

M09010

February 24, 2023

Mr. Troy Cameron, Acting Public Works Manager
The Municipality of Northern Bruce Peninsula
56 Lindsay Road 5, RR # 2
Lion's Head, ON N0H 1W0

Mr. Leo-Paul Frigault, Cluster Manager
Ontario Clean Water Agency
PO Box 310
315 George Street
Warton, ON N0H 2T0

**Re: 2022 Annual Report for Lakewood Subdivision Sewage System
Municipality of Northern Bruce Peninsula**

Dear Mr. Cameron & Mr. Frigault,

Darryl M. Robins Consulting Inc. (DMRC) is pleased to provide the following Annual Report for 2022. The following report outlines key elements of the sewage system and provides a brief discussion of the Consultant's observations at the site inspections. Please find attached to this report, the Inspection Report dated December 12, 2022 and December 15, 2022 and Table No's. 1 and 3.

The Ontario Clean Water Agency (OCWA) is the responsible authority for the operation and maintenance duties of the sewage system under contract to the Municipality of Northern Bruce Peninsula (Municipality). OCWA began these duties on July 1, 2009.

Sewage System Capacity:

From the records provided by the Municipality as of December 21, 2022, there are currently 39 dwellings connected to the Lakewood Subdivision Sewage System. The original Certificate of Approval specified that each dwelling would be allotted a daily sewage flow of 1,200L/day for a maximum of 48 lots; therefore, the ultimate design daily sewage flow for the sewage system is 57,600L/day. With 39 dwellings online at present, the calculated daily sewage flow should be 46,800L/day.

OCWA has been maintaining records of the readings on the elapsed hour meters of the sewage dosing pumps for the tile field (See Table 1).

A pump flow test was completed on December 15, 2022 which resulted in the following sewage flow rates for the effluent pumps (See Table 2 below).

Table 2: Pump Test Flow Rates (2022)

Pump	Flow Rates (L/min)
1	219.24
2	146.16

During normal operation it appears that the pumps are dosing the tile field with an average volume of approximately 7,680 L/day based on the respective pumping rates determined by the pumping tests conducted by OCWA and DMRC at the site meeting of December 15, 2022. These pumping rates should be used by OCWA personnel in recording and evaluating flows at the facility. The results from the dosing pump records suggest that the actual sewage flows being received by the system are substantially less than the design and that the sewage system should have sufficient capacity for completion of Phases 1 and 2B of the subdivision. The average daily sewage flow for 2022 (7,680 L/day) is approximately 11% lower than the flows determined for 2021 (8,656 L/day).

The maximum daily sewage flow rate experienced in 2022 was 10,947 L/day which is lower than the theoretical daily sewage flow of 46,800 L/d for the 39 dwellings on-line in 2022. This maximum daily sewage flow rate for 2022 is significantly lower than the maximum daily flow rate from 2021 (12,790). Please see Table No. 1.

Sampling Results:

OCWA took a sample of the sewage effluent on October 18, 2022. The sample was analyzed by SGS Lakefield Research Limited and the results are shown on Table 3 (attached). The results of the Lakewood Subdivision sewage effluent sampling for the 2022 sampling event indicate that BOD and TSS appear to be low. But are in the typical ranges for this system and indicate adequate treatment.

Physical Conditions of the Sewage System:

DMRC's inspector walked around the tile field and septic tank area on December 12, 2022, while some snow was on-site. There are signs of rodent infestation and efforts should be made to remove the rodents and place topsoil and seed (or hydroseed). Milkweed was present on the tile bed and it is an aggressive plant that can take over. We have assumed that milkweed has taken over the tile bed to the detriment of the grass. The milkweed root is not conducive with the tile bed (it could damage or plug the tiles). It is still recommended that the milkweed be removed, and the tile bed be hydro-seeded. Please refer to the attached photos in the inspector's report.

There was no detectable septic odor encountered except within the vicinity of the access after opening of the dosing chamber. Both of the two (2) valve stem handles and brackets have disintegrated due to corrosion. It is recommended that the valve stems and brackets be replaced as soon as possible. The operator advised that they are able to make other arrangements to remove the pumps etc.

The pump control panel and the dosing chamber appeared to be in good working order. The auto-dialer system was able to "call-out" in December 2022 by OCWA.

An inspection of the splitter valve chamber was completed and appeared to be acceptable.

OCWA advised that the annual inspection of the collection system was completed.

Annual Report Recommendations:

1. Efforts should be made to have the rodents (and their burrows) removed from the tile bed. The Milkweed should be removed. The tile bed area should have new topsoil placed and re-seeded.
2. OCWA and the Municipality should replace the effluent discharge control valve stems and brackets as soon as possible.
3. The "Dosing Pump Elapsed Time Weekly Record Sheets" provided in the Updated Operations and Maintenance Manual should continue to be used by operations staff. Operators should continue to keep a project-specific journal of their site visits, alarm conditions, maintenance, repairs and observations.
4. Operations staff should continue to monitor the air relief valve at SANMH2. There have been maintenance issues with the air relief valve in the past and the liquid contents of the chamber appear to be of a septic nature.
5. The hole in the dosing chamber lid for the safety chain attachment is corroded and the hole should be relocated and re-drilled to ensure that there is adequate strength to support the weight of the lid structure.

It is the writer's overall opinion that the system is in good working order, and that the housing development within Phases 1 and 2B of the subdivision should continue with regards to the available capacity of the subdivision's existing sewage system.

Should you have any questions or concerns with the above and enclosed, please do not hesitate to contact the writer.

Yours truly,

DARRYL M. ROBINS CONSULTING INC.



Laura Swanson, P.Eng.

Civil-Environmental Engineer
LAS/hs
Encl.

cc: lppnpc@gmail.com, Lakewood Subdivision Ratepayer's Association
Ms. Camille Leung, OCWA (via email)
Ms. Karla Young, OCWA (via email)