesota Onsite Sewage Treatment Program

Mound Materials Worksheet

Minnesota Pollution Control Agency

Project ID: v 04.02.2019

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

(6 in + 3.5 in) ÷ 12 50.0 ft X 10.0 ft = 395.8 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 395.8 ft^3 ÷ 27 = 14.7 yd^3

Add 30% for constructability: 14.7 yd^3 X 1.3 = 19.1 yd^3

B. Calculate *Clean Sand Volume:*

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

3.0 ft X 10.0 ft X 50.0 ft = 1500.0 ft^3

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)

5.30 ft - 1) X 2.50 X 50 ft = 537.50

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

5.30 ft - 1) X 2.50 X 10 ft = 107.50

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

537.5 ft^3 + 107.5 ft^3 + 1500 ft^3 = 2145.0 ft^3

For a Mound on a slope greater than 1%

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

((ft - 1) X 3.0 ft X) ÷ 2 = ft^3

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

((ft - 1) X ft X) ÷ 2 = ft^3

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

(ft - 1) X 3.0 ft X ft = ft^3

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

ft^3 + ft^3 + ft^3 + ft^3 = ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 2145.0 ft^3 ÷ 27 = 79.4 yd^3

Add 30% for constructability: 79.4 yd^3 X 1.3 = 103.3 yd^3

C. Calculate *Sandy Berm Volume:*

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

(5.3 - 0.5)ft X 41.8 ft X 81.8) ÷ 2 = 8206.2 ft^3

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

8206.2 ft^3 - 2145.0 ft^3 - 395.8 ft^3 = 5665.3 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 5665.3 ft^3 ÷ 27 = 209.8 yd^3

Add 30% for constructability: 209.8 yd^3 x 1.2 = 272.8 yd^3

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

41.8 ft X 81.8 ft X 0.5 ft = 1709.6 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 1709.6 ft^3 ÷ 27 = 63.3 yd^3

Add 30% for constructability: 63.3 yd^3 x 1.3 = 48.7 yd^3

Onsite Sewage Treatment Program

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 04.02.2019

1. Media Bed Width: 10 ft

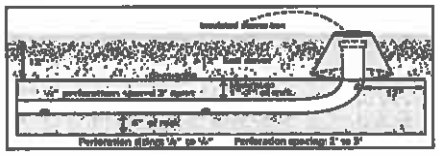
2. Minimum Number of Laterals in system/zone = Rounded up number of [(Media Bed Width - 4) ÷ 3] + 1.

[(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 - 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* by the *Perforation Spacing* 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*. 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						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	10	13	18	30	60	2	11	16	21	34	68
2½	8	12	16	28	54	2½	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60
3/16 Inch Perforations						**1/8 Inch Perforations**					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	12	18	26	46	87	2	21	33	44	74	149
2½	12	17	24	40	80	2½	20	30	41	69	135
3	12	16	22	37	75	3	20	29	38	64	128

9. *Total Number of Perforations* equals the *Number of Perforations per Lateral* multiplied by the *Number of Perforated Laterals.*

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

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

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

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

12. Calculate the *Square Feet per Perforation. Recommended value is 4-11 ft^2 per perforation.*
    Does not apply to At-Grades

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

    10 ft X 50 ft = 500 ft^2

    b. *Square Foot per Perforation = Bed Area* divided by the *Total Number of Perforations*.

    500 ft^2 ÷ 51 perforations = 9.8 ft^2/perforations

13. Select *Minimum Average Head*: 1.0 ft

14. Select *Perforation Discharge* (GPM) based on Table: 0.41 GPM per Perforation

15. Determine required *Flow Rate* by multiplying the *Total Number of Perfs.* by the *Perforation Discharge*.

    51 Perfs X 0.41 GPM per Perforation = 22 GPM

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

17. *Volume of Distribution Piping* =
    = [*Number of Perforated Laterals* X *Length of Laterals* X (Volume of Liquid Per Foot of Distribution Piping]

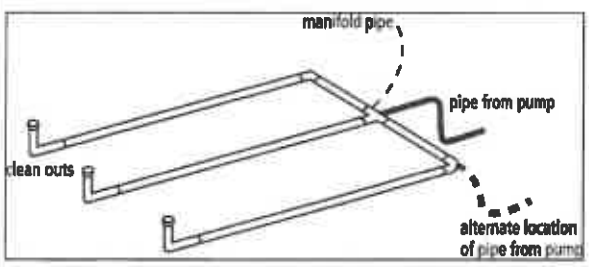
    3 X 48 ft X 0.110 gal/ft = 15.8 Gallons

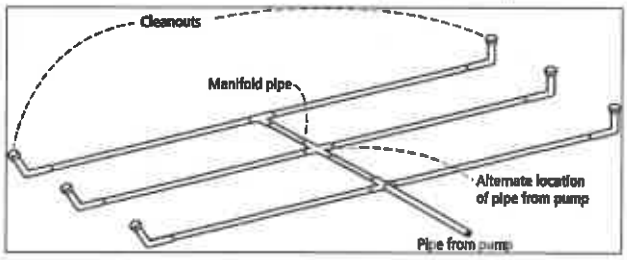
18. Minimum Delivered Volume = Volume of Distribution Piping X 4

    15.8 gals X 4 = 63.4 Gallons

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 Pump Selection Design Worksheet

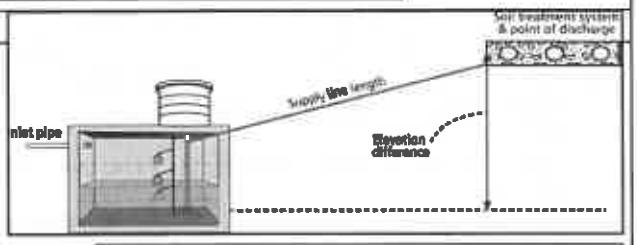
MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY Project ID: v 04.02.2019

Pumping to Gravity or Pressure Distribution: **Pressure**

1. If pumping to gravity enter the gallon per minute of the pump: _____ GPM *(10 - 45 gpm)*
2. If pumping to a pressurized distribution system: **22.0** GPM
3. Enter pump description: **Demand Dosing**

2. HEAD REQUIREMENTS



A. Elevation Difference between pump and point of discharge: **25** ft

B. Distribution Head Loss: **5** ft

C. Additional Head Loss: **0.0** ft (due to special equipment, etc.)

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: **135** ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = **1.34** 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 (D.2)* X 1.25 = *Equivalent Pipe Length*

135 ft X 1.25 = **168.8** ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* (Line E) by the *Equivalent Pipe Length* (Line F) and divide by 100.

Supply Friction Loss =

1.34 ft per 100ft X **168.8** ft + 100 = **2.3** ft

H. *Total Head* requirement is the sum of the *Elevation Difference* (Line A), the Distribution Head Loss (Line B), Additional Head Loss (Line C), and the Supply Friction Loss (Line G)

25.0 ft + **5.0** ft + **0.0** ft + **2.3** ft = **32.3** ft

3. PUMP SELECTION

A pump must be selected to deliver at least **22.0** GPM (Line 1 or Line 2) with at least **32.3** feet of total head.

Comments:

Pump Tank Design Worksheet (Demand Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS | Project ID: | v 04.02.2019

1. A. *Design Flow (Design Sum.1A)*: 600 GPD C. Tank Use: Dosing
   B. Min. required pump tank capacity: 600 Gal D. Recommended pump tank capacity: 1000 Gal

2. A. Tank Manufacturer: Minnesota Precast B. Tank Model: 1000 Pump Tank
   C. Capacity from manufacturer: 1000 Gallons
   D. Gallons per inch from manufacturer: 25.0 Gallons per inch
   E. Liquid depth of tank from manufacturer: 40.0 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* (2C or 3E)

(10 in + 2 inches) X 25.0 Gallons Per Inch = 300 Gallons

4 ***Minimum Delivered Volume*** = 4 X Volume of Distribution Piping:

-Item 18 of the Pressure Distribution or Item 11 of Non-level 63 Gallons (Minimum dose) 2.5 inches/dose

5 Calculate *Maximum Pumpout Volume* (25% of Design Flow)

Design Flow: 600 GPD X 0.25 = 150 Gallons (Maximum dose) 6.0 inches/dose

6 ***Select a pumpout volume that meets both Minimum and Maximum:*** 80 Gallons

7 Calculate *Doses Per Day* = Design Flow ÷ *Delivered Volume*

600 gpd ÷ 80 gal = 7.50 *Doses*

8 Calculate Drainback:

A. *Diameter of Supply Pipe* = 2 inches

B. Length of Supply Pipe = 135 feet

C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.170 Gallons/ft

D. *Drainback = Length of Supply Pipe X Volume of Liquid Per Lineal Foot of Pipe*

135 ft X 0.170 gal/ft = 23.0 Gallons

9. ***Total Dosing Volume = Delivered Volume*** plus ***Drainback***

80 gal + 23.0 gal = 103 Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank

3 in X 25.0 gal/in = 75.0 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

11. Calculate *Float Separation Distance* using *Dosing Volume*.

Total Dosing Volume / Gallons Per Inch

103 gal ÷ 25.0 gal/in = 4.1 inches

12. 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 + Float Separation Distance*

12 in + 4.1 in = 16 inches

C. *Distance to set Alarm Float = Distance to set Pump-On Float + Alarm Depth* (2-3 inches)

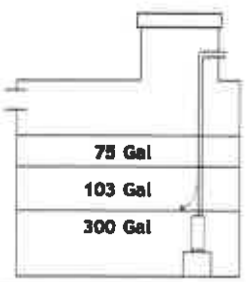
16 in + 3.0 in = 19 inches

Inches for Dose: 4.1 in

Alarm Depth 19.1 in

Pump On 16.1 in

Pump Off 12.0 in



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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	Ilya & Tara Berchenko	Email	
Property Address	2 Island Roa, North Oaks, MN 55127	Property ID	073022330001
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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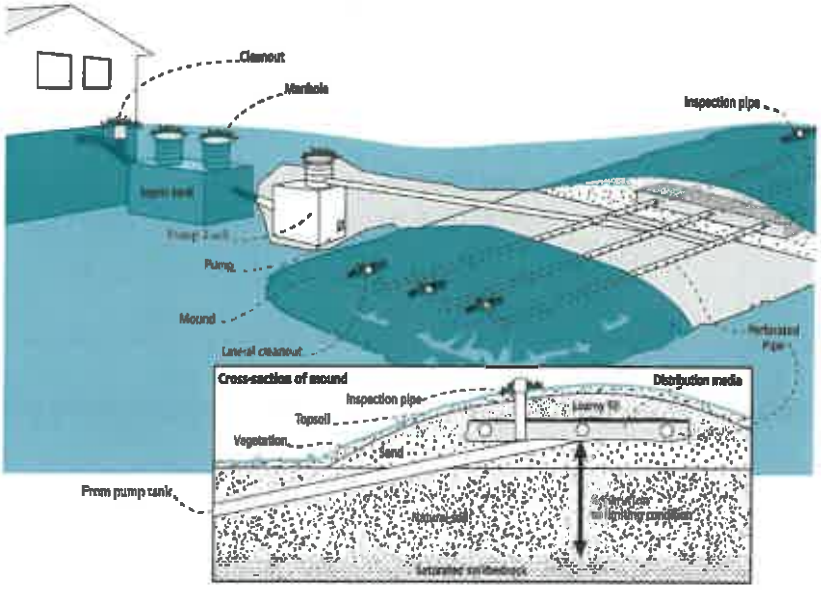
Septic System Management Plan for Above Grade Systems

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: 4

System capacity/ design flow (gpd): 600

Anticipated average daily flow (gpd): 420

Comments _____

Business? : ○ Y ◉ N What type? _____

Well Construction

Well depth (ft): > 210

☐ Cased well Casing depth: 183

☐ Other (specify): _____

Distance from septic (ft): > 50'

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:* 1,000 *gallons*

☐ Tank is constructed of Concrete

☐ Effluent screen: ◉ Y ○ N Alarm ◉ Y ○ N

☐ Pump Tank 1,500 *gallons*

☐ Effluent Pump *make/model:* Installer Choice

Pump capacity 22 GPM

TDH 33 Feet of head

☐ Alarm location TBD

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 41.8 ft x 81.8 ft

Rock bed size (width x length): 10 ft x 50 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 36 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: 80 gallons: Pump run time: 3.25 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."

SIGN HERE

Property Owner Signature: Date

Management Plan Prepared By: Jesse Kloeppner Certification # C8188

Permitting Authority: City of North Oaks

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Ramsey County Parcel Report

Report generated 1/9/2020 8:54:33 AM

Parcel location within Ramsey County

Taxlot highlighted in red

Parcel ID: ***073022330001***

Owner(s): TARA M BERCHENKO TR, ILYA E BERCHENKO TR

Site Address: 2 ISLAND RD, NORTH OAKS MN 55127-2608

Link to Ramsey County Tax and Property Quick Info

Tax Payer(s): TARA M BERCHENKO TR
ILYA E BERCHENKO TR

Tax Address: 2 ISLAND RD, NORTH OAKS MN 55127-2608

Lot: TRACT I **Block:**

Plat Name: REGISTERED LAND SURVEY 295

Area: 1.74 **Acre(s)**

2019 Pay 2020 EMV Land:	758000
2019 Pay 2020 EMV Building:	483500
2019 Pay 2020 EMV Total:	1241500
Total Tax* in 2019 :	15408
Special Assessment in 2019 :	171.8

Tax Exempt: N

Last Sale Date: 6/30/2015 12:00:00 AM

Last Sale Price: 1228485

Homestead: Y

Use Type: SINGLE FAMILY DWELLING, PLATTED LOT

Dwelling Type: SINGLE FAMILY DWELLING, PLATTED LOT

Home Style: TWO STORY

Living Area: 6614 **Sq. Ft.**

Year Built: 1985

Garage: Y

Garage Area: 1138 **Sq. Ft.**

Heating Type:

Cooling Type:

School District: 0621

Watershed District:

Green Acre:

Open Space: N

Agriculture Preserve: N

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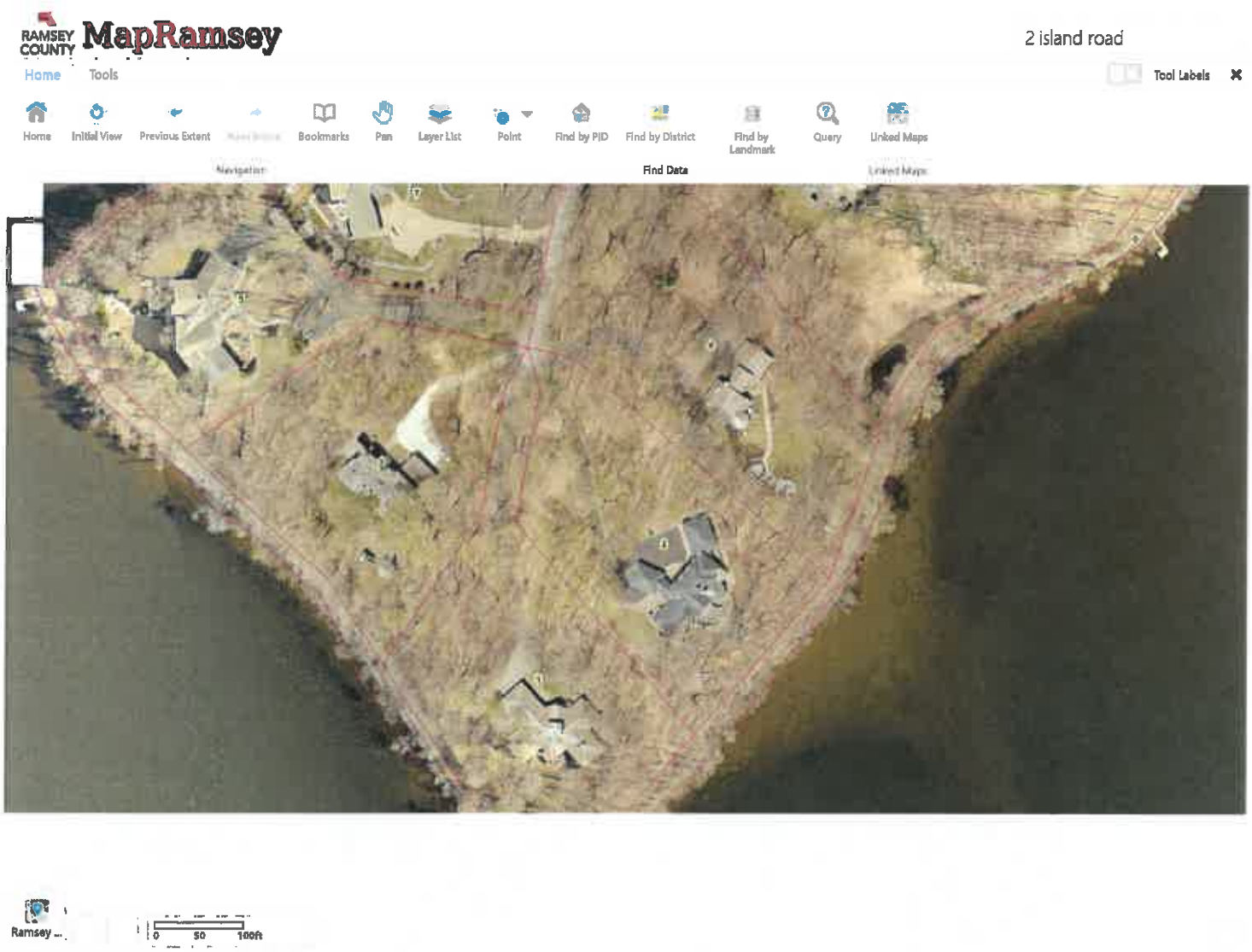
*The user of this report acknowledges that the City/County shall not be liable for any damages, and expressly waives all claims, and agrees to defend, indemnify, and hold harmless the City/County from any and all claims brought by the User, its employees or agents, or third parties which arise out of the User's access or use of data provided. *Total Tax includes special assessment due if any.*


RAMSEY COUNTY
MapRamsey
2 island road
Home
Tools
Tool Labels
Home
Initial View
Previous Extent
Bookmarks
Pan
Layer List
Point
Find by PID
Find by District
Find by Landmark
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United States Department of Agriculture

Natural Resources Conservation Service

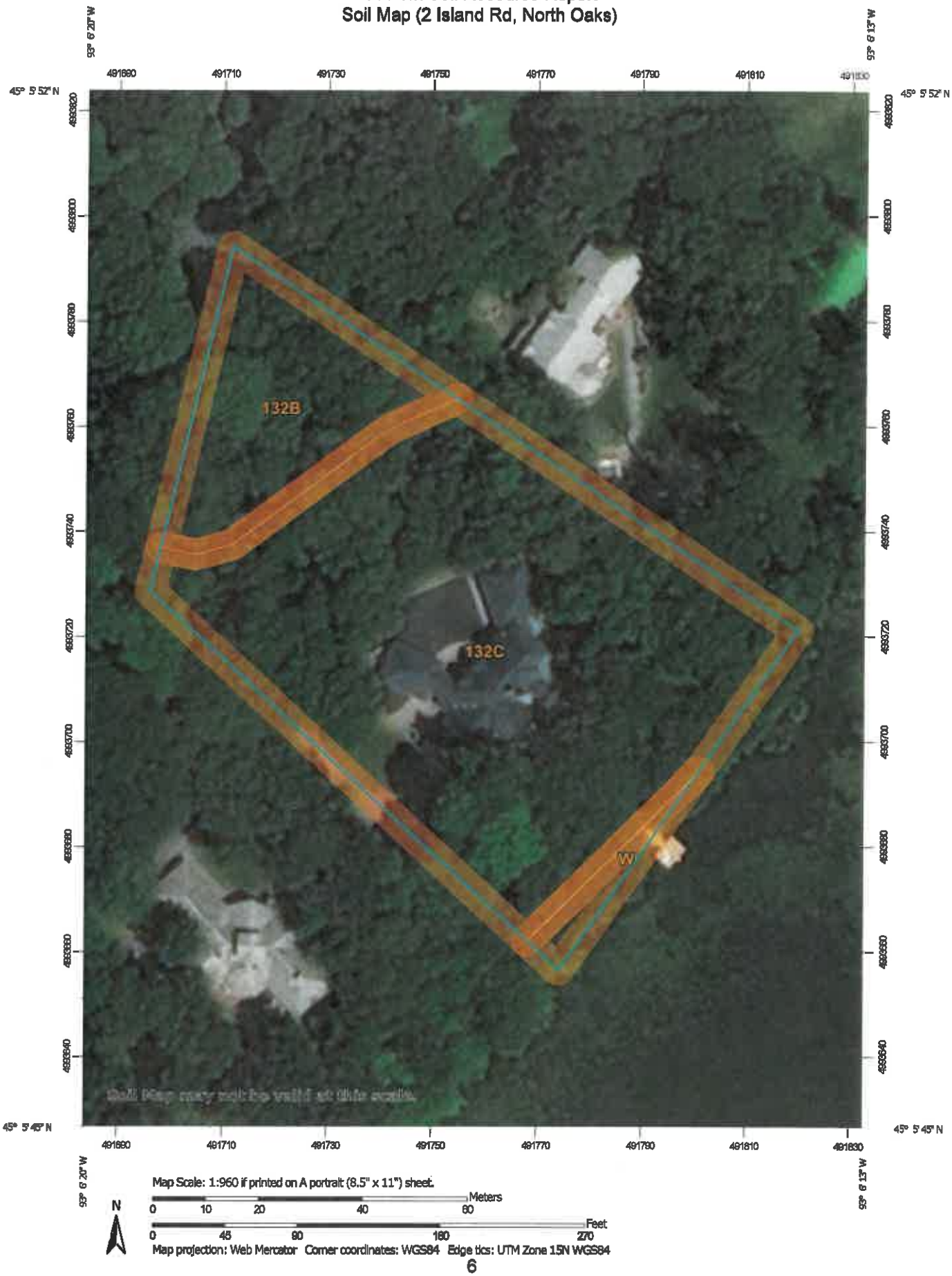
A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ramsey County, Minnesota

2 Island Road, North Oaks

January 8, 2020

Custom Soil Resource Report
Soil Map (2 Island Rd, North Oaks)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ramsey County, Minnesota
Survey Area Data: Version 14, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 3, 2015—Sep 13, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (2 Island Rd, North Oaks)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
132B	Hayden fine sandy loam, 2 to 6 percent slopes	0.4	18.8%
132C	Hayden fine sandy loam, 6 to 12 percent slopes	1.6	79.0%
W	Water	0.0	2.3%
Totals for Area of Interest		**2.1**	**100.0%**

Map Unit Descriptions (2 Island Rd, North Oaks)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

Ramsey County, Minnesota

132B—Hayden fine sandy loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 1t980
Elevation: 700 to 1,600 feet
Mean annual precipitation: 27 to 33 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 135 to 180 days
Farmland classification: All areas are prime farmland

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): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Till

Typical profile

Ap - 0 to 9 inches: fine sandy loam
E - 9 to 15 inches: fine sandy loam
Bt - 15 to 50 inches: clay loam
C - 50 to 60 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural 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 in profile: 25 percent
Available water storage in profile: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Forage suitability group: Sloping Upland, Acid (G090XN006MN)
Hydric soil rating: No

Minor Components

Bluffton

Percent of map unit: 4 percent
Landform: Depressions on moraines

Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rifle
Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

Nessel
Percent of map unit: 3 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: 27 to 33 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 135 to 180 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
Natural 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 in profile: 25 percent
Available water storage in profile: High (about 10.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Forage suitability group: 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

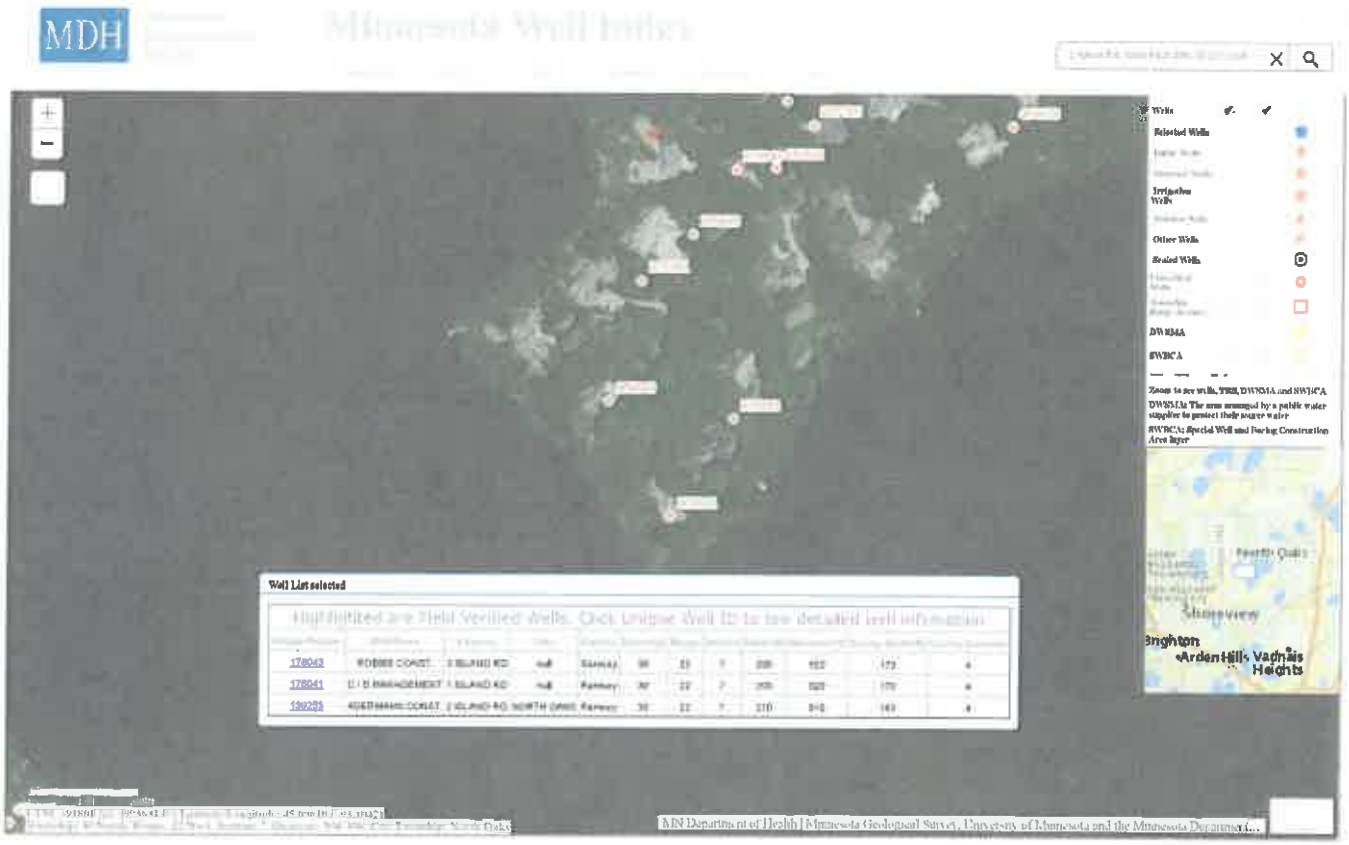
Nessel
Percent of map unit: 2 percent
Hydric soil rating: No

W—Water

Map Unit Composition
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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
132B—Hayden fine sandy loam, 2 to 6 percent slopes							
Hayden	90	Not limited		Slightly limited		Not limited	
				Slope	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
W—Water							
Water	100	Not rated		Not rated		Not rated	

MDH
Minnesota Department of Health
Minnesota Well Index
North Oaks
Shoreview
MN Department of Health | Minnesota Geological Survey, University of Minnesota and the Minnesota Department


MDH
Minnesota Well Index
Well
Selected Wells
Irrigation Wells
Other Wells
Sealed Wells
DWMA
SWBCA
Zoom to see wells, TRS, DWMA and SWBCA
DWMA: The area managed by a public water supplier to protect their source water
SWBCA: Special Well and Boring Construction Area layer
Well List selected
Highlighted are Field Verified Wells. Click Unique Well ID to see detailed well information
178043
178041
136293
Shoreview
Arden Hills
Vadnais Heights
MN Department of Health | Minnesota Geological Survey, University of Minnesota and the Minnesota Department...

July 22, 2020
VARIANCE 20-08
Ilya and Tara Berchenko
2 Island Road
North Oaks, MN 55127
RSL Zoning

Date Application Determined Complete:	July 10, 2020
Planning Commission Meeting Date	July 30, 2020
City Council Meeting Date:	August 13, 2020
120 Day Review Date:	November 19, 2020

Description of Request

The applicant is requesting a variance to install a sub-surface sewage treatment system (SSTS), which would encroach 15 feet into the required 30 foot west property line setback and 15 feet into the required southwest property line setback.

The applicable regulations are as follows:

§ 151.050 RSL - RESIDENTIAL SINGLE-FAMILY LOW DENSITY DISTRICT.

(F) Setbacks.

(1) No building or structure (except fences, screening, planting strips, and landscaping in compliance with Sections 151.033 and 151.034), individual sewage treatment system, or well shall be located within thirty (30) feet of the lot lines, the nearest edge of any road easement(s), or any wetland(s), except that additions which do not exceed twenty five (25) percent of the existing building footprint area, on buildings or structures lawfully existing upon the effective date of this chapter shall be excluded from wetland setback requirements.

Staff Review

The current system has been classified as non-compliant under MPCA Rule 7080.1500 Subp. 4 (D) due to the lack of the required three foot separation between the bottom of the drainfield and the limiting soil conditions.

Based on these facts, it is the staff's opinion that the applicant has met the requirements for a variance as outlined in Section 151.078 of the code. We are in agreement with the designer, Jesse Kloeppner, that the proposed location of the new system appears to be the most viable location for an SSTS. This would be the minimum variance, which would alleviate the practical difficulties.

Action Requested

That the Planning Commission make a recommendation to the City Council to approve or deny Variance #20-08 to encroach 15 feet into the required 30 foot west property line setback.

Motions

Motion to Approve

MOTION_____SECOND_____

That Variance #20-08, for 2 Island Road:

be APPROVED with the following conditions:

1. Completion date 120 days after approval.
2. System to be located per the design dated September 29, 2019 by Jesse Kloeppner.

Motion to Deny

MOTION_____ SECOND_____

That Variance #20-08, for 2 Island Road:

be DENIED with the following findings:

1.

2.

No. 20-09

CITY OF NORTH OAKS, MINNESOTA
APPLICATION FOR CUP, VARIANCE, APPEAL, AMENDMENT, PLAN REVIEW

Location of Property: (address) 4 Buffalo Rd North Oaks, MN 55127

Legal Description of Property: Tract _____ RLS _____

Fee Owner: Seema Rizvi 4 Buffalo Rd
Name Address

North Oaks MN 55127 715 523-1970
City State Zip Contact Number/s

Signature of Fee Owner: _____ Date 7/13/20

Applicant: _____
(If different from owner) Name Address

City State Zip Contact Numbers/s

Signature of Applicant: _____ Date _____

Type of Request: ***(Please circle correct request)***

CONDITIONAL USE PERMIT (as provided for in Chapter 151.076 of Code of Ordinances)

VARIANCE Per Cities request.

APPEAL

AMENDMENT

BUILDING / SITE PLAN REVIEW

OTHER

Please attach **fifteen (15)** copies of detailed written and graphic material fully explaining the proposed request and include the reason for the request, present zoning classification and existing use of the property.

(For office use)

Application received with **$450 fee** on 7/14/20 Check# 2136 Amt# $450

Date for review of completeness fifteen (15) business days from initial receipt _____

* If application is deemed incomplete, **written** notice must be sent to the applicant by above date stating the items that need to be submitted for the application to be deemed complete.

Updated 9/18

Deadline for action sixty (60) days from initial receipt _____

Extended deadline_____

** City may extend the review period by up to sixty days from the end of deadline for action only if applicant is notified in **writing** prior to the end of the initial sixty (60) day review period. The deadline may be extended beyond sixty days with applicant's approval.

Conditional Use or Amendment request - Public Hearing date _____

Planning Commission action:
Approval or disapproval on _____with conditions _____

City Council Action:
Approval or disapproval on _____with conditions _____

Variance, Appeal, Building/Site Plan Review, Other

Action of Board of Adjustment and Appeals:
Approval or disapproval on _____

Bond Required _____ Bond Received on _____

CITY REIMBURSEMENT POLICY

In connection with your request and submittal of material to be reviewed by the City of North Oaks, please be informed that if the City incurs any additional expense in the course of this application review beyond the normal processing fee, the cost will be assessed to the applicant. As authorized in Chapter 151.083 of the Ordinance Code, an applicant will be responsible for full reimbursement of incurred costs to the City of North Oaks. (A copy of this section of the Ordinance is available upon request.)

Your initial application fee of **$450.00** covers the processing of a typical zoning action. A typical process for reviewing a zoning action may include some or all of the following: City employee help in explaining the application process, City employee receipt of completed application and proper scheduling on appropriate agenda, one legal notice for a public hearing (if applicable), written notice to abutting property owners (if applicable) generation of a staff report, presentation of the staff report to the Planning Commission and presentation of the staff report and Planning Commission recommendation to the City Council.

If the scope of your application goes beyond a typical review process, you will be asked for an additional escrow deposit. At that time, you will be advised of the additional review necessary to complete your zoning action request and the potential cost for completing said review. You will be provided written documentation for your acknowledgement that outlines the above two items.

An applicant will be allowed to remove their request at any time during said further review process. Any remaining escrow deposit that is not needed to pay incurred costs to the date of application removal will be refunded to the applicant within sixty days.

I acknowledge that I have read and fully understand the above statements.

_____ Date 7/13/20

Applicant's Signature

Updated 9/18

CITY OF NORTH OAKS

100 Village Center Dr., Suite 230, North Oaks, MN 55127
(651) 792-7750 Fax: (651) 792-7751

INDIVIDUAL SEWAGE TREATMENT SYSTEM APPLICATION/PERMIT

Application Date 5/29/2020

Job Address 4 Buffalo Road North Oaks MN 55127 **Permit No.** 20-329

Owner Seema Ahmed **Fee Type I, II, III $450**
Type IV $450 plus $85/hr.

Installer Gustafson Excavating

Address 6610 410th Street PO BOX 788 North Branch MN 55056

Phone No. 651-674-7430 **MPCA Certificate No.** 1055

Legal Description: **RLS**_____ **Tract**_____

Proposed Work

Description Type III Mound with (2) 1500 gallon tanks & new dose tank to pump effluent to the mound
(New System, Alteration, Repair)

Type of System Type III Mound **No. of Bedrooms** 5

Variance No. (if applicable) 20-09 **No. of TANKS** 3

DeAndra Gorsegner
Signature of Applicant

DeAndra Gorsegner
Print Name

(For Office Use Only)
Date PD 6/4/20 ***Amt*** 450.00 ***Ck #*** 7865

This permit is granted upon the express condition that the person, partnership, firm or corporation to whom it is granted, together with the agents, employees, workers, and sub-contractors agree to abide by and conform to all Ordinances of the City of North Oaks regarding the construction, alteration, and repair of sewage treatment systems within the City; and that this permit may be revoked at any time upon evidence of violations of any of the provisions of said ordinances.

PERMITS ARE VALID FOR 180 DAYS

Approval Date ***Sanitary Inspector***

CUP 20-09

4 Buffalo Road
Applicant: Seema Rizvi

Abutters:
16, 18 East Pleasant Lake Road
1, 3, Sunset
14, 16, Ski Lane
8 Badger Lane

COPY

City of NorthOaks

City of North Oaks
100 Village Center Drive, Suite 230
North Oaks, MN 55127

July 17, 2020

Current Resident
8 Badger Lane
North Oaks, MN 55127

PLANNING COMMISSION MEETING INFORMATION
July 30, 2020 at 7:00 p.m.
Electronic Means only, and viewing via live CTV broadcast

Dear Current Resident:

An application for Septic Variance at 4 Buffalo Road has been received by the City of North Oaks. The North Oaks Planning Commission will consider this request at their next meeting on July 30, 2020 at 7:00 p.m.

Applicant: Seema Rizvi
Site Location: 4 Buffalo Road
Request: Subsurface Sewage Treatment System ordinance 51.02, section 11, requires a septic variance application, for purposes of addressing a replacement septic system 4 feet inside the 30 foot setback at the SE corner of the Type III Mound soil absorption area.
Notification: You are hereby notified of a meeting before the City of North Oaks Planning Commission.
Information: The final information packet will be available for review after 7/24/2020 at www.cityofnorthoaks.com.

Those persons having an interest in said meeting are encouraged to participate. The meeting will take place by remote telephone or other electronic means only as meeting in-person has been deemed to be neither practical nor prudent, and it is unfeasible to have any members of the Planning Commission or public present at the physical meeting location, namely the Community Room, 100 Village Center Drive, North Oaks, MN, due to the health pandemic and emergency declaration.

Those wishing to submit written public comment as part of the meeting packet on the Septic Variance application may email the City Administrator, Kevin Kress at kkress@cityofnorthoaks.com by July 23, 2020 at 4:00 p.m. **Individuals wishing to provide public comment/make a presentation at the meeting may do so by calling the following these instructions:**

Please click the link below to join the webinar:
https://us02web.zoom.us/j/82978289659?pwd=RGhXTjh6b1pQanE0Z3NGV3dSd0RQUT09
Password: 724124
Or Telephone: US: +1 312 626 6799 Webinar ID: 829 7828 9659

Individuals wishing to monitor the meeting remotely may do so in real time by watching the livestream of the meeting on North Oaks Channel 16 and on the City's website.

In addition, you may call the City offices if you have any questions at 651-792-7750.

Sincerely,

Deb Breen

Debbie Breen, Administrative Assistant

100 Village Center Drive, Suite 230 • North Oaks, Minnesota 55127
Office: 651-792-7750 • Fax: 651-792-7751 • noaks@cityofnorthoaks.com • www.cityofnorthoaks.com

COPY

City of North Oaks
100 Village Center Drive, Suite 230
North Oaks, MN 55127

July 16, 2020

Seema Rizvi
4 Buffalo Road
North Oaks, MN 55127

PLANNING COMMISSION PUBLIC HEARING INFORMATION
July 30, 2020 at 7 p.m.
Electronic Means only, and viewing via live CTV broadcast

Dear Seema:

Your application for a Septic Variance has been received by the City of North Oaks; this is Variance No. 20-09. We have received your check $450 for the application fee and your application will be discussed at a Planning Commission public hearing on this topic, which is **Thursday, July 30, 2020 at 7:00 pm.** The City Council will then decide whether to approve or disapprove your application at their meeting on **Thursday, August 6, 2020.** If the application is approved, work could commence immediately after the Council meeting.

You are encouraged to attend these meetings to be available to answer any questions which may arise. To access the Planning Commission meeting on July 30th:

Please click the link below to join the webinar:
https://us02web.zoom.us/j/82978289659?pwd=RGhXTjh6b1pQanE0Z3NGV3dSd0RQUT09
Password: 724124
Or Telephone: +1 312 626 6799 Webinar ID: 829 7828 9659

Letters will be sent to abutting neighbors 10 business days before Planning Commission meeting. Please contact our office with any questions about your application process.

Sincerely,

Debbie Breen
Administrative Assistant
City of North Oaks

4/9/2020

KSD

Your water. Our neighbors.

SSTS Design

4 Buffalo Road
North Oaks, MN 55127

PID # 183022140007

Version 1.0

Kloeppner Services & Designs, LLC
MPCA LICENSE # 4043

763.843.4114
CONNECT@KSD-MN.COM

SSTS Design Summary Report

4/9/20

On April 9th, 2020, a site evaluation was conducted at 4 Buffalo Road, North Oaks, MN 55127 to design a replacement Subsurface Sewage Treatment System (SSTS) for a 5-bedroom home. The PID number is 183022140007. The new replacement SSTS will use a Type III Mound dispersal bed with a two (2) 1,500-gallon Septic Tanks & a new Dose Tank to pump the effluent to the Mound.

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

Wastewater Sources & Peak Flow Rate
The expected waste strength is Residential Wastewater with a Peak flow of 750 gallons per day (GPD) for a 5-bedroom house. The Actual Expected Daily Flow should be less than 70% of the Peak Flow (525 GPD).

Septic Tanks
If the existing Septic Tank is not reused, the tank must be removed or abandoned. The proposed location of the tanks must remain 20' from the pool.

Type III Mound
The dispersal area will be a Type III Mound. The Mound Soil Absorption Area (STA) required is 1,250 sqft (20' x 62.5') with 24" of washed mound-sand above the ground level.

The reason for a Type III SSTS is there is no place for a Type I dispersal area. The potential Type I dispersal area will be located over the existing trenches. The site identified is does not come in contact with old existing trenches.

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.

Special Design Notes

1. A variance request will be necessary from City of North before implementation of this design due to infringement of required 30-foot setback for the Mound Absorption Area. The variance needed is 4 feet inside the setback at the SE corner of the Mound STA.
2. Prior to construction of the mound, trees will need to be removed in and around the Absorption Area.
3. The patio landscaping block and disturbed soil must be removed prior to construction within the Mound Soil Absorption Area (STA).
4. Prior to adding the washed-mound sand, the Mound Absorption Area will require a soil correction with a digout of material. Digout disturbed & natural soil below Absorption Area 10" then add washed-mound sand to backfill.

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 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.

MapRamsey

4 Buffalo Rd, North Oaks

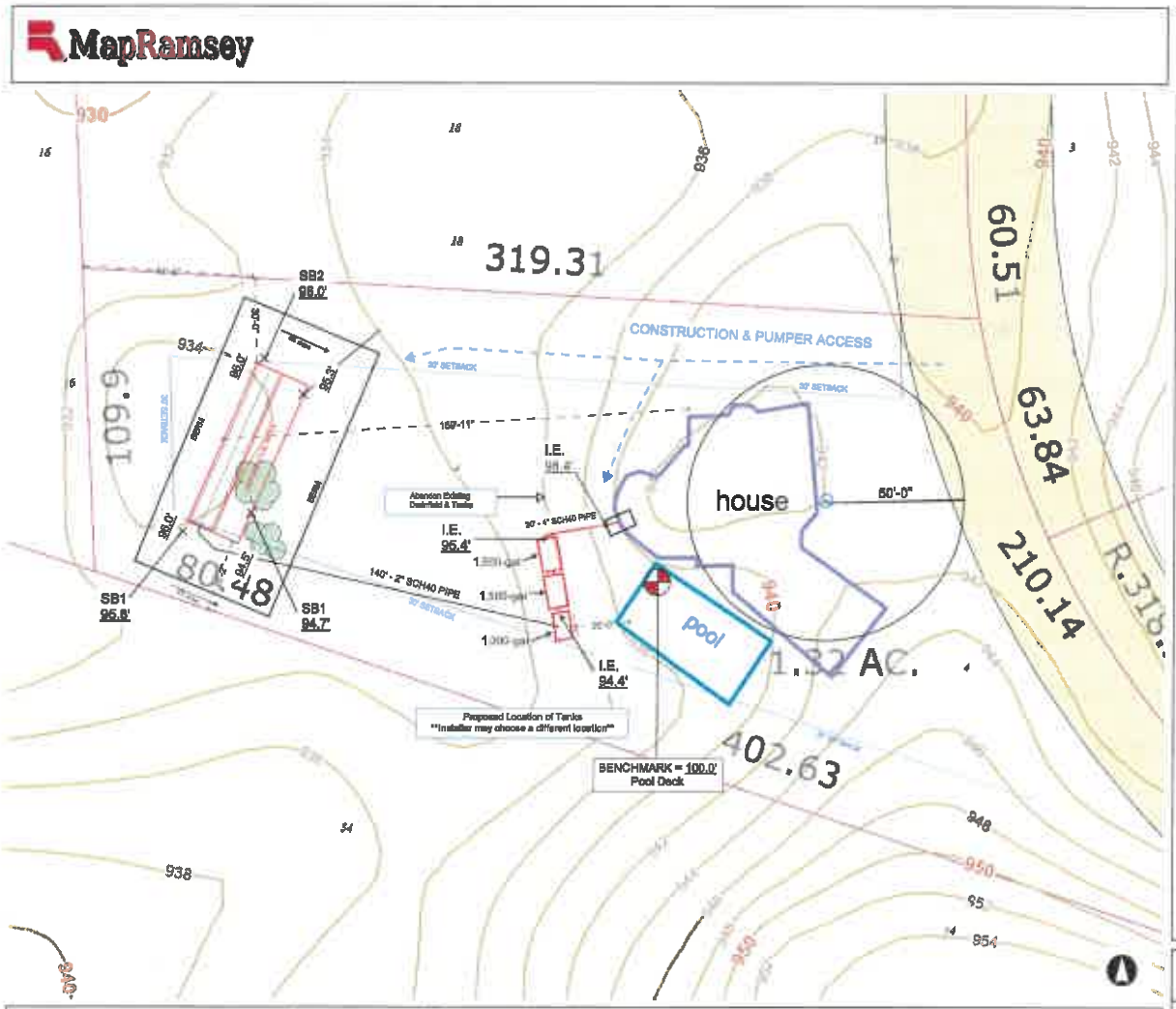
100.0 0 50.00 100.0 Feet

NAD_1983_HARN_Adj_MN_Ramsey_Feet
© Ramsey County Enterprise GIS Division

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION

Legend

Notes



Legend

MOUND DIMENSIONS
Rockbed - 10' x 62.6'
Absorption Bed - 20' x 62.6'
Total Mound - 53.0' x 103.3'

Upslope Elev. - 98.0'
Min: Sand Height - 24" @ 98.0'
Rockbed Laterals Elev. - 99.0'
Height @ Crown Elev. - 101.5'

LATERALS
3 - Laterals @ 60.5' of 1-1/2" SCH40
Spacing - 3'
Drilled Holes - 3/16"

NOTES:

1. Variance Request needed for 4 feet within 30 foot setback of SE Corner of STA.
2. Removal of patio landscaping below STA.
3. Digout disturbed soil to depth of 10" below old patio area.
4. Removal of existing septic tank under current landscaping.

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

Approved by: Jesse Kloeppner

Date - 4/9/20

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 04.02.2019

Property Owner/Client: Seema and Shambeel Rizzi

Date Completed: 4/7/2020

Site Address: 4 Buffalo Rd, North Oaks, MN 55127

Project ID:

Legal Description: Lot Jj of REGISTERED LAND SURVEY 43 SUBJ TO AND WITH PVT RD ESMTS TRACT JJ

Parcel ID: 183022140007 TWP: 30 SEC: 18 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: 5 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:

Anticipated non-domestic waste:

The above is complete & accurate: SIGN HERE

Client signature & date

B. Designer-determined flow information

Attach additional information as necessary.

Design Flow: 750 GPD Anticipated Waste Type: Residential

BOD: 170 mg/L TSS 60 mg/L Oil & Grease 20 mg/L

3. Well Information

#	Description	Mn. ID#	Well Depth (ft.)	Casing Depth (ft.)	Confining Layer	STA Setback	Source
1	4 Buffalo Road	??	>50	>50		50	Homeowner
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:	MN Well Index
Site in a Well Head Protection inner wellhead management zone (Y/N)	Yes	Yes, source:	MN Well Index
Buried water supply pipes within 50 ft of proposed system (Y/N)	No		
B. Site located in a shoreland district/area?	No	Yes, name:	
Elevation of ordinary high water level:	ft	Source:	
Classification:	Tank Setback: ft.	STA Setbk: ft.	
C. Site located in a floodplain?	No	Yes, Type(s):	
Floodplain designation/elevation (10 Year):	ft	Source:	
Floodplain designation/elevation (100 Year):	ft	Source:	

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: 169B; Braham loamy fine sand — Slope Range: 1-6 %

List landforms: Moraines

Landform position(s): Backslope

Parent materials: Outwash over till

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

Map Unit Ratings

Septic Tank Absorption Field- At-grade:	Not Limited
Septic Tank Absorption Field- Mound:	Slightly Limited
Septic Tank Absorption Field- Trench:	Moderately Limited

5. Local Government Unit Information

Name of LGU:	City of North Oaks
LGU Contact:	City Inspector for SSTS Program
LGU-specific setbacks:	
LGU-specific design requirements:	Septic Tanks for 5-bedroom: 2,000-gal & 1,000-gal
LGU-specific installation requirements:	
Notes:	

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 04.02.2019

Property Owner/Client:	Seema and Shambeel Rizzi	Project ID:	
Site Address:	4 Buffalo Rd, North Oaks, MN 55115	Date Completed:	4/9/2020

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: Shoulder

Percent slope: 8 % Slope shape: Convex, Linear Slope direction: southeast

Describe the flooding or run-on potential of site: Water will need to be diverted around mound

Describe the need for Type III or Type IV system: A patio area is located in soil absorption area.

Note: The only other available space for a Soil Treatment Area is over the existing drainfield.

Elevations and Benchmarks identified on map? (Y/N): Yes If yes, describe: See Site Plan

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 area under the STA currently has patio brinks which will need to be removed. Any soil under the patio will need to be dugout approx. 10".

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				
Periodically saturated soil:	12	in	96	ft	Soil Texture:	Fine loamy sand	
Standing water:		in		ft	Percolation Rate:		min/inch
Bedrock:		in		ft	Soil Hyd Loading Rate:	0.6	gpd/ft^2
Benchmark:			100	ft			

Benchmarck Location: Pool Deck @ NE corner

Differences between soil survey and field evaluation:

Site evaluation issues / comments:

Anticipated construction issues: Removal of patio, digout of disturbed soil, removal of septic.

Soil Observation Log

Project ID:

v 04.02.2019

Client:	Seema and Shambeel Rizzi	Location / Address:	4 Buffalo Rd, North Oaks

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

Landscape Position: (check one) ☐ Summit ☐ Shoulder ☐ Back/Side Slope ☐ Foot Slope ☐ Toe Slope | Slope shape: C L

Vegetation:	LAWN	Soil survey map units:	169B	Slope %: 3.5	Elevation: 956

Weather Conditions/Time of Day:	SUNNY / 12:00 pm	Date	04/09/20
Observation #/Location:	SB1 / See Map	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
0-8	LFS	10%	10YR 3/3				GR	W	FR
8-12	LFS	15%	10YR 3/4				GR	W	FR
94.6 ↑ 12-16	MS	20%	10YR 4/4				SG	STRU	L
16-27	MS	25%	10YR 5/4	10YR 6/2	D	S2	SG	STRU	L
				10YR 5/8	C	S1			
27-36	MS	25%	7.5YR 4/4	5YR 5/6	C	S1	SG	STRU	L

Comments: Limiting Layer = 12" - 94.6'

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

Jesse Kloeppner		L4043	4/9/2020
(Designer/Inspector)	(Signature)	(License #)	(Date)

Additional Soil Observation Logs

Project ID:

Client:	Seema and Shambeel Rizvi	Location / Address:	4 Buffalo Rd, North Oaks

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

Landscape Position: (check one) ☐ Summit ☑ Shoulder ☐ Back/Side Slope ☐ Foot Slope ☐ Toe Slope

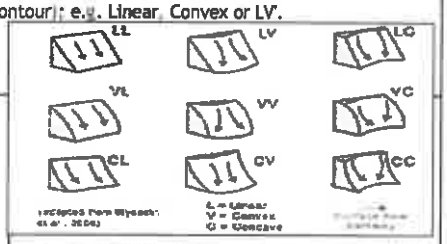
Slope shape	C, L	Vegetation:	LAWN	Soil survey map units:	169B	Slope %:	7.5	Elevation:	96.0'

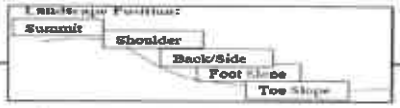
Weather Conditions/Time of Day:	Sunny / 12:30pm	Date:	04/09/20
Observation #/Location:	SB2 / See Map	Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-5	LFS	10%	10YR 3/2				GR	W	FR
5-10'	LFS	25%	10YR 4/3	DISTURBED SOIL			GR	W	FR
10-14	MS	20%	10YR 4/4				SG	STRU	L
94.8' ↑ 14-19	LMS	25%	7.5YR 4/4	10YR 6/4	D	SI	GR	W	FR
19-26	LCS	30%	7.5YR 5/4	10YR 6/6 5YR 5/4	D C	S SI	GR	W	L
26-36	LCS	25%	5YR 5/6	2.5YR 5/6	C	SI	GR	W	L

Comments: Limiting Layer = 14" - 94.8' | Remove Top ≈ 10" Disturbed Soil

Textures:	Subsoil Indicator(s) of Saturation:		Consistence:	
c-clay	S1. Depleted matrix (value >/=4 and chroma </=2)		Loose-	Intact specimen not available
sic-silty clay	S2. Distinct gray or red redox features		Friable-	Slight force between fingers
sc-sandy clay	S3. 5Y chroma </= 3		Firm-	Moderate force between fingers
cl-clay loam	S4. 7.5 YR or redder faint redox concentrations or redox depletio		Extremely firm-	Moderate force between hands or slight foot pressure
sicl-silty clay loam		If yes to one of the above indicators then:	Rigid-	Foot pressure
scl-sandy clay loam		**Topsoil Indicator(s) of Saturation:**	Slope Shape:	
si-silt		T1. Wetland Vegetation	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'.	
sil-silt loam	*Sand Modifiers	T2. Depressional Landscape		
l-loam	co-coarse	T3. Organic texture or organic modifiers		
sl-sandy loam*	m-medium	T4. N 2.5/ 0 color		
ls-loamy sand*	f-fine	T5. Redox features in topsoil		
s-sand*	vf-very fine	T6. Hydric Soil		





Soil Structure
Grade:

Massive-	No observable aggregates, or no orderly arrangement of natural lines of weakness
Weak-	Poorly formed, indistinct peds, barely observable in place
Moderate-	Well formed, distinct peds, moderately durable and evident, but not distinct in undisturbed
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
Loose-	No peds, sandy soil

Soil Structure
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
Platy-	The peds are flat and plate like. They are oriented horizontally and are usually overlapping. Platy structure is commonly found in forested areas
Blocky-	The peds are block-like or polyhedral, and are bounded by flat or slightly rounded surface that are casting of the faces of surrounding peds.
Prismatic-	Flat or slightly rounded vertical faces bound the individual peds. Peds are distinctly longer vertically, and faces are typically cast or molds of
Single Grain-	The structure found in a sandy soil. The individual particles are not held together.

Soil Observation Log

Project ID:

v 04.02.2019

Client:	Seema and Shambael Rizzi	Location / Address:	4 Buffalo Rd, North Oaks

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

Landscape Position: (check one) ☐ Summit ☒ Shoulder ☐ Back/Side Slope ☐ Foot Slope ☐ Toe Slope | Slope shape: C, L

Vegetation:	LAW	Soil survey map units:	169B	Slope %: 7.5	Elevation (ft): 94.7'

Weather Conditions/Time of Day:	OVERCAST / 12:45 pm	Date:	04/09/20
Observation #/Location:	SP1 / See Map	Observation Type:	Soil 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	LFS	10%	10YR 3/4				GR	W	FR
4-10	LFS	15%	10YR 3/6				GR	W	FR
10-13	LFS	10%	10YR 5/4				GR	W	FR
13-24	MS	15%	10YR 5/4	10YR 5/2	D	S2	SG	STRW	L
				7.5YR 5/6	C	S1			
24-36	LMS	20%	7.5YR 4/6	5YR 5/6	C	S1	GR	W	L

Comments Limiting Layer = 13" - 93.6'

Additional Soil Observation Logs

Project ID:

Client:	Seema and Shambeel Rizzi	Location / Address:	4 Buffalo Rd, North Oaks

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

Landscape Position: (check one) ☐ Summit ☒ Shoulder ☐ Back/Side Slope ☐ Foot Slope ☐ Toe Slope | Slope shape: C, L

Vegetation: LAWN	Soil survey map units:	169B	Slope %:	3.5	Elevation (ft): 95.3'

Weather Conditions/Time of Day:	OVERCAST / 12:15 pm	Date:	04/09/20
Observation #/Location:	SP2 / See Map	Observation Type:	Soil 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	LFS	10%	10YR 3/3				GR	W	PR
8-13	LFS	20%	10YR 3/4				GR	W	FR
94.2' ↑ 13-16	MS	25%	10YR 5/4	10YR 4/3	D	S1	SG	STRU	L
				10YR 5/8	C	S1			
16-26	MS	25%	10YR 4/6				SG	STRU	L
26-36	SCL	30%	5YR 4/4	5YR 5/8	C	S1	B	M	FM
			10YR 5/2			S2			

Comments Limiting Layer = 13" - 94.2'

Design Summary Worksheet

1. PROJECT INFORMATION

v 04.02.2019

Property Owner/Client: Seema and Shambeel Rizzi

Project ID:

Site Address: 4 Buffalo Rd, North Oaks, MN 55115

Date: 04/09/20

2. DESIGN FLOW & WASTE STRENGTH

Attach data / estimate basis for Other Establishments

Design Flow: 750 GPD

Anticipated Waste Type: Residential

BOD: 170 mg/L TSS: 60 mg/L Oil & Grease: 20 mg/L

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

3. HOLDING TANK SIZING

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

Code Minimum Holding Tank Capacity: Gallons in Tanks or Compartments

Recommended Holding Tank Capacity: Gallons in Tanks or Compartments

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

Comments:

4. SEPTIC TANK SIZING

A. Residential dwellings:

Number of Bedrooms (Residential): 5

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

Recommended Septic Tank Capacity: 3000 Gallons in 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 in Tanks or Compartments

Recommended Septic Tank Capacity: Gallons in Tanks or Compartments

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

5. PUMP TANK SIZING

Pump Tank 1 Capacity (Minimum): 1000 Gal

Pump Tank 1 Capacity (Recommended): 1000 Gal

Pump 1 27.0 GPM Total Head 17.4 ft

Supply Pipe Dia. 2.00 in Dose Vol: 80.0 gal

Pump Tank 2 Capacity (Minimum): Gal

Pump Tank 2 Capacity (Recommended): Gal

Pump 2 GPM Total Head ft

Supply Pipe Dia. Dose Vol: Gal

Design Summary Worksheet

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Mound	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	100 ft	Benchmark Location:	Pool Deck @ NE corner
MPCA System Type:	Type III	Distribution Media:	Rock
Type III/IV Details:	See Site Plan		

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	
Limiting Condition:	12	inches	1.0	ft	96.0	ft
Minimum Req'd Separation:	36	inches	3.0	ft		
Code Max System Depth:	Mound	inches	-2.0	ft	Elevation 98.0	ft

Critical for system compliance

This is the maximimum depth to the bottom of the distribution media. Negative Depth (ft) means it must be a mound.

Soil Texture:	Loamy Fine Sand		
Soil Hyd. Loading Rate:	0.60 GPD/ft^2	Percolation Rate:	MPI
Contour Loading Rate:	12	Note:	
Measured Land Slope:	8.0 %	Note:	
Comments:			

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area	ft^2	Sidewall Depth	in	Trench Width	ft
Total Lineal Feet	ft	No. of Trenches		Code Max. Trench Depth	in
Contour Loading Rate	ft	Min. Length	ft	Designed Trench Depth	in

Bed:

Dispersal Area	ft^2	Sidewall Depth	in	Maximum Bed Depth	in
Bed Width	ft	Bed Length	ft	Designed Bed Depth	in

Mound:

Dispersal Area	625.0 ft^2	Bed Length	62.5 ft	Bed Width	10.0 ft
Absorption Width	20.0 ft	Clean Sand Lift	2.0 ft	Berm Width (0-1%)	ft
Upslope Berm Width	13.0 ft	Downslope Berm	30.0 ft	Endslope Berm Width	20.4 ft
Total System Length	103.3 ft	System Width	53.0 ft	Contour Loading Rate	12.0 gal/ft

Design Summary Worksheet

Project ID:

At-Grade:

Bed Width	ft	Bed Length	ft	Finished Height	ft
Contour Loading Rate	gal/ft	Upslope Berm	ft	Downslope Berm	ft
Endslope Berm	ft	System Length	ft	System Width	ft

Level & Equal Pressure Distribution

No. of Laterals	3	Perforation Spacing	3 ft	Perforation Diameter	3/16 in
Lateral Diameter	1.50 in	Min Dose Volume	80 gal	Max Dose Volume	188 gal

Non-Level and Unequal Pressure Distribution

	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

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

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 = lbs. BOD/day

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

Lbs. BOD To Be Removed:

PreTreatment Technology: *Must Meet or Exceed Target

Disinfection Technology: *Required for Levels A & B

C. Organic Loading to Soil Treatment Area:

mg/L X gpd x 8.35 ÷ 1,000,000 ÷ ft^2 = $lbs./day/ft^2$

10. Comments/Special Design Considerations:

1. Removal of patio.
2. Digout of disturbed soil to depth of 10" below old patio area.
3. Removal of septic tank under current landscaping.
4. Need a Variance for 4 feet at SE Corner of STA for 30' setback.

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

Jesse Kloeppner		L4043	4/9/2020
(Designer)	(Signature)	(License #)	(Date)

Mound Design Worksheet
≥1% Slope

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: v 04.02.2019

A. Design Flow:	750	GPD
B. Soil Loading Rate:	0.60	GPD/ft²
C. Depth to Limiting Condition	1.0	ft
D. Percent Land Slope:	8.0	%
E. Design Media Loading Rate:	1.2	GPD/ft²
F. Mound Absorption Ratio:	2.00	

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. Calculate Dispersal Bed Area: Design Flow ÷ Design Media Loading Rate = ft²

750 GPD ÷ 1.2 GPD/ft² = 625 ft²

If a larger dispersal media area is desired, enter size: ____ ft²

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

C. Calculate Contour Loading Rate: Bed Width X Design Media Loading Rate

10 ft² X 1.2 GPD/ft² = 12.0 gal/ft *Can not exceed Table 1*

D. Calculate Minimum Dispersal Bed Length: Dispersal Bed Area ÷ Bed Width = Bed Length

625 ft² ÷ 10.0 ft = 62.5 ft

3. ABSORPTION AREA SIZING

A. Calculate Absorption Width: Bed Width X Mound Absorption Ratio = Absorption Width

10.0 ft X 2.0 = 20.0 ft

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

Calculate Downslope Absorption Width: Absorption Width - Bed Width

20.0 ft - 10.0 ft = 10.0 ft

4. DISTRIBUTION MEDIA: ROCK

Project ID:

A. Rock Depth Below Distribution Pipe

6 in 0.50 ft

5. DISTRIBUTION MEDIA: REGISTERED TREATMENT PRODUCTS: CHAMBERS AND EZFLOW

A. Enter Dispersal Media:

B. Enter the Component: Length: ft Width: ft Depth: ft

C. Number of Components per Row = Bed Length divided by Component Length (Round up)

ft ÷ ft = components/row

D. Actual Bed Length = Number of Components/row X Component Length:

components X ft =

Check registered product information for specific application details and design

E. Number of Rows = Bed Width divided by Component Width (Round up)

ft ÷ ft = rows *Adjust width so this is a whole number.*

F. Total Number of Components = Number of Components per Row X Number of Rows

X = components

6. MOUND SIZING

A. Calculate Minimum Clean Sand Lift: 3 feet minus Depth to Limiting Condition = Clean Sand Lift

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

B. Upslope Height: Clean Sand Lift + Depth of Media + Depth of Cover cover (1 ft.)

2.0 ft + 0.8 ft + 1.5 ft = 4.3 ft

C. Select Upslope Berm Multiplier (based on land slope): 3.03

D. Calculate Upslope Berm Width: Multiplier X Upslope Mound Height = Upslope Berm Width

3.03 ft X 4.3 ft = 13.0 ft

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

10.0 ft X 8.0 % ÷ 100 = 0.80 ft

F. Calculate Downslope Mound Height: Upslope Height + Drop in Elevation = Downslope Height

4.3 ft + 0.80 ft = 5.1 ft

G. Select Downslope Berm Multiplier (based on land slope): 5.88

H. Calculate Downslope Berm Width: Multiplier X Downslope Height = Downslope Berm Width

5.88 x 5.1 ft = 30.0 ft

I. Calculate Minimum Berm to Cover Absorption Area: Downslope Absorption Width + 4 feet

10.0 ft + 4 ft = 14.0 ft

J. Design Downslope Berm = greater of 4H and 4I: 30.0 ft

K. Select Endslope Berm Multiplier: 4.00 *(usually 3.0 or 4.0)*

L. Calculate Endslope Berm X Downslope Mound Height = Endslope Berm Width

4.00 ft X 5.1 ft = 20.4 ft

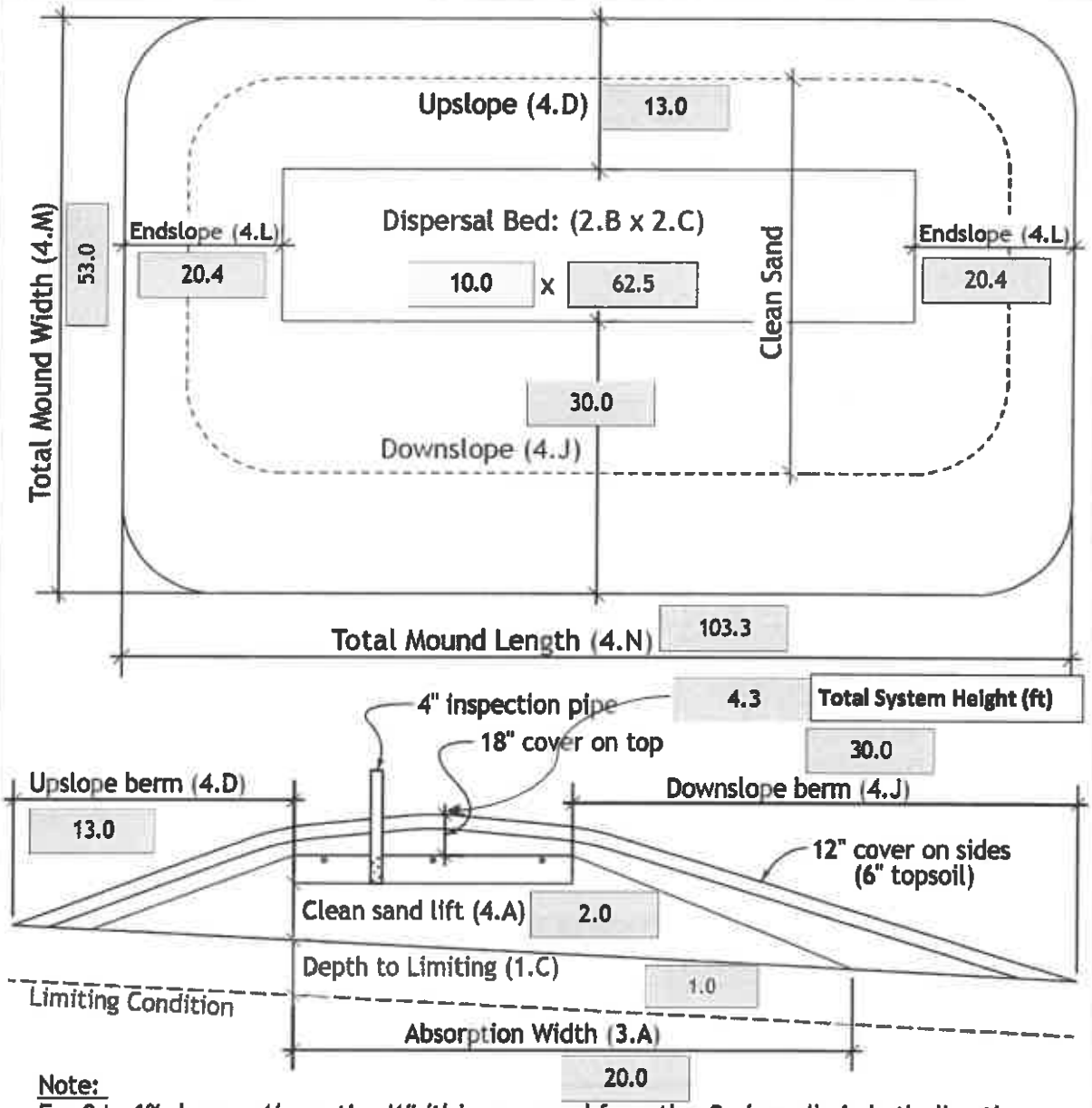
M. Calculate Mound Width: Upslope Berm Width + Bed Width + Downslope Berm Width

13.0 ft + 10.0 ft + 30.0 ft = 53.0 ft

N. Calculate Mound Length: Endslope Berm Width + Bed Length + Endslope Berm Width

20.4 ft + 62.5 ft + 20.4 ft = 103.3 ft

7. MOUND DIMENSIONS Project ID:



Note:
For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.
For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

Comments:

There are large trees and patio blocks which will need to be removed. The soil below the absorption area will need to be removed and replaced with washed-mound sand to a depth of 10". The removed soil is connect the treatment area to natural soil. All berms calculated at 4:1 ratio.

University of Minnesota Onsite Sewage Treatment Program

Mound Materials Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 04.02.2019

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

(6 in + 3.5 in) ÷ 12 62.5 ft X 10.0 ft = 494.8 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 494.8 ft^3 ÷ 27 = 18.3 yd^3

Add 30% for constructability: 18.3 yd^3 X 1.3 = 23.8 yd^3

B. Calculate *Clean Sand Volume:*

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

2.7 ft X 10.0 ft X 62.5 ft = 1687.5 ft^3

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*

ft^3 + ft^3 + ft^3 = ft^3

For a Mound on a slope greater than 1%

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

((4.3 ft - 1) X 3.0 ft X 62.5) ÷ 2 = 309.4 ft^3

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

((5.1 ft - 1) X 10.0 ft X 62.5) ÷ 2 = 1281.3 ft^3

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

(5.1 ft - 1) X 3.0 ft X 10.0 ft = 123.0 ft^3

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

309.4 ft^3 + 1281.3 ft^3 + 123.0 ft^3 + 1687.5 ft^3 = 3401.1 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 3401.1 ft^3 ÷ 27 = 126.0 yd^3

Add 30% for constructability: 126.0 yd^3 X 1.3 = 163.8 yd^3

C. Calculate *Sandy Berm Volume:*

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

(4.7 - 0.5)ft X 53.0 ft X 103.3) ÷ 2 = 11501.0 ft^3

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

11501.0 ft^3 - 3401.1 ft^3 - 494.8 ft^3 = 7605.1 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 7605.1 ft^3 ÷ 27 = 281.7 yd^3

Add 30% for constructability: 281.7 yd^3 x 1.2 = 366.2 yd^3

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

53.0 ft X 103.3 ft X 0.5 ft = 2738.3 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 2738.3 ft^3 ÷ 27 = 101.4 yd^3

Add 30% for constructability: 101.4 yd^3 x 1.3 = 78.0 yd^3

University of Minnesota Onsite Sewage Treatment Program

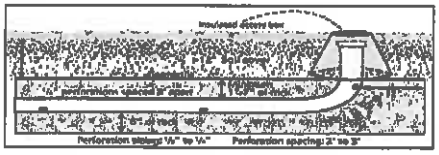
Pressure Distribution Design Worksheet

Minnesota Pollution Control Agency

Project ID: _____ v 04.02.2019

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 - 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* by the *Perforation Spacing* 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*. 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						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	10	13	18	30	60	2	11	16	21	34	68
2½	8	12	16	28	54	2½	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60
3/16 Inch Perforations						**1/8 Inch Perforations**					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	12	18	26	46	87	2	21	33	44	74	149
2½	12	17	24	40	80	2½	20	30	41	69	135
3	12	16	22	37	75	3	20	29	38	64	128

9. *Total Number of Perforations* equals the *Number of Perforations per Lateral* multiplied by the *Number of Perforated Laterals.*

   [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
10. Select *Type of Manifold Connection* (End or Center): [End]
11. *Select Lateral Diameter (See Table)*: [1.50] in

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

12. 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 ft²

    b. *Square Foot per Perforation* = *Bed Area* divided by the *Total Number of Perforations*.

    625 ft² ÷ 63 perforations = 9.9 ft²/perforations

13. Select *Minimum Average Head*: 1.0 ft

14. Select *Perforation Discharge* (GPM) based on Table: 0.41 GPM per Perforation

15. Determine required *Flow Rate* by multiplying the *Total Number of Perfs.* by the *Perforation Discharge*.

    63 Perfs X 0.41 GPM per Perforation = 27 GPM

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

17. *Volume of Distribution Piping* =
    = [*Number of Perforated Laterals* X *Length of Laterals* X (Volume of Liquid Per Foot of Distribution Piping]

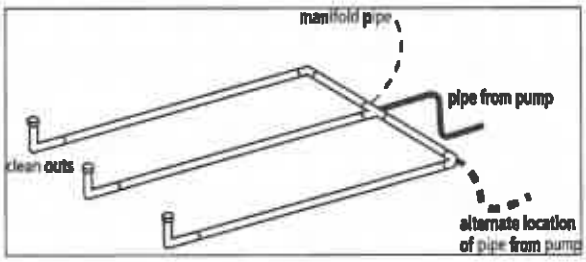
    3 X 61 ft X 0.110 gal/ft = 20.0 Gallons

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

    20.0 gals X 4 = 79.9 Gallons

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 Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY Project ID: v 04.02.2019

Pumping to Gravity or Pressure Distribution: Pressure

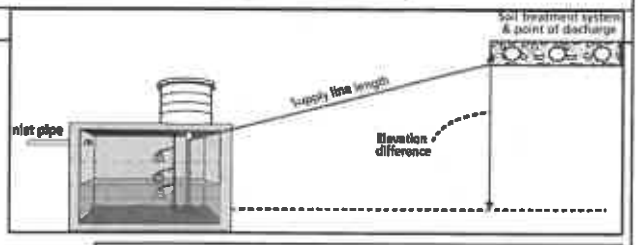
1. If pumping to gravity enter the gallon per minute of the pump: _____ GPM *(10 - 45 gpm)*
2. If pumping to a pressurized distribution system: 27.0 GPM
3. Enter pump description: Demand Dosing

2. HEAD REQUIREMENTS

A. Elevation Difference between pump and point of discharge: 9 ft

B. Distribution Head Loss: 5 ft

C. Additional Head Loss: 0.0 ft (due to special equipment, etc.)



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

D. 1. Supply Pipe Diameter: 2.0 in

2. Supply Pipe Length: 140 ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = 1.95 ft per 100ft of pipe

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

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 (D.2)* X 1.25 = *Equivalent Pipe Length*

140 ft X 1.25 = 175.0 ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* (Line E) by the *Equivalent Pipe Length* (Line F) and divide by 100.

Supply Friction Loss =

1.95 ft per 100ft X 175.0 ft + 100 = 3.4 ft

H. *Total Head* requirement is the sum of the *Elevation Difference* (Line A), the Distribution Head Loss (Line B), Additional Head Loss (Line C), and the Supply Friction Loss (Line G)

9.0 ft + 5.0 ft + 0.0 ft + 3.4 ft = 17.4 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **27.0** GPM (Line 1 or Line 2) with at least **17.4** feet of total head.

Comments:

Pump Tank Design Worksheet (Demand Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS | Project ID: | v 04.02.2019

1. A. *Design Flow (Design Sum.1A)*: 750 GPD C. Tank Use: Dosing
   B. Min. required pump tank capacity: 750 Gal D. Recommended pump tank capacity: 1000 Gal

2. A. Tank Manufacturer: Minnesota Precast B. Tank Model: 1000 Pump Tank
   C. Capacity from manufacturer: 1000 Gallons
   D. Gallons per inch from manufacturer: 25.0 Gallons per inch
   E. Liquid depth of tank from manufacturer: 40.0 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* (2C or 3E)

(10 in + 2 inches) X 25.0 Gallons Per Inch = 300 Gallons

4 ***Minimum Delivered Volume*** = 4 X Volume of Distribution Piping:

-Item 18 of the Pressure Distribution or Item 11 of Non-level 80 Gallons (Minimum dose) 3.2 inches/dose

5 Calculate ***Maximum Pumpout Volume*** (25% of Design Flow)

Design Flow: 750 GPD X 0.25 = 188 Gallons (Maximum dose) 7.5 inches/dose

6 *Select a pumpout volume that meets both Minimum and Maximum:* 80 Gallons

7 Calculate *Doses Per Day* = Design Flow ÷ *Delivered Volume*

750 gpd ÷ 80 gal = 9.38 *Doses*

8 Calculate Drainback:

A. *Diameter of Supply Pipe* = 2 inches

B. Length of Supply Pipe = 140 feet

C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.170 Gallons/ft

D. *Drainback = Length of Supply Pipe X Volume of Liquid Per Lineal Foot of Pipe*

140 ft X 0.170 gal/ft = 23.8 Gallons

9. *Total Dosing Volume = Delivered Volume* plus *Drainback*

80 gal + 23.8 gal = 104 Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank

3 in X 25.0 gal/in = 75.0 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

11. Calculate *Float Separation Distance* using *Dosing Volume*.

Total Dosing Volume / Gallons Per Inch

104 gal ÷ 25.0 gal/in = 4.2 inches

12. Measuring from bottom of tank:

A. *Distance to set Pump Off Float* = Pump + block height + 2 inches

10 in + 2 in = 12 inches

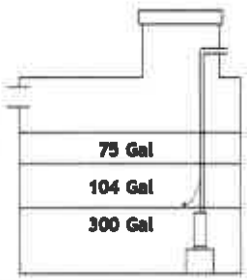
B. *Distance to set Pump On Float=Distance to Set Pump-Off Float + Float Separation Distance*

12 in + 4.2 in = 16 inches

C. *Distance to set Alarm Float = Distance to set Pump-On Float + Alarm Depth* (2-3 inches)

16 in + 3.0 in = 19 inches

Inches for Dose:	4.2	in
Alarm Depth	19.2	in
Pump On	16.2	in
Pump Off	12.0	in



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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	Seema and Shambeel Rizzi	Email	
Property Address	4 Buffalo Rd, North Oaks, MN 55127	Property ID	183022140007
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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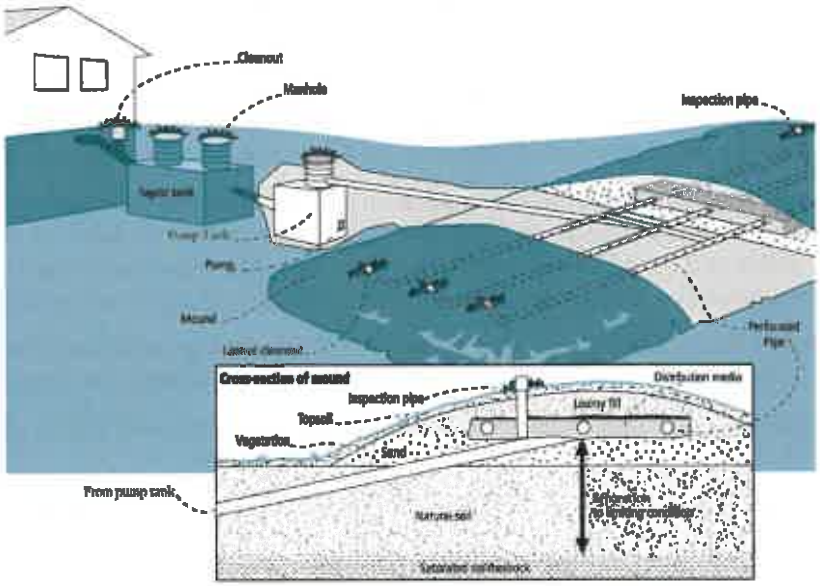
Septic System Management Plan for Above Grade Systems

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: 5

System capacity/ design flow (gpd): 750

Anticipated average daily flow (gpd): 525

Comments _____

Business? : ○ Y ◉ N What type? _____

Well Construction

Well depth (ft): > 50

☐ Cased well Casing depth: >50

☐ Other (specify): _____

Distance from septic (ft): > 50'

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 1,000 *gallons*

☐ Effluent Pump *make/model:* Installer Choice

Pump capacity 27 GPM

TDH 28 Feet of head

☐ Alarm location TBD

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 53.0 ft x 103.3 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 36 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: 80 gallons: Pump run time: 3.25 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:

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Septic System Management Plan for Above 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. 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."

SIGN HERE

Property Owner Signature: Date

Management Plan Prepared By: Jesse Kloeppner Certification # C8188

Permitting Authority: City of North Oaks

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Ramsey County Parcel Report

Report generated 4/7/2020 6:15:54 PM

Parcel location within Ramsey County

Taxlot highlighted in red

Parcel ID: ***183022140007***

Owner(s): WELLS FARGO BANK N A, FORECLOSURE DEPT MACX 7801-013

Site Address: 4 BUFFALO RD, NORTH OAKS MN 55127-6463

Link to Ramsey County Tax and Property Quick Info

Tax Payer(s): WELLS FARGO BANK N A

FORECLOSURE DEPT MACX 7801-013

Tax Address: 3476 STATEVIEW BLVD, FORT MILL SC 29715-7203

Lot: Jj **Block:**

Plat Name: REGISTERED LAND SURVEY 43

Area: 1.13 **Acre(s)**

2020 Pay 2021 EMV Land:	287400
2020 Pay 2021 EMV Building:	752000
2020 Pay 2021 EMV Total:	1039400
Total Tax* in 2020 :	14344
Special Assessment in 2020 :	202

Tax Exempt: N

Last Sale Date: 6/1/1995 12:00:00 AM

Last Sale Price: 803240

Homestead: N

Use Type: SINGLE FAMILY DWELLING, PLATTED LOT

Dwelling Type: SINGLE FAMILY DWELLING, PLATTED LOT

Home Style: TWO STORY

Living Area: 5572 **Sq. Ft.**

Year Built: 1989

Garage: Y

Garage Area: 858 **Sq. Ft.**

Heating Type:

Cooling Type:

School District: 0621

Watershed District:

Green Acre:

Open Space: N

Agriculture Preserve: N

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*The user of this report acknowledges that the City/County shall not be liable for any damages, and expressly waives all claims, and agrees to defend, indemnify, and hold harmless the City/County from any and all claims brought by the User, its employees or agents, or third parties which arise out of the User's access or use of data provided. *Total Tax includes special assessment due if any.*

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ramsey County, Minnesota

4 Buffalo Rd, North Oaks

April 7, 2020

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ramsey County, Minnesota
Survey Area Data: Version 14, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2013—Sep 13, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
169B	Braham loamy fine sand, 1 to 6 percent slopes	1.4	84.0%
169C	Braham loamy fine sand, 6 to 15 percent slopes	0.3	16.0%
Totals for Area of Interest		**1.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Ramsey County, Minnesota

169B—Braham loamy fine sand, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: 1t98l
Elevation: 1,000 to 1,570 feet
Mean annual precipitation: 27 to 33 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 135 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Braham and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Braham

Setting

Landform: Moraines
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Outwash over till

Typical profile

Ap - 0 to 9 inches: loamy fine sand
E - 9 to 28 inches: loamy fine sand
2Bt - 28 to 39 inches: sandy clay loam
2C - 39 to 60 inches: loam

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B
Forage suitability group: Sloping Upland, Acid (G090XN006MN)
Hydric soil rating: No

Minor Components

Blomford

Percent of map unit: 3 percent
Landform: Drainageways on moraines

Hydric soil rating: Yes

Zimmerman

Percent of map unit: 3 percent
Hydric soil rating: No

Kratka

Percent of map unit: 2 percent
Landform: Drainageways on moraines, depressions on moraines
Hydric soil rating: Yes

Cathro

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

169C—Braham loamy fine sand, 6 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1t98m
Elevation: 1,000 to 1,570 feet
Mean annual precipitation: 27 to 33 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 135 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Braham and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Braham

Setting

Landform: Moraines
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Outwash over till

Typical profile

Ap - 0 to 9 inches: loamy fine sand
E - 9 to 28 inches: loamy fine sand
2Bt - 28 to 39 inches: sandy clay loam
2C - 39 to 60 inches: loam

Properties and qualities

Slope: 6 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 1.98 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Forage suitability group: Sloping Upland, Acid (G090XN006MN)
Hydric soil rating: No

Minor Components

Zimmerman

Percent of map unit: 3 percent
Hydric soil rating: No

Blomford

Percent of map unit: 3 percent
Landform: Drainageways on moraines
Hydric soil rating: Yes

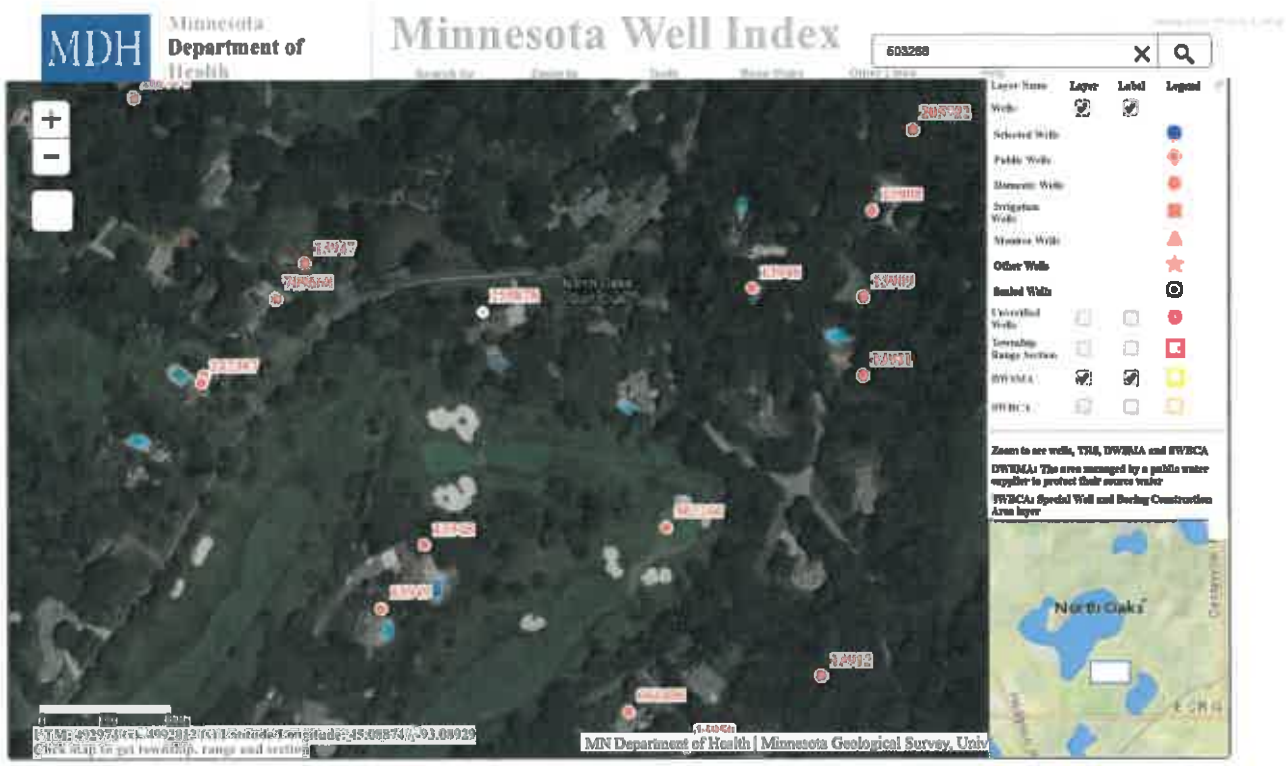
Kratka

Percent of map unit: 2 percent
Landform: Depressions on moraines, drainageways on moraines
Hydric soil rating: Yes

Cathro

Percent of map unit: 2 percent
Landform: Depressions
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
169B—Braham loamy fine sand, 1 to 6 percent slopes							
Braham	90	Not limited		Slightly limited		Moderately limited	
				Slope	0.07	Fine Sands	0.21
						Excessive percolation	0.11
169C—Braham loamy fine sand, 6 to 15 percent slopes							
Braham	90	Slightly limited		Very limited		Moderately limited	
		Slope	0.05	Slope	0.85	Fine Sands	0.21
						Excessive percolation	0.11
						Slope	0.05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503288
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Wells
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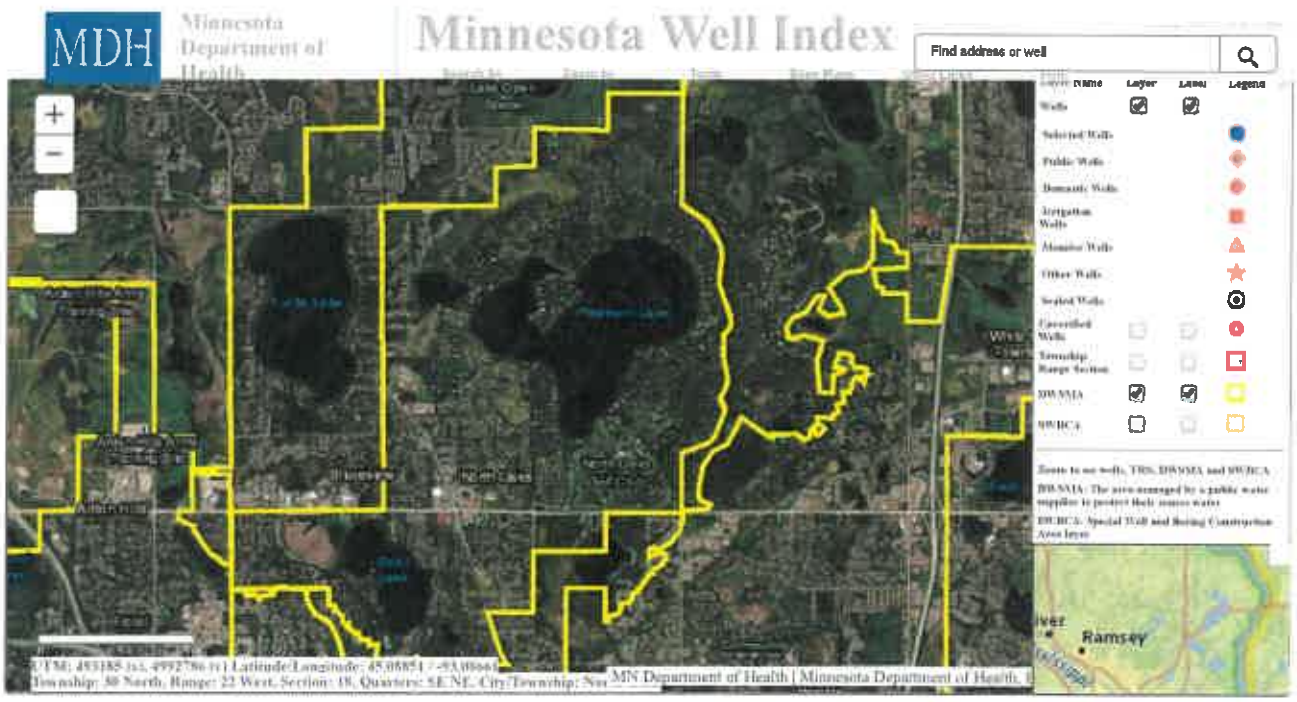
Domestic Wells
Irrigation Wells
Monitor Wells
Other Wells
Sealed Wells
Unverified Wells
Township Range Section
DWMAs
SWBCAs
Zoom to see wells, TRS, DWMAs and SWBCA
DWMAs: The area managed by a public water supplier to protect their source water
SWBCAs: Special Well and Boring Construction Area layer
North Oaks
MN Department of Health | Minnesota Geological Survey, Univ


MDH
Minnesota Department of Health
Minnesota Well Index
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Irrigation Wells
Monitor Wells
Other Wells
Sealed Wells
Decertified Wells
Township Range Section
DWMA
SWICA
Ramsey
MN Department of Health | Minnesota Department of Health

July 22, 2020
VARIANCE 20-09
Seema and Shambeel Rizvi
4 Buffalo Rd
North Oaks, MN 55127
RSL Zoning

Date Application Determined Complete:	June 9, 2020
Planning Commission Meeting Date	July 30, 2020
City Council Meeting Date:	August 13, 2020
120 Day Review Date:	November 19, 2020

Description of Request

The applicant is requesting a variance to install a sub-surface sewage treatment system (SSTS), which would encroach four feet into the required 30 foot south property line setback.

The applicable regulations are as follows:

§ 151.050 RSL - RESIDENTIAL SINGLE-FAMILY LOW DENSITY DISTRICT.

(F) Setbacks.

(1) No building or structure (except fences, screening, planting strips, and landscaping in compliance with Sections 151.033 and 151.034), individual sewage treatment system, or well shall be located within thirty (30) feet of the lot lines, the nearest edge of any road easement(s), or any wetland(s), except that additions which do not exceed twenty five (25) percent of the existing building footprint area, on buildings or structures lawfully existing upon the effective date of this chapter shall be excluded from wetland setback requirements.

Staff Review

The current system has been classified as non-compliant under MPCA Rule 7080.1500 Subp. 4 (D) due to the lack of the required three foot separation between the bottom of the drainfield and the limiting soil conditions.

Based on these facts, it is the staff's opinion that the applicant has met the requirements for a variance as outlined in Section 151.078 of the code. We are in agreement with the designer, Jesse Kloeppner, that the proposed location of the new system appears to be the most viable location for an SSTS. This would be the minimum variance, which would alleviate the practical difficulties.

Action Requested

That the Planning Commission make a recommendation to the City Council to approve or deny Variance #20-09 to encroach four feet into the required 30 foot southeast property line setback.

Motions

Motion to Approve

MOTION_____SECOND_____

That Variance #20-09, for 4 Buffalo Rd:

be APPROVED with the following conditions:

1. Completion date 120 days after approval
2. System to be located per the design dated April 9, 2020 by Jesse Kloeppner.

Motion to Deny

MOTION_____ SECOND_____

That Variance #20-09, for 4 Buffalo Rd:

be DENIED with the following findings:

1.

2.