



**Calabogie Peaks Resort**  
**2021 Annual Monitoring Report**

Section 53 Certificate of Approval No.: 0522-98MLKK

Greater Madawaska, ON

Prepared for:  
Calabogie Peaks Resort

Prepared by:  
Azimuth Environmental  
Consulting, Inc.

May 2022

AEC 17-328



Environmental Assessments & Approvals

May 30, 2022

AEC 17-328

Calabogie Peaks Resort  
30 Barrett Chute Road  
Calabogie, ON  
K0J 1H0

Attention: Paul Murphy, President

**Re: 2021 Annual Monitoring Report  
Calabogie Peaks Resort, Calabogie, ON  
30 Barrett Chute Rd. Calabogie, Ontario  
Certificate of Approval No.: 0522-98MLKK**

Dear Mr. Murphy:

As per Condition 5.0 of the above-noted Certificate of Approval (CofA), Azimuth Environmental Consulting, Inc. (AEC) has prepared an annual report on the septic system monitoring programs conducted at Calabogie Peaks Resort (CPR) in 2021.

It is our professional opinion that the Peat bed septic system at CPR is operating efficiently. No major problems with the system have been encountered this year. Other than a new effluent control panel for monitoring flow into the peak bed, no other major changes were made to the system.

The sewage system, which was designed for a daily peak flow 43,920 Lpd (one module), is only processing on average about 7,300 L/day <20% of design) for 2021. The flows were lower in 2021 owing to COVID-19 but would typically be around 13,000Lpd. These data suggest that the system is not being taxed. The peak bed was last inspected in 2020 and no issues were identified (i.e., wet, clogging, biomass accumulation, breakouts, etc.) that would suggest non-performance.

The most recent ground water results confirm no impact to the environment. It is noted that the monitoring program was modified in 2021 to include sampling of the effluent before discharging to the peat bed. This included the installation of a monitoring



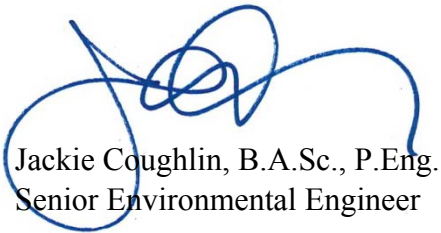
immediately adjacent the peat bed subsurface disposal system (PBSSDS) however should be changed to the holding tank prior to the PBSSDS

As part of an ECA amendment which is currently under review by the MECP Permissions Branch, Azimuth has recommended that the point of compliance be changed to the discharge location to the peat bed rather than at the monitoring wells. Azimuth has also recommended to change the CofA objectives for C-BOD<sub>5</sub> and TSS from 5 mg/L to 10 mg/L which is more in keeping with a Class IV system. The above recommendations have been discussed and agreed upon by the MECP Ottawa District office and the Eastern Regional Technical Support Section.

If you have any comments or questions, please contact the undersigned.

Yours truly,

**AZIMUTH ENVIRONMENTAL CONSULTING, INC.**



Jackie Coughlin, B.A.Sc., P.Eng.  
Senior Environmental Engineer



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## 1.0 INTRODUCTION

Calabogie Peaks Resort (CPR) is situated at the municipal address of 30 Barrett Chute Road and is located approximately 6 km west of the community of Calabogie, ON (Figure 1). CPR is a four-season resort that includes golfing and skiing activities both of which are situated either beside and/or on Dickson Mountain (Base Mountain).

As shown on Figure 3, current facilities at CPR include:

- Calabogie Peaks Hotel ("Main hotel");
- an eight (8) unit condominium building ("The Cedars");
- a ten (10) unit condominium building ("The Pines");
- an 8 unit (2-fourplexs) Townhouse building ("the Oaks")
- the ski lodge with pub ("The Ski Lodge");
- a three (3) bed accommodation unit ("O'Brien's Bunkhouse");
- a two (2) bed accommodation unit ("First Tracks"); and
- various outbuildings and "the Garage/ maintenance building"; and
- Juniper Ridge (future development lands).

The peat bed subsurface disposal system (PBSSDS) operates under the Ministry of the Environment, Conservation and Parks (MECP) CofA No. 2256-5F9KU9 and has an approved design capacity of 131,760 L/day (43,290 L/day per module). The system consists of large septic tank at the Hotel and the Cedars, and the secondary effluent is pumped through a common forcemain to a centralized dosing chamber, where the effluent is then evenly dosed to each peat module. Currently, only the one third (one module) of the PBSSDS has been constructed.

Condition 8.0 of the CofA includes a specific list of monitoring requirements, which are to be discussed in this report. These requirements include:

- (a) a tabulation of all monitoring and analytical results obtained during the reporting period, including sampling/monitoring locations and dates, and comparison to the effluent objectives outlined in Condition 6;
- (b) a tabulation of daily volumes of effluent from the sewage works disposed of during the reporting period, and a tabulation of the daily volumes of water used at the site during the reporting period, also including sewage volumes pumped from the holding tank;
- (c) a tabulation of the volumes of sludge accumulated within the sewage works on a quarterly basis, a tabulation of the sludge pumped out of the sewage works on a



quarterly basis, along with documentation on sludge generation, transportation and ultimate disposal at the receiver's site;

- (d) a description of any operating problems encountered at the site and the mitigative measures taken during the reporting period.
- (e) A summary of all system maintenance undertaken during the reporting period;
- (f) A summary of complaints received during the reporting period and any steps taken to address the complaints;
- (g) A summary of all spills or abnormal discharge events; and
- (h) any other information the *District Manager* requires from time to time

## **2.0 BACKGROUND**

CPR is developing site plan applications for strategic expansion of the resort facilities. The first couple of phases are expected to be built out in the next 3-5 years with the first phase to include the construction of new residential units. Under the existing Certificate of Approval, the sewage works have an approved capacity of 131,478Lpd (existing and future) however is only processing on average about 15,000 Lpd, therefore additional hydraulic capacity exists within the system to accommodate some additional development.

In order to support the expansion, the PBSSDS was inspected in 2020 to confirm the condition of the peat bed, the details of which are provided in the 2020 Annual report (Azimuth, 2021 ). The short term plan includes an expansion of the existing system, re-rating the peat bed systems, as it operates at flows below its hydraulic capacity, the construction of the additional peat bed modules which are already approved through the existing CofA, and the connection of The Pines and The Oaks building to the centralized system.

The peat bed system will eventually be replaced with a new centralized tertiary treatment system to address future phases. Once constructed, the new tertiary treatment system will facilitate the re-use of treated effluent for snow making. At this time, new wastewater collection mains have been installed at Base Mountain, although these are not yet in use.

### **2.1 Peat Bed Subsurface Disposal System**

As identified above, sewage disposal at the site is handled through the use of a 3 module peat- based subsurface sewage treatment system with a rated capacity 131,760Lpd (43,290 L/day per module) of which only one module has been constructed. The components of the system include:



- one (1) central dosing station having a volume of approximately  $8.6\text{m}^3$ , including a duplex alternating pump system with submersible pumps with dosing alternating between the three peat filter modules;
- one (1) three compartment 65,634 L septic tank serving the hotel that discharges to the PBSSDS;
- One (1) two compartment 20,600L septic tank serving the Cedars with gravity flow to a concrete pump chamber that discharges to the PBSSDS via the centralized 8,600L dosing chamber.
- Three (3) peat *modules* comprised of a specifically engineered peat (*Sphagnum* spp.) with a pH range between 3.5-4.5 and a von post decomposition rating of approximately H4. Each module consists of two (2) filter cells having a *peat* filter surface area of  $732\text{ m}^2$  and a overall design capacity of 43,920 L/day.

### 3.0 ANALYTICAL MONITORING DATA

#### 3.1 Effluent and Flow Objective

The MECP under Section 6 of the CofA stipulate that "best efforts" are to be used to operate the sewage treatment facilities with the goal that the concentration objective for those parameters listed in the CofA (Table 3) are not to be exceeded in the effluent from the sewage works.

Best efforts, in part, include ground water sampling to assess potential risks to ground water and/ or surface water (Calabogie Lake) from the PBSSDS as well as ongoing maintenance, regular pump outs and monitoring of the sewage flows.

#### 3.2 Effluent and Ground Water Sampling

As detailed under Condition 5.6 of the CofA, quarterly "grab samples" of the effluent from the sewage works are to be collected from monitoring wells installed immediately downgradient of the peat filters (MW-2, -3 and -4). The analytical suite required for each sample is to include, at a minimum: 5-day carbonaceous biochemical oxygen demand (C-BOD<sub>5</sub>), total suspended solids (TSS), total phosphorus (TP), total ammonia (Ammonia + Ammonium) Nitrogen (TAN), nitrate (NO<sub>3</sub>), nitrite (NO<sub>2</sub>), Fecal Coliforms (*E.coli*), and Total Coliforms (TC).

In addition, as detailed under Condition 5.8 of the CofA, quarterly "grab samples" are to be collected from upgradient (MW-1) and downgradient monitoring wells (MW-2, -3 and -4). The analytical suite required for each sample is to include, at a minimum: cBOD<sub>5</sub>, TP, TAN, NO<sub>3</sub>, NO<sub>2</sub>, dissolved organic carbon (DOC), chloride, *E.coli* and TC. It should be noted that the monitoring program was modified in late 2021 to include effluent



sampling from a new well that was installed immediately adjacent the PBSSDS. Given the limited data set, the May 2022 results were also included.

A summary of the results for the effluent well is provided in Table 1 and the monitoring well results are provided below in the tables 2 and 3.

**Table 1 - Summary of Effluent Results**

Date	Parameter	TAN	TP	BOD <sub>5</sub>	TSS	NO <sub>2</sub>	NO <sub>3</sub>	CL	DOC	TC (CFU/100 mL)	E.coli (CFU/100 mL)
23-Jul-21	Effluent	<0.01	1.02	5	6	<0.1	0.96	42	1.3	0	0
18-Oct-21	Effluent	<0.01	0.04	<1	30	<0.1	0.24	30	1.5	0	0
19-May-22	Effluent	0.025	<0.02	<1	4	<0.1	0.70	80	1.8	0	0

All concentrations in mg/L unless otherwise specified

**Table 2 - Summary of Monitoring Well Results**

Date	Parameter	TAN	TP	BOD <sub>5</sub>	TSS	NO <sub>2</sub>	NO <sub>3</sub>	CL	DOC	TC	E.Coli
	Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	cfu/100mL	cfu/100mL
	ECA "Best Efforts"	1 mg/L	1 mg/L	5 mg/L	5 mg/L						
23-Mar-21	Well 1	<0.01	0.02	1.0	5	<0.1	0.32	28	1.2	0	0
	Well 2	0.229	0.02	1.0	47	<1	<1	197	10.3	0	0
	Well 3	<0.01	0.02	<1	<2	<0.1	0.46	66	1.6	0	0
	Well 4	<0.01	0.02	1.0	<2	<0.1	0.46	67	1.6	0	0
12-May-21	Well 1	<0.01	<0.02	<1	7	<0.1	0.66	43	1.3	0	0
	Well 2	0.221	<0.02	2.0	5	<0.1	0.31	75	1.9	0	0
	Well 3	0.343	0.052	6.0	6	<0.1	<0.1	113	12.1	0	0
	Well 4	0.809	0.061	4.0	4	<0.1	<0.1	100	2.6	0	0
23-Jul-21	Well 1	0.087	<0.1	4.0	4	<0.1	1.03	40	1.2	0	0
	Well 2	<0.01	<0.1	4.0	<2	<0.1	<0.1	93	2.3	0	0
	Well 3	0.385	<0.1	5.0	4	<0.1	<0.1	89	15.5	34	37
	Well 4	0.033	<0.1	6.0	8	<0.1	<0.1	72	18.5	41	43
18-Oct-21	Well 1	<0.01	0.161	2.0	129	<0.1	0.26	29	1.7	0	0
	Well 2		0.107	1.0	<2	<0.1	<0.1	93	15.1	0	0
	Well 3	<0.01	0.031	1.0	<2	<0.1	0.26	74	2.4	0	0
	Well 4	0.056	0.043	2.0	2	<0.1	<0.1	47	7.7	0	0
	Average	0.15	0.06	2.6	14.4	<0.01	0.34	77	6.1	5	5.0
	Min	<0.01	<0.1	<1	<2	<0.1	<0.1	9	1.1	0	0.0
	Max	0.8	0.2	6.0	129.0	1.0	1.0	197	18.5	41	43

All concentrations in mg/L unless otherwise specified

**Table 2 - Summary of Average Monitoring Well Results**

Parameter	TAN	TP	BOD <sub>5</sub>	TSS	Nitrites	Nitrates	Chloride	Dissolved Organic Carbon	Total Coliform	Feacal Coliform
Well 1	0.03	0.08	2.0	36	0.10	0.57	35	1.4	0.00	0.00
Well 2	0.12	0.06	2.0	14	0.33	0.38	115	7.4	0.00	0.00
Well 3	0.19	0.05	3.3	4	0.10	0.23	86	7.9	8.50	9.25
Well 4	0.23	0.06	3.3	4	0.10	0.19	72	7.6	10.25	10.75

All concentrations in mg/L unless otherwise specified

The average cBOD<sub>5</sub> concentration at each monitoring and effluent wells was below the objective however an objective of 5 mg/L is considered stringent when compared to the industry standard for inground Class IV septic system. Overall, the result for the effluent well, albeit limited, did not vary significantly when compared to the monitoring wells and suggest good treatment through the PBSSDS.





Similarly for TSS, an objective of 5mg/L is also considered stringent for an inground Class IV system. The observed range for TSS (<2-129 mg/L) in the monitoring wells shows the highest variability compared to the other parameters but are lower than 2020. It should be noted that the sampling protocols are not appropriate to represent this parameter as it occurs in the system effluent. Suspended solids (other than potentially some colloids) do not migrate with ground water because the overburden soils act as a graded sand filter. Normally, TSS is applied on the effluent going into a bed to ensure that the bed does not become plugged. The water quality samples are not field filtered and any elevated result would reflect the entrainment of overburden material from the monitor construction, and do not reflect suspended solids in the system effluent. The results for the effluent well compared to the upgradient and downgradient monitoring wells do not vary significantly confirming the above. It is recommended to sample from the holding prior to the PBSSDS.

The average concentrations for TAN (0.03 to 0.23 mg/L) and total phosphorus (0.05 to 0.08 mg/L) at the monitoring wells are lower compared to 2020 and well below the CofA concentration objective suggesting good treatment through the subsurface disposal bed. The results for results for the effluent well compared to the monitoring wells did not vary significantly for either parameter.

The average nitrate concentration for each monitoring ranged between 0.19 mg/L to 0.57 mg/L, which is below the MECP criteria. Nitrate was highest at the effluent well and the upgradient monitoring well (MW-1) and lower at the downgradient wells (MW-2, -3 and -4) however did not vary significantly. There is no effluent concentration objective specified in the CofA, however the results confirm that risks to shallow ground water are low.

Nutrients such as total phosphorus (TP) and total ammonia (TAN or  $\text{NH}_3\text{-N}$ ) caused by wastewater are detrimental to surface water and nitrate (as nitrogen) is the main parameter of concern in drinking water. Neither TP or TAN is considered a contaminant of concern from a ground water perspective, but can be used as a tool to determine if a septic signature is present and the extent of treatment within the disposal bed itself. The expectation is that once the  $\text{NH}_3\text{-N}$  is converted to nitrate, the nitrate concentrations in the shallow subsurface would move with the shallow ground water regime and would be significantly reduced by nitrification and other attenuation processes (i.e., denitrification, biological uptake, dilution). The monitoring data have demonstrated that the PBSSDS is working effectively and despite having a few TSS and cBOD values above their objectives, risks to ground and/ or surface water are low which is in keeping with 'best efforts' required by the CofA.



These historical data suggest that the objectives for BOD<sub>5</sub> and TSS are too stringent for an inground facility, such as CPR. If fact, the objectives could be less stringent since there are no drinking water wells downgradient of the bed and any contaminants would be filtered during travel to the lake, such that these receivers would ultimately be protected.

In light of this information, the average results for BOD<sub>5</sub> are well within acceptable levels for an inground system and suggest that the septic bed is not causing an environmental impact therefore "best efforts" have been achieved. It is inappropriate to have a TSS for ground water and therefore this criteria should be applied at the distribution box coming into the peat bed if possible. Based on the analytical results, it is our opinion that 'best efforts' are in place and are successful at protecting the natural environment and no additional work is required to further improve effluent quality.

#### **4.0 EFFLUENT DISCHARGE MONITORING**

As per Condition 5.5 of the CofA, readings from the water and effluent flow meters are to be recorded on a daily basis. A comparison of the water and sewage data since 2014 indicates that the sewage flows are between 49% and 67% of water demand (Table 1, Appendix B).

Of note, a new drinking water system at CPR was commissioned in December 2019 and consists of a communal water treatment system (CWTS) supplied by two existing drilled wells. The CPR water treatment system is classified as a year-round non-municipal residential water works facility and is regulated under O.Reg 170/03 (as amended). The MECP granted CPR a Drinking Water System Number (No.: 260097058) in August 2020. A Responsibility Agreement is in place that covers the CWTS as well as the sewage works.

Based on a review of the 2021 sewage data, sewage generation varied between 777 Lpd and 43,966 Lpd with an average of ~7,300 Lpd (Table 2, Appendix B). The average daily flow is typically about 13,000 Lpd but was lower in 2021 due to COVID-19 and overall usage of the resort. The data illustrates that the effluent volumes are well within the 43,920 Lpd average daily calendar monthly flow limit stipulated in the CofA for one peak bed module.

Based on a review of the 2021 water data, water demand varied between 1,717 Lpd to 79,860 Lpd with an average of ~15,500 Lpd (Table 2, Appendix B). The data and analysis shows that all water takings are within the 360,000 daily capacity limit contained in Calabogie Peaks' PTTW 3587 - 8KDLBF.



## **5.0 SYSTEM MAINTENANCE / OPERATIONS**

CPR retain the services of a licensed sewage contractor to conduct periodic maintenance, daily operational inspections of the septic system, and pump-outs (Valley Wide Pumping and Haulage Services). A brief summary of the maintenance completed is provided below:

In 2020, a new effluent control panel was installed. Post installation, the control panel operated as designed and recordings were retained electronically at the control panel. In November 2020, Aslan Technologies conducted a system check with Calabogie Peaks personnel to confirm the system's operation. During the entry and review, the dosing data was observed to be wiped from the Control Panel; however Aslan was not able to source the root cause. Due to the above equipment failure, the data logger in the control panel (a Novus device) was replaced with an EWON device. The EWON device has operated continuously since April 2021 without failure or any need for troubleshooting. The EWON device exports data to the cloud which eliminates the risk of data loss.

### **5.1 Complaints**

There were no complaints received during the 2021 operating season.

### **5.2 Spills or Abnormal Discharge Events**

There were no spills or abnormal discharge events during the 2021 operating season.

## **6.0 SUMMARY**

It is our professional opinion that the Peat bed septic system at CPR is operating efficiently. No major problems with the system have been encountered this year. Other than a new effluent control panel for monitoring flow into the peak bed, no other major changes were made to the system.

The sewage system, which was designed for a daily peak flow 43,920 Lpd (one module), is only processing on average about 7,300 L/day (<20% of design). The flows were lower in 2021 owing to COVID-19 and would typically be around 13,000Lpd. These data suggest that the system is not being taxed. The peak bed was inspected in 2020 and no issues were identified (i.e., wet, clogging, biomass accumulation, breakouts, etc.) that would suggest non-performance.

The most recent effluent and ground water monitoring results confirm no impact to the environment. The new monitoring well located adjacent the PBSSDS does not provide any meaningful data, therefore it is recommended to sample from the holding prior to the PBSSDS.



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## **APPENDICES**

**Appendix A: Figures**

**Appendix B: Water and Effluent Flow Data**

**Appendix C: CofA Permit**

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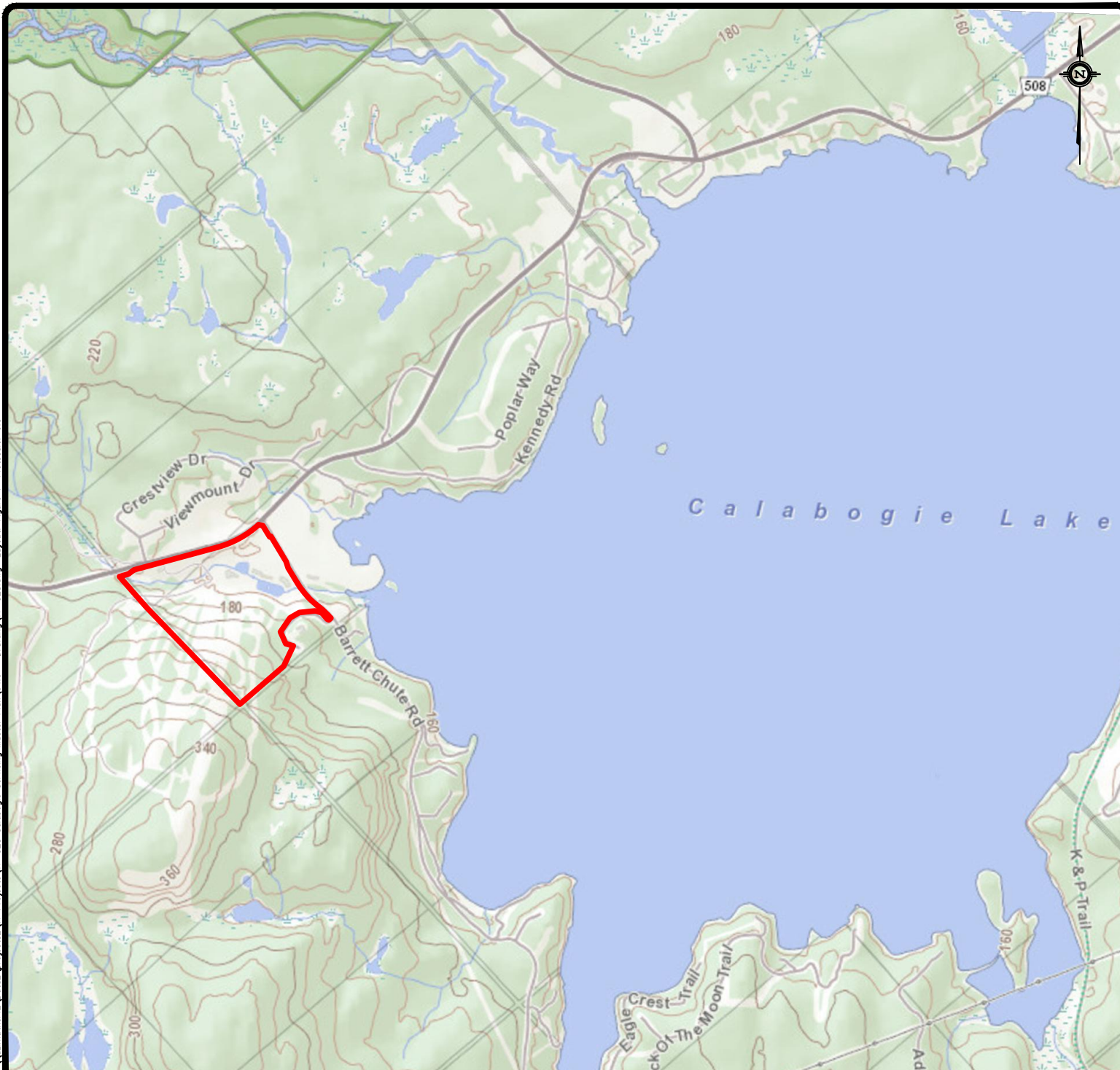
## **APPENDIX A**

### **Figures**

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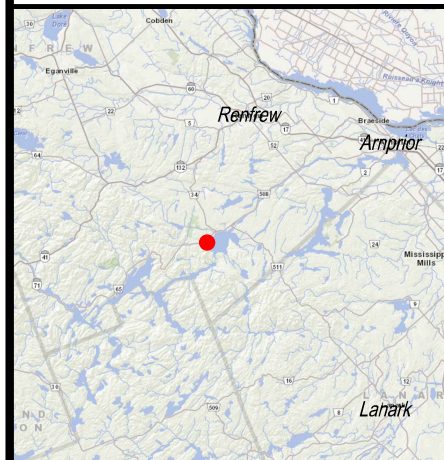
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File: \\Vermilion2\Users\jmc2\17 Projects\17-328 Calabogie Servicing Master Plan\04.0 - Drafting\17-328.dwg Layout: Figure 1 PlotScale: 0.5



**LEGEND:**

 *Approx. Property Boundary*



REG MAP

250m 0 750m  
HORIZONTAL SCALE 1: 25,000



Study Area Location

Calabogie Peaks Resort,  
Calabogie, ON

DATE ISSUED: December 2018

CREATED BY: JLM

PROJECT NO.: 17-328

REFERENCE: MNR

Figure No.

1



Plotted by: JMCARTNEY on January 3, 2019 at 11:43am  
File: M:\17 Projects\17-328 Calabogie Servicing Master Plan\04.0 - Drafting\17-328.dwg Layout: HYD2 PlotScale: 2



**LEGEND:**

- Approx. Property Boundary
- 5m Contour
- 1m Contour
- Wetland (LIO)
- Watercourse (LIO)
- Culvert (LIO)

60m 0 120m  
HORIZONTAL SCALE 1: 4,000



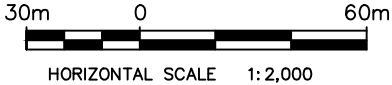
Topography and Drainage		
Calabogie Peaks Resort, Calabogie, ON		
DATE ISSUED:	December 2018	Figure No.  2
CREATED BY:	JLM	
PROJECT NO.:	17-328	
REFERENCE:	MNRF	





- LEGEND:
- Approx. Property Boundary
  - Watercourse (LIO)
  - Existing Septic Systems
  - Monitoring Well Locations
  - Production Well Locations (W-1)
  - Backup Well Locations (W-2)

Note: the PBSSDS is located on the Golf course land owned by CPR



Site Plan

Calabogie Peaks Resort,  
Calabogie, ON

DATE ISSUED:	December 2018	Figure No.  3
CREATED BY:	JLM	
PROJECT NO.:	17-328	
REFERENCE:	MNRF	

Plotted by: JMCARTNEY on January 3, 2019 at 3:15pm  
File: \\azimuth2\Info2\Projects\17-328 Calabogie Servicing Master Plan\04.0 - Drafting\17-328.dwg Layout: HYD3 PlotScale: 2  
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## **APPENDIX B**

### **Water and Effluent Flow Data**

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**TABLE 1 - SUMMARY OF HISTORICAL WATER CONSUMPTION AND SEWAGE FLOW DATA**

**Calabogie Peaks Resort Private Sewage Works**

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
	<b>Monthly Water Data</b>												
2014	258,460	321,634	354,506	350,006	232,019	282,190	453,461	521,935	284,200	272,439	237,700	244,205	3,812,754
2015	467,622	356,214	458,503	410,443	308,595	411,443	511,211	308,340	183,668	303,578	385,398	197,867	4,302,880
2016	349,203	375,561	376,246	198,794	258,399	349,355	267,291	312,019	323,355	356,211	452,847	265,929	3,885,210
2017	618,682	449,245	480,000	208,664	211,365	289,019	313,242	408,009	322,281	303,559	204,892	358,405	4,167,364
2018	477,123	479,179	414,767	328,260	252,164	366,003	536,842	495,384	400,049	276,911	420,291	814,576	5,261,550
2019	672,153	367,946	394,470	259,200	311,220	270,900	340,200	434,700	278,945	254,229	55,440	513,778	4,153,181
2021	308,857	479,853	738,498	811,654	537,528	237,406	471,638	448,710	475,935	342,488	284,204	493,745	5,630,516
Avg	450,300	404,233	459,570	366,717	301,613	315,188	413,412	418,442	324,062	301,345	291,539	412,644	4,459,065
	<b>Average Daily Water Data</b>												
2014	8,474	10,545	11,623	11,476	7,607	9,252	14,868	17,113	9,318	8,932	7,793	8,007	
2015	15,332	11,679	15,033	13,457	10,118	13,490	16,761	10,110	6,022	9,953	12,636	6,487	
2016	11,449	12,313	12,336	6,518	8,472	11,454	8,764	10,230	10,602	11,679	14,847	8,719	
2017	20,285	14,729	15,738	6,841	6,930	9,476	10,270	13,377	10,567	9,953	6,718	11,751	
2018	15,643	3,249	13,599	10,763	8,268	12,000	17,601	16,242	13,116	9,079	13,780	26,707	
2019	22,038	12,064	12,933	8,498	10,204	8,882	11,154	14,252	9,146	8,335	1,818	16,845	
2021	10,126	15,733	24,213	26,612	17,624	7,784	15,464	14,712	15,604	11,229	9,318	16,188	
Avg	15,057	12,012	15,068	12,024	9,889	10,334	13,554	13,719	10,625	9,880	9,559	13,529	
	C of A Max	360,000											
	<b>Monthly Peat Bed Wastewater Volume</b>												
2014	170,149	159,172	170,149	164,660	170,149	164,660	170,149	170,149	164,660	170,149	164,660	170,149	2,008,854
2015	170,149	159,172	170,149	164,660	170,149	164,660	170,149	170,149	149,450	110,544	152,691	176,035	1,927,957
2016	142,609	109,477	156,583	165,304	195,960	138,307	136,064	96,094	107,223	274,551	137,418	191,890	1,851,479
2017	476,488	256,266	372,638	142,370	138,600	202,500	209,700	266,400	225,000	211,500	139,500	225,900	2,866,862
2018	221,400	326,700	387,900	282,264	155,121	278,179	298,358	310,738	245,124	242,648	164,654	252,552	3,165,638
2019	255,600	198,000	212,850	140,400	216,900	181,800	221,400	301,500	182,977	180,692	-	-	
2021	135,498	224,197	403,347	515,193	330,899	116,873	119,176	113,855	244,594	186,710	79,604	205,281	2,675,226
Avg	224,556	204,712	267,659	224,979	196,825	178,140	189,285	204,126	188,433	196,685	139,755	203,634	2,416,003
	<b>Average Daily Peat Bed Wastewater Volume</b>												
2014	5,579	5,219	5,579	5,399	5,579	5,399	5,579	5,579	5,399	5,579	5,399	5,579	
2015	5,579	5,219	5,579	5,399	5,579	5,399	5,579	5,579	4,900	3,624	5,006	5,772	
2016	4,676	3,589	5,134	5,420	6,425	4,535	4,461	3,151	3,516	9,002	4,506	6,291	
2017	15,623	8,402	12,218	4,668	4,544	6,639	6,875	8,734	7,377	6,934	4,574	7,407	
2018	7,259	10,711	12,718	9,255	5,086	9,121	9,782	10,188	8,037	7,956	5,398	8,280	
2019	8,380	6,492	6,979	4,603	7,111	5,961	7,259	9,885	5,999	5,924			
2021	4,443	7,351	13,225	16,892	10,849	3,832	3,907	3,733	8,019	6,122	2,610	6,731	
Avg	7,362	6,712	8,776	7,376	6,453	5,841	6,206	6,693	6,178	6,449	4,582	6,677	
	C of A Max	43,920	Average Daily Flow										
	<b>WW as a % of Water</b>												
2014	66%	49%	48%	47%	73%	58%	38%	33%	58%	62%	69%	70%	53%
2015	36%	45%	37%	40%	55%	40%	33%	55%	81%	36%	40%	89%	45%
2016	41%	29%	42%	83%	76%	40%	51%	31%	33%	77%	30%	72%	48%
2017	77%	57%	78%	68%	66%	70%	67%	65%	70%	70%	68%	63%	69%
2018	46%	68%	94%	86%	62%	76%	56%	63%	61%	88%	39%	31%	60%
2019	38%	54%	54%	54%	70%	67%	65%	69%	66%	71%			
2021	44%	47%	55%	63%	62%	49%	25%	25%	51%	55%	28%	42%	48%
Avg	51%	50%	59%	63%	67%	59%	52%	53%	62%	67%	49%	65%	55%

**Notes**

"Average Daily Flow" means the total cumulative sewage flow during a particular month divided by the number of days during which sewage was flowing to the sewage works

**TABLE 2 - SUMMARY OF 2021 WATER CONSUMPTION AND SEWAGE FLOW DATA**  
**Calabogie Peaks Resort Private Sewage Works**

<b>Date</b>	<b>Daily Sewage Volume (Lpd)</b>	<b>Water Metered (Juniper and Base Mountain)</b>
1-Jan	7,587	13,361
2-Jan	12,793	26,133
3-Jan	3,984	8,645
4-Jan	1,996	5,142
5-Jan	2,323	6,743
6-Jan	3,292	7,886
7-Jan	3,068	7,421
8-Jan	3,711	8,808
9-Jan	3,778	8,909
10-Jan	3,384	8,095
11-Jan	3,200	7,859
12-Jan	2,560	6,374
13-Jan	3,363	8,254
14-Jan	1,809	4,863
15-Jan	2,956	7,343
16-Jan	3,298	8,126
17-Jan	3,215	7,793
18-Jan	4,743	11,137
19-Jan	2,720	6,464
20-Jan	12,507	26,028
21-Jan	3,585	8,626
22-Jan	3,925	9,230
23-Jan	3,945	9,339
24-Jan	4,561	10,439
25-Jan	5,154	11,501
26-Jan	12,403	27,598
27-Jan	4,214	9,622
28-Jan	1,442	3,569
29-Jan	1,278	3,154
30-Jan	4,220	10,009
31-Jan	4,482	10,389
1-Feb	3,546	8,382
2-Feb	3,394	8,293
3-Feb	4,761	10,939
4-Feb	5,913	13,086
5-Feb	4,884	11,114
6-Feb	4,536	10,672
7-Feb	10,381	26,090
8-Feb	4,597	6,657
9-Feb	3,808	8,897
10-Feb	7,582	16,810
11-Feb	7,110	15,736
12-Feb	8,069	17,306
13-Feb	7,209	15,907
14-Feb	10,113	21,677
15-Feb	8,340	18,112
16-Feb	10,845	23,297
17-Feb	10,002	21,797
18-Feb	11,142	23,847
19-Feb	9,867	21,045
20-Feb	12,218	25,800
21-Feb	13,460	28,431
22-Feb	11,045	24,482
23-Feb	3,929	8,951
24-Feb	8,241	16,833
25-Feb	10,994	23,979
26-Feb	5,684	12,125
27-Feb	17,760	37,545
28-Feb	4,767	10,428
1-Mar	22,339	39,781
2-Mar	21,943	38,967
3-Mar	20,705	36,929
4-Mar	19,589	34,976
5-Mar	16,953	30,632
6-Mar	20,555	37,378

**TABLE 2 - SUMMARY OF 2021 WATER CONSUMPTION AND SEWAGE FLOW DATA**  
**Calabogie Peaks Resort Private Sewage Works**

<b>Date</b>	<b>Daily Sewage Volume (Lpd)</b>	<b>Water Metered (Juniper and Base Mountain)</b>
7-Mar	5,794	10,912
8-Mar	20,344	36,165
9-Mar	18,628	33,488
10-Mar	14,713	26,761
11-Mar	12,986	23,824
12-Mar	13,845	25,036
13-Mar	14,620	26,648
14-Mar	34,975	62,279
15-Mar	3,688	7,037
16-Mar	15,626	28,241
17-Mar	8,996	17,100
18-Mar	9,621	17,945
19-Mar	6,008	11,807
20-Mar	9,098	17,236
21-Mar	11,268	21,200
22-Mar	6,417	12,551
23-Mar	5,299	10,614
24-Mar	13,754	25,098
25-Mar	4,506	9,285
26-Mar	4,086	9,017
27-Mar	4,683	9,331
28-Mar	5,133	10,494
29-Mar	1,854	4,383
30-Mar	20,646	36,661
31-Mar	14,674	26,722
1-Apr	10,747	18,240
2-Apr	6,851	24,769
3-Apr	19,871	43,737
4-Apr	19,714	5,472
5-Apr	19,784	22,739
6-Apr	19,714	29,644
7-Apr	19,346	20,061
8-Apr	13,930	13,639
9-Apr	12,906	13,353
10-Apr	12,320	14,617
11-Apr	17,001	32,786
12-Apr	21,473	29,946
13-Apr	21,753	40,250
14-Apr	21,910	40,610
15-Apr	20,685	36,131
16-Apr	19,871	33,833
17-Apr	14,368	11,346
18-Apr	17,929	64,701
19-Apr	21,849	14,551
20-Apr	17,141	35,390
21-Apr	23,371	37,165
22-Apr	21,613	39,614
23-Apr	17,544	23,998
24-Apr	18,156	39,486
25-Apr	27,151	79,860
26-Apr	22,628	8,963
27-Apr	12,023	18,771
28-Apr	9,896	8,014
29-Apr	5,863	5,902
30-Apr	7,788	4,119
1-May	7,936	8,459
2-May	7,875	10,559
3-May	4,189	8,159
4-May	4,028	7,661
5-May	3,805	7,262
6-May	6,997	12,082
7-May	1,262	3,356
8-May	7,191	12,396
9-May	6,424	11,567
10-May	18,853	29,617

**TABLE 2 - SUMMARY OF 2021 WATER CONSUMPTION AND SEWAGE FLOW DATA**  
**Calabogie Peaks Resort Private Sewage Works**

Date	Daily Sewage Volume (Lpd)	Water Metered (Juniper and Base Mountain)
11-May	7,230	12,466
12-May	3,261	6,733
13-May	2,932	6,352
14-May	2,932	5,991
15-May	3,546	7,374
16-May	15,203	24,785
17-May	23,018	35,534
18-May	22,756	35,720
19-May	43,966	69,390
20-May	12,993	20,352
21-May	10,807	17,054
22-May	24,658	38,921
23-May	28,144	44,101
24-May	27,085	42,249
25-May	10,367	16,384
26-May	9,356	15,748
27-May	2,435	4,933
28-May	3,917	8,467
29-May	4,997	10,176
30-May	1,958	3,286
31-May	777	1,717
1-Jun	2,764	5,871
2-Jun	2,628	5,576
3-Jun	2,771	5,933
4-Jun	3,229	6,316
5-Jun	3,789	7,797
6-Jun	4,016	7,808
7-Jun	1,977	4,204
8-Jun	2,569	5,351
9-Jun	3,540	7,366
10-Jun	3,876	8,277
11-Jun	3,941	8,029
12-Jun	6,450	12,373
13-Jun	4,756	9,161
14-Jun	3,238	6,653
15-Jun	3,191	6,491
16-Jun	3,218	6,549
17-Jun	2,928	5,878
18-Jun	4,381	8,746
19-Jun	6,125	11,668
20-Jun	4,288	8,293
21-Jun	3,771	7,421
22-Jun	3,769	7,169
23-Jun	3,769	7,413
24-Jun	5,207	9,881
25-Jun	3,812	7,591
26-Jun	7,710	14,341
27-Jun	4,962	9,653
28-Jun	4,105	7,673
29-Jun	1,986	10,311
30-Jun	4,104	7,614
1-Jul	2,083	9,668
2-Jul	4,139	17,097
3-Jul	4,104	12,400
4-Jul	2,013	14,171
5-Jul	4,034	5,262
6-Jul	2,021	9,994
7-Jul	4,025	13,772
8-Jul	2,004	4,542
9-Jul	2,004	11,470
10-Jul	4,008	15,934
11-Jul	4,358	14,748
12-Jul	3,640	5,778
13-Jul	3,999	13,330
14-Jul	3,999	11,900

**TABLE 2 - SUMMARY OF 2021 WATER CONSUMPTION AND SEWAGE FLOW DATA**  
**Calabogie Peaks Resort Private Sewage Works**

Date	Daily Sewage Volume (Lpd)	Water Metered (Juniper and Base Mountain)
15-Jul	5,976	12,214
16-Jul	4,113	15,837
17-Jul	6,116	17,957
18-Jul	5,591	18,484
19-Jul	4,506	7,967
20-Jul	5,968	20,960
21-Jul	1,995	15,504
22-Jul	4,016	35,352
23-Jul	2,013	13,969
24-Jul	5,968	23,657
25-Jul	2,004	11,827
26-Jul	4,016	9,529
27-Jul	4,095	41,354
28-Jul	4,043	10,897
29-Jul	4,148	14,438
30-Jul	4,051	13,869
31-Jul	4,130	27,761
1-Aug	4,051	14,082
2-Aug	3,955	11,133
3-Aug	3,946	8,575
4-Aug	4,130	18,201
5-Aug	4,069	10,656
6-Aug	4,051	11,939
7-Aug	4,121	23,800
8-Aug	4,104	16,732
9-Aug	2,083	10,869
10-Aug	4,121	11,815
11-Aug	4,113	13,311
12-Aug	2,048	15,760
13-Aug	4,008	11,706
14-Aug	4,060	9,932
15-Aug	4,069	21,902
16-Aug	2,004	7,673
17-Aug	4,069	12,117
18-Aug	4,148	11,024
19-Aug	2,048	18,771
20-Aug	4,051	5,712
21-Aug	6,108	18,112
22-Aug	1,995	10,912
23-Aug	4,104	6,820
24-Aug	3,999	22,541
25-Aug	2,030	22,855
26-Aug	4,025	16,918
27-Aug	4,191	13,318
28-Aug	4,113	29,601
29-Aug	4,025	9,591
30-Aug	4,016	7,533
31-Aug	2,004	24,800
1-Sep	4,043	27,706
2-Sep	4,069	8,606
3-Sep	1,995	10,807
4-Sep	4,060	17,438
5-Sep	4,060	12,485
6-Sep	7,919	21,588
7-Sep	8,106	13,923
8-Sep	14,791	25,075
9-Sep	10,001	17,833
10-Sep	5,450	9,765
11-Sep	12,085	21,204
12-Sep	29,856	49,635
13-Sep	12,338	20,724
14-Sep	5,100	9,998
15-Sep	1,690	3,542
16-Sep	1,733	3,902
17-Sep	8,335	14,725

**TABLE 2 - SUMMARY OF 2021 WATER CONSUMPTION AND SEWAGE FLOW DATA**  
**Calabogie Peaks Resort Private Sewage Works**

Date	Daily Sewage Volume (Lpd)	Water Metered (Juniper and Base Mountain)
18-Sep	5,379	9,339
19-Sep	14,746	25,563
20-Sep	9,298	17,298
21-Sep	4,711	8,331
22-Sep	4,749	8,998
23-Sep	6,230	11,083
24-Sep	7,119	12,896
25-Sep	21,459	36,568
26-Sep	12,474	21,514
27-Sep	7,334	12,470
28-Sep	4,701	8,835
29-Sep	4,215	7,952
30-Sep	6,549	11,768
1-Oct	6,186	10,346
2-Oct	12,884	20,553
3-Oct	7,241	12,179
4-Oct	3,298	5,836
5-Oct	4,209	7,421
6-Oct	5,131	8,816
7-Oct	4,178	6,940
8-Oct	6,129	12,168
9-Oct	6,262	10,478
10-Oct	13,503	21,359
11-Oct	8,998	14,353
12-Oct	4,909	8,141
13-Oct	9,588	15,465
14-Oct	6,183	10,350
15-Oct	6,303	10,587
16-Oct	7,050	11,861
17-Oct	11,019	17,503
18-Oct	7,210	11,606
19-Oct	7,755	12,757
20-Oct	7,095	11,691
21-Oct	8,340	13,725
22-Oct	2,310	8,436
23-Oct	4,209	10,939
24-Oct	2,074	13,008
25-Oct	2,039	3,674
26-Oct	2,048	7,463
27-Oct	2,909	5,394
28-Oct	2,030	6,797
29-Oct	2,048	7,653
30-Oct	4,139	8,386
31-Oct	9,434	18,085
1-Nov	3,607	9,017
2-Nov	1,925	7,095
3-Nov	2,065	9,075
4-Nov	1,916	7,746
5-Nov	2,074	10,071
6-Nov	4,086	9,292
7-Nov	1,925	13,051
8-Nov	4,060	2,306
9-Nov	866	11,241
10-Nov	1,173	6,998
11-Nov	1,899	16,728
12-Nov	4,086	8,913
13-Nov	2,065	5,650
14-Nov	1,986	13,543
15-Nov	2,048	4,921
16-Nov	7,064	18,340
17-Nov	3,316	9,308
18-Nov	1,934	3,790
19-Nov	2,065	15,562
20-Nov	2,581	20,154
21-Nov	1,488	9,316

**TABLE 2 - SUMMARY OF 2021 WATER CONSUMPTION AND SEWAGE FLOW DATA**  
**Calabogie Peaks Resort Private Sewage Works**

Date	Daily Sewage Volume (Lpd)	Water Metered (Juniper and Base Mountain)
22-Nov	1,916	3,635
23-Nov	2,153	8,362
24-Nov	1,934	6,425
25-Nov	3,530	9,478
26-Nov	4,034	6,188
27-Nov	2,091	13,229
28-Nov	1,960	9,722
29-Nov	2,170	1,910
30-Nov	5,588	13,136
1-Dec	1,925	17,988
2-Dec	2,896	15,399
3-Dec	1,951	19,224
4-Dec	2,179	4,154
5-Dec	1,934	11,718
6-Dec	3,265	7,564
7-Dec	8,741	13,001
8-Dec	6,694	46,376
9-Dec	1,934	8,444
10-Dec	2,126	2,205
11-Dec	3,973	19,844
12-Dec	1,969	15,132
13-Dec	2,039	2,837
14-Dec	1,925	11,559
15-Dec	2,021	13,772
16-Dec	4,121	13,098
17-Dec	1,951	5,751
18-Dec	2,135	5,584
19-Dec	1,960	27,474
20-Dec	4,121	2,961
21-Dec	2,056	9,533
22-Dec	3,938	10,633
23-Dec	6,426	11,594
24-Dec	12,740	34,030
25-Dec	21,210	34,271
26-Dec	18,996	20,739
27-Dec	18,856	22,347
28-Dec	18,786	1,949
29-Dec	12,163	37,200
30-Dec	16,196	34,596
31-Dec	14,053	12,772
Average	7,329	15,472
MIN	777	1,717
MAX	43,966	79,860





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## **APPENDIX C**

### **CofA**

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Ministry of the Environment  
Ministère de l'Environnement

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 0522-98MLKK

Issue Date: June 18, 2013

Calabogie Peaks Inc.  
30 Barrett Chute Rd  
Greater Madawaska, Ontario  
K0J 1H0

Site Location: Calabogie Peaks Resort  
30 Barrett Chute Rd Calabogie  
Greater Madawaska Township, County of Renfrew  
K0J 1H0

*Proposed Works  
Never  
Constructed  
Not required for  
Festival*

*You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:*

a sewage holding tank system (grey water) for use during seasonal cooking events at the Calabogie Peaks Resort located in Calabogie, Ontario, consisting of the following:

**PROPOSED WORKS**

**HOLDING TANK**

- A 9,000 L pre-cast concrete holding tank for grey water generated from seven (7) cooking stands/kiosks, each equipped with a temporary sink and grease trap, collecting wash water from washing pots, utensils and hands (with black water disposed off via portable toilets and taken off site), designed to provide a minimum four (4) day retention time for an estimated daily sewage generation of 2,100 L/day, equipped with a high level audio and visual alarm set to activate 0.3 m below the invert of the inlet, providing approximately 2,100 L of storage after the high-level alarm signal activation, also provided with an adequately sized vent outfitted with a charcoal filter, lockable access hatch, and pump-out connection.

**PREVIOUS WORKS**

A peat based subsurface sewage treatment system, having a rated capacity of 131,760 L/day, consisting of the following:

**SEPTIC TANKS**

A septic tankage system consisting of six (6) septic tanks, each with an internal pump station:

- Resort Centre Hotel, 65,634 L septic tank;
- Timeshare (proposed), 21,600 L septic tank;
- Future Timeshare, 86,400 L septic tank;
- Future Commercial, 45,000 L septic tank;
- Timeshare (existing), 21,200 L septic tank;
- Other existing/proposed, 90,000 L septic tank.

with discharge of sanitary sewage from each internal septic tank pumping station to the central dosing chamber through a common forcemain.

## CENTRAL DOSING STATION

- one (1) central dosing station having a volume of approximately  $8.6 \text{ m}^3$ , including a duplex alternating pump system with submersible non-clog pumps discharging a minimum of three quarters of the distribution pipe volume in 15 minutes or less, with each pump dosing between 346 and 388 L/min. depending on the number of cells in operation, the pumps controlled by four (4) float switches and alarm systems installed in the chamber, with doses alternating between the three peat filter modules, using an alternator in the control panel, with doses directed to one module at a time using a solenoid valve control;

## PEAT FILTER MODULES

- three (3) peat modules, containing *sphagnum spp.* milled and screened peat, having a pH of between 3.5 and 4.5, a von Post decomposition rating of approximately H4, having a moisture content of approximately 50% to 70% at the time of placement, with placement to occur in lifts and compacted to a bulk density in the range of  $125 \text{ to } 150 \text{ kg/m}^3$ ;

- with each complete module to be designed with a maximum daily capacity of 43,920 L/day, with construction to occur in stages as required to follow the actual growth of the development, or replace existing systems as necessary, with each treatment module to contain two (2) filters each having a total filter surface area of approximately  $732 \text{ m}^2$ , with each filter to contain four (4) distribution pipe cells, with each cell consisting of six (6) runs of 100 mm diameter perforated pipe and 25 mm pressure pipe with orifices, with the orifices sized and spaced to improve distribution of flow over the peat filter surface, with the perforated pipe spaced 0.9 m apart and 0.8 m from the outer berms or adjacent cells, with the distribution pipe surrounded with clear stone to distribute the flow to the peat media and to prevent the peat from entering the perforations in the pipe, with the distribution piping covering between 0.3 and 0.6 m depth of peat (variable due to surface grading);

- with the final grade of the peat surface to be approximately 5 cm. plus sod above the surrounding fill mound height, with the extra peat thickness to accommodate settling and erosion of the peat that occurs over the first year of operation, with the peat surface to be covered with peat sod to ensure protective cover of the acidic peat soils;

- with effluent flow to occur through 0.75 m of peat before dispersing into the unsaturated and saturated underlying native sandy soils.

## MISCELLANEOUS

- all other controls, electrical equipment, instrumentation, piping, valves and appurtenances essential for the proper operation of the aforementioned sewage Works;

*For the purpose of this environmental compliance approval, the following definitions apply:*

"Approval" means this entire document and any schedules attached to it, and the application;

"Average Daily Flow" means the cumulative total sewage flow to the sewage works during a particular calendar month divided by the number of days during which sewage was flowing to the sewage works that month;

"BOD 5 " means five day biochemical oxygen demand measured in an unfiltered sample;

"CBOD 5 " means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;

"Director" means a person appointed by the Minister pursuant to section 5 of the *EPA* for the purposes of Part II.1 of the *EPA*;

" District Manager" means the District Manager of the Ottawa District Office of the Ministry;

"E. Coli" refers to the thermally tolerant forms of *Escherichia* that can survive at 44.5 degrees Celsius;

"EPA" means the Environmental Protection Act , R.S.O. 1990, c.E.19, as amended;

"Grab Sample" means an individual sample of at least 1000 millilitres collected in an appropriate container at a randomly selected time over a period of time not exceeding 15 minutes;

" Ministry" means the ministry of the government of Ontario responsible for the *EPA* and *OWRA* and includes all officials, employees or other persons acting on its behalf.

" Owner" means Calabogie Peaks Inc. and includes its successors and assignees;

" OWRA " means the Ontario Water Resources Act , R.S.O. 1990, c. O.40, as amended.

"Previous Works " means those portions of the sewage works previously constructed and approved under a certificate of approval or environmental compliance approval;

"Proposed Works " means the sewage works described in the Owner's application, this *Approval* and in the supporting documentation referred to herein, to the extent approved by this *Approval*;

"Works" means the sewage works described in the Owner's application and this *Approval* and includes both *Proposed Works* and *Previous Works*.

*You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:*

## **TERMS AND CONDITIONS**

### **1. GENERAL PROVISIONS**

(1) The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Works* is notified of this *Approval* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Approval*, and the application for approval of the *Works*.

(3) Where there is a conflict between a provision of any document in the schedule referred to in this *Approval* and the conditions of this *Approval* , the Conditions in this *Approval* shall take precedence, and where there is a conflict between the documents in the schedule, the document bearing the most recent date shall prevail.



(4) Where there is a conflict between the documents listed in the Schedule, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

(5) The Conditions of this *Approval* are severable. If any Condition of this *Approval*, or the application of any requirement of this *Approval* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *Approval* shall not be affected thereby.

## 2. EXPIRY OF APPROVAL

(1) The approval issued by this *Approval* will cease to apply to those parts of the *Works* which have not been constructed within five (5) years of the date of this *Approval*.

## 3. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director*, in writing, of any of the following changes within thirty (30) days of the change occurring:

(a) change of *Owner*;

(b) change of address of the *Owner*;

(c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the *District Manager*;

(d) change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C39 shall be included in the notification to the *District Manager*;

(2) In the event of any change in ownership of the *Works*, other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *Approval*, and a copy of such notice shall be forwarded to the *District Manager* and the *Director*.

## 4. CONSTRUCTION

(1) The *Owner* shall ensure that the construction of the proposed *Works* is supervised by a Licensed Installer as defined in the Ontario Building Code or a Professional Engineer, as defined in the Professional Engineers Act.

(2) The *Owner* shall ensure that the final location of the proposed *Works* is selected in order to maintain the minimum clearance requirements stipulated in the *Ontario Building Code*.

(3) Upon construction of the proposed *Works*, the *Owner* shall prepare a statement, certified by a Licensed Installer or a Professional Engineer, that the proposed *Works* are constructed in accordance with this *Approval*, and shall submit to the *District Manager* the written statement along with "as

constructed" drawings.

## 5. MONITORING AND RECORDING

### PROPOSED WORKS

The *Owner* shall, upon commencement of operation of the *Proposed Works*, carry out the following monitoring program:

(1) The *Owner* shall ensure that accurate records are kept for the quantities of sewage being disposed from the holding tank including recording of date and quantity of sewage being pumped out each time and calculation of daily sanitary sewage generation rate at the site (L/d) based on the amount of sewage being pumped out of the holding tank and the number of collection days. The *Owner* shall also keep invoices from the septic hauler on file at the site;

### PREVIOUS WORKS

The *Owner* shall continue with the previously specified monitoring program for the *Previous Works* as outlined below:

(2) All samples and measurements taken for the purposes of this *Approval* are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.

#### Flow Monitoring :

(3) The *Owner* shall install, maintain and operate flow measuring devices, calibrated at regular intervals not exceeding one year to ensure their accuracy to within plus or minus 5% of actual rate of flow within the range of 10% to 100% of the full scale reading of the measuring devices, in order to measure and record:

(a) the effluent from the sewage *Works*, measured by means of flow measurement devices installed at appropriate locations after the central dosing tank and before the peat filters;

(b) the water usage at the Calabogie Peaks Resort Complex, measured by means of flow measurement devices installed where water for the property is taken;

(4) The *Owner* shall ensure that daily quantities of effluent from the sewage *Works* are measured by means of the calibrated flow measurement device(s) and results recorded.

(5) The *Owner* shall ensure that daily quantities of water usage at the Calabogie Peaks Resort Complex are measured by means of calibrated flow measurement device(s) installed as per subsection (4), and results recorded.

#### Effluent Monitoring :

(6) The *Owner* shall ensure that samples are collected of the effluent from the sewage *Works* at the frequency specified, by means of the specified sample type and analyzed for each parameter listed and all results recorded:

Table 1 - Effluent Monitoring	
Frequency	Quarterly (means once every three months)
Sample Type	Grab
Location	From monitoring well(s) installed immediately



	downgradient of the peat filters, at location(s) agreed with the <i>District Manager</i>
<b>Parameters</b>	CBOD5, Total Suspended Solids, Total Phosphorus, Total Ammonia (Ammonia + Ammonium) Nitrogen, Nitrates, Nitrites, Dissolved Organic Carbon (DOC), Fecal Coliforms, Total Coliforms, Chloride

### Groundwater Receiver Monitoring

(7) The *Owner* shall maintain the groundwater monitoring program established under the Approval Number 2256-5F9KU9, issued April 11, 2002 for the *Previous Works* as required by the *District Manager*.

(8) The groundwater samples are to be collected at the frequency specified, by means of the specified sample type and analyzed for each parameter listed and all results recorded:

Table 2 - Groundwater Monitoring	
<b>Frequency</b>	Quarterly (means once every three months, with samples collected during the first week of each quarter)
<b>Sample Type</b>	Grab
<b>Location</b>	upgradient and downgradient groundwater monitoring well(s)
<b>Parameters</b>	CBOD5, Total Ammonia (Ammonia + Ammonium) Nitrogen, Nitrates, Nitrites, Total Phosphorus, Dissolved Organic Carbon (DOC), Fecal Coliforms, Total Coliforms, Chloride, Static water level measurements

(9) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

(a) the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;

(b) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and

(c) the publication "Standard Methods for the Examination of Water and Wastewater" (22nd edition), as amended from time to time by more recently published editions.

(10) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this *Approval*.

(11) The measurement frequencies specified in this Condition with respect to any parameter are minimum requirements which may be modified by the *District Manager* in writing from time to time.

## 6. EFFLUENT AND FLOW OBJECTIVES

(1) The *Owner* shall use best efforts to operate the *Previous Works* with the objective that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent being discharged from the sewage works.

Table 3 - Effluent Objectives	
Effluent Parameter	Concentration Objective (milligrams per litre unless otherwise indicated)
CBOD5	5
Total Suspended Solids	5
Total Ammonia (Ammonia + Ammonium) Nitrogen	1
Total Phosphorus	1

(2) The *Owner* shall ensure that the *Average Daily Flow* of effluent from the *Previous Works*, does not exceed 131,760 L/d for any period of time greater than one (1) calendar month.

→ or 43,920 L/d per module

## 7. OPERATIONS AND MAINTENANCE

(1) The *Owner* shall ensure that at all times, the *Works* and related equipment and appurtenances which are installed or used to achieve compliance with this *Approval* are properly operated and maintained, and leaks and spills are prevented;

(2) The *Owner* shall have a valid agreement for pump out of the holding tank and transport of the sewage with a hauler who is in possession of a Waste Management Systems Approval at all times during operation of the *Proposed Works*. The *Owner* shall ensure that the holding tank is pumped out at the end of each three day cooking event as minimum.

(3) The *Owner* shall ensure that for the *Previous Works*, sewage sludge accumulations within the septic tanks and central dosing station are pumped out on a regular basis by a licensed hauler, and disposed of at a facility approved for the treatment and disposal of sewage sludge.

(4) The *Owner* shall ensure that a Spill Contingency Plan is in place for the sewage holding tank at the site. The plan must contain, as a minimum the following: spill clean-up material (i.e.- absorbents, shovels, gloves, etc.), as well as a notification procedure to follow in the event of a spill;

(5) The *Owner* shall ensure that appropriate mitigative measures are taken should any objectionable odour be generated from the *Works*.

(6) The *Owner* shall update the existing operations manual within six (6) months of the issuance of this *Approval* to include the operation of the *Proposed Works*, and maintain the operations manual current and retain a copy at the location of the *Works* for the operational life of the *Works*. Upon request, the *Owner* shall make the manual available to *Ministry* staff. The manual shall include, but not necessarily be limited to, the following information:

(a) operating procedures for routine operation of the *Works*;

(b) inspection programs, including frequency of inspection, for the *Works* and the methods or tests employed to detect when maintenance is necessary;



(c) repair and maintenance programs, including the frequency of repair and maintenance for the *Works*;

(d) procedures for the inspection and calibration of monitoring equipment;

(e) a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the Ministry's local office; and

(f) procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken.

(7) Within six (6) months of the issuance of this *Approval*, the *Owner* shall ensure that a complete set of as-built drawings showing the works "as constructed" is prepared. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the *Works* for the operational life of the *Works*.

(8) The *Owner* shall ensure that the drainage operations in the peat filter modules are visually observed on a monthly (once every month) basis for any breakouts during the peak operational period (April 1 to October 31). In the event that a breakout is observed from a peat module, the *Owner* shall ensure that the sewage discharge to the module is discontinued and the incident immediately reported verbally to the *District Manager*, followed by a written report within one (1) week. The *Owner* shall ensure that during the time remedial actions are taking place the sewage generated at the site shall not be allowed to discharge to a surface water body or to the environment, and safely collected and disposed off through a licensed waste hauler to an approved waste disposal site.

(9) The *Owner* shall maintain a logbook to record the results of Operation and Maintenance activities specified in the above subclauses, and shall keep the logbook at the site and make it available for inspection by the *Ministry* staff.

(10) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the monitoring and recording activities required by this *Approval*.

## 8. REPORTING

(1) At least, one week prior to the start up of the operation of the *Proposed Works*, the *Owner* shall notify the *District Manager* (in writing) of the pending start up date.

(2) In addition to the obligations under Part X of the Environmental Protection Act, the *Owner* shall, within **ten (10) working days** of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the *District Manager* describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

(3) The *Owner* shall prepare, and submit to the *District Manager*, a performance report, on an annual basis. Each annual report shall be submitted within ninety (90) calendar days following the completion of the calendar year being reported upon. The reports shall contain the following information in a format acceptable to the *District Manager*:

- (a) a summary and interpretation of all monitoring and analytical results obtained during the reporting period, including sampling/monitoring locations and dates, and a comparison to the effluent objectives outlined in Condition 6, including an overview of the success and adequacy of the *Works*;
- (b) a tabulation of daily volumes of effluent from the sewage *Works* disposed of during the reporting period, and a tabulation of the daily volumes of water used at the site during the reporting period, also including sewage volumes pumped from the holding tank, date, hauler's name and disposal site.
- (c) a tabulation of the volumes of sludge accumulated within the sewage *Works* on a quarterly basis, a tabulation of the sludge pumped out of the sewage *Works* on a quarterly basis, along with all documentation on sludge generation, transportation and ultimate disposal at the receiver's site.
- (d) a description of any operating problems encountered and corrective actions taken.
- (e) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works*;
- (f) a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- (g) a summary of all spills or abnormal discharge events; and
- (h) any other information that the *District Manager* requires from time to time.

*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition 1 is imposed to ensure that the *Works* are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Approval* and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the Owners their responsibility to notify any person they authorized to carry out work pursuant to this *Approval* the existence of this *Approval*.
2. Condition 2 is included to ensure that, when the *Works* are constructed, the *Works* will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.
3. Condition 3 is included to ensure that the *Ministry* records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the *Works* are made aware of the *Approval* and continue to operate the *Works* in compliance with it.
4. Condition 4 is included to ensure that the works are constructed, and may be operated and maintained such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented.
5. Condition 5 is included to enable the *Owner* to evaluate and demonstrate the performance of the *Works*, on a continual basis, so that the *Works* are properly operated and maintained at a level which is consistent with the design objectives specified in the *Approval* and that the *Works* does not cause any impairment to the receiving watercourse.

6. Condition 6 is imposed to establish non-enforceable effluent quality objectives which the *Owner* is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.

7. Condition 7 is included to require that the *Works* be properly operated, maintained, and equipped such that the environment is protected. As well, the inclusion of an operations manual, maintenance agreement with the manufacturer for the treatment process/technology and a complete set of "as constructed" drawings governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the owner and made available to the *Ministry*. Such a information is an integral part of the operation of the *Works*. Its compilation and use should assist the *Owner* in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for *Ministry* staff when reviewing the *Owner's* operation of the work.

8. Condition 8 is included to provide a performance record for future references, to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Approval*, so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

**The following Items form Schedule "A" of the *Approval*:**

### **Proposed Works**

1. Application for Approval of Municipal and Private Sewage Works submitted by Mr. Kaleb Iakew, P.Eng. of Kollaard Associates Inc. dated April 25, 2013 and received on May 13, 2013 for a Proposed Class V (holding tank) for seasonal events.

### **Previous Works**

2. Application for Approval of Municipal and Private Sewage Works dated May 5, 2001 and May 9, 2002, along with supporting documentation including a report by Simmering Associates Ltd., design drawings and correspondence between MOE and Simmering Associates Ltd.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 2256-5F9KU9 issued on April 11, 2002**

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.*

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5

AND

The Director appointed for the  
purposes of Part II.1 of the  
Environmental Protection Act  
Ministry of the Environment  
2 St. Clair Avenue West, Floor  
12A  
Toronto, Ontario  
M4V 1L5

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)**

*The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.*

DATED AT TORONTO this 18th day of June, 2013

Edgardo Tovilla  
Director  
appointed for the purposes of Part II.1 of  
the *Environmental Protection Act*

FP/  
c: District Manager, MOE Ottawa  
Kaleb Iakew, Kollaard Associates Inc.