



— Township of —

SEVERN

Wastewater Treatment and Collection System

Washago

2021 Annual Report

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Executive Summary

Washago utilizes a dual-cell facultative lagoon system for sewage treatment. The effluent quality is monitored before, during and after treatment to verify compliance with the Ministry of the Environment, Conservation and Parks (MECP) Certificate of Approval (C of A). Only Cell No. 1 is equipped to discharge into the Green River. Cell No. 2 is used for the retention of incoming sewage while Cell No. 1 is for discharging. River samples are taken before and during discharge to monitor the effects of the discharge on water quality.

Cell No. 1 was discharged in the spring and the fall of 2021. The mean concentrations and total loadings of all parameters were below their respective C of A compliance limits.

There was no impact on the quality of the Green River due to the spring and fall discharges. The total volume of effluent discharged was 57,319 m³ - approximately 70% of the facility's operating capacity of 81,900 m³/year.

No bypass occurred during the 2021 operating year.

Introduction

Washago is situated approximately 20 km north of Orillia near the intersection of Highway No. 11 and County Road No. 169. The lagoon is located approximately 1.5 km north west of the village core. Treated effluent from the facility is discharged to the Green River.

Facility Technical Information

The lagoon is operated under C of A No. 3-1081-83-006. A copy of the C of A is enclosed in Appendix A.

The lagoon consists of two cells operated in series. Sewage is pumped from the main pumping station in Washago into Cell No. 2. Sewage then flows into Cell No. 1 through a valved transfer pipe located in the berm separating the cells.

Storage and treatment of raw sewage are provided in Cell No. 2 during the treatment of Cell No.1. Cell No. 1 discharges to the Green River via an outfall that

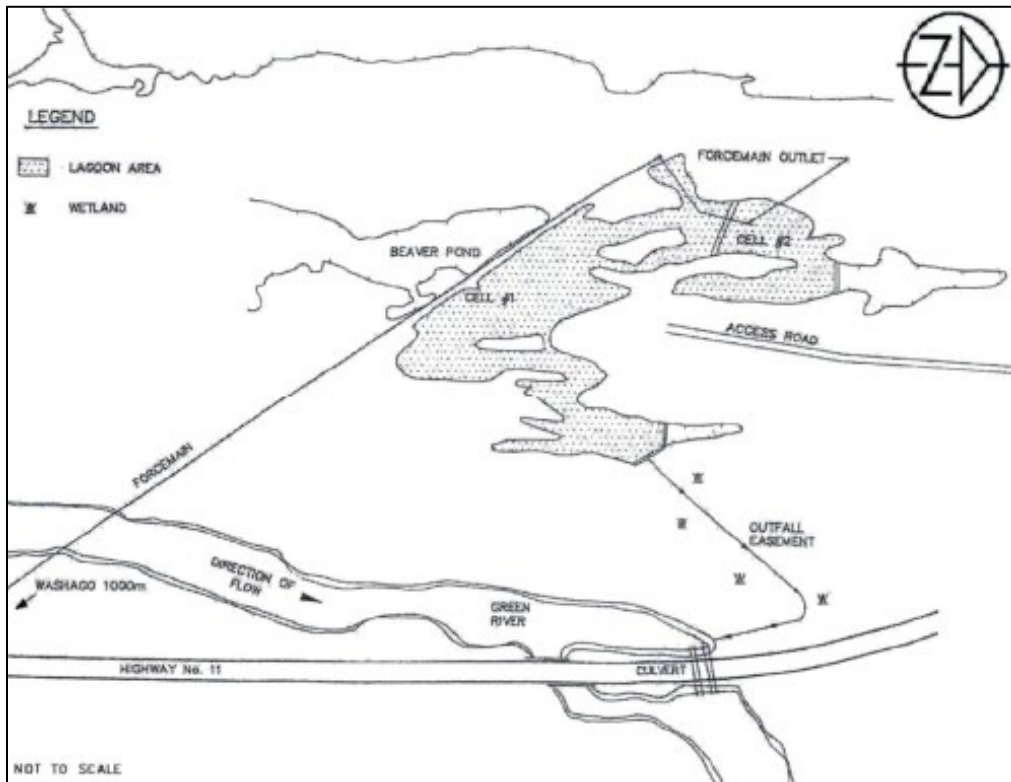
runs through the adjacent wetland. According to the C of A, the seasonal operating capacity of the facility is 40,950 m³ based on an average day flow of 227.5 m³/day over 180 days. A breakdown of the lagoon capacity is shown in Table 1.

Table 1: Lagoon Capacity

| Operating Cell | Dead Storage (m ³) | Active Storage below 0.6 m Freeboard (m ³) | Active Storage including Freeboard (m ³) | Total Storage (m ³) |
|----------------|--------------------------------|--|--|---------------------------------|
| Cell No. 1 | 1,700 | 38,150 | 63,880 | 65,580 |
| Cell No. 2 | 55 | 6,195 | 12,745 | 12,800 |
| Total | 1755 | 44,345 | 76,625 | 78,380 |

The configuration of the lagoon and outfall easement are shown on Figure 1.

Figure 1: Sewage Treatment Facility Site Plan



Performance Criteria

The C of A objective and compliance limits for effluent quality and the waste loading limits are summarized in Table 2.

Table 2: Performance Criteria

| Parameter | Objective Limits | | Compliance Limits | |
|------------------|----------------------|--------------------------|----------------------|--------------------------|
| | Concentration (mg/L) | Semi-Annual Loading (kg) | Concentration (mg/L) | Semi-Annual Loading (kg) |
| BOD ₅ | 15 | 614 | 25 | 1,024 |
| TSS | 20 | 815 | 25 | 1,024 |
| P _t | 1 | 41 | 1 | 41 |

Monitoring and Treatment Protocol

Raw sewage samples were collected from Washago Sewage Pumping Station #1 on a monthly basis and analyzed for TSS, BOD₅, P_t and TKN. Results of the analysis are shown on the Municipality Monitoring Program Mechanical Plants forms enclosed in Appendix B and summarized in Table 3.

Raw Sewage Monitoring

Table 3: Raw Sewage Monitoring Results

| Date | TSS (mg/L) | BOD ₅ (mg/L) | P _t | TKN (mg/L) |
|--------------------|---------------|----------------------------|----------------|---------------|
| January 6, 2021 | 87 | 96 | 3.84 | 37.4 |
| February 2, 2021 | 145 | 193 | 7.07 | 65.8 |
| March 2, 2021 | 225 | 161 | 7.01 | 64.6 |
| April 6, 2021 | 180 | 151 | 5.66 | 58.7 |
| May 4, 2021 | 156 | 181 | 4.90 | 44.8 |
| June 8, 2021 | 310 | 167 | 6.70 | 54.5 |
| July 13, 2021 | 130 | 154 | 6.30 | 67.9 |
| August 4, 2021 | 118 | 151 | 4.60 | 67.7 |
| September 8, 2021 | 166 | 185 | 3.97 | 41.0 |
| October 5, 2021 | 148 | 358 | 6.56 | 63.1 |
| November 2, 2021 | 142 | 188 | 3.46 | 28.2 |
| December 15, 2021 | 175 | 214 | 4.01 | 23.3 |
| Mean Concentration | 165 | 183 | 5.34 | 51.4 |

Sewage Flow Monitoring

The volume of sewage pumped from Washago Sewage Pumping Station #1 to the lagoon is estimated on a monthly basis by multiplying the elapsed run time of each pump in the station by the capacity of the pump. Draw down tests are completed by Township staff in the spring and the fall to confirm pump capacity. Draw down test calculations are enclosed in Appendix C. Raw sewage flows are shown on the Municipality Monitoring Program Mechanical Plants forms enclosed in Appendix B.

Based on the influent volumes reported in the Municipal Utility Monitoring Report, the total estimated volume of sewage transferred to the lagoon during the October 14, 2020, to April 3, 2021, winter operating season was 12,611 m³. The total estimated volume of sewage transferred to the lagoon during the April 4, 2021, to November 9, 2021, summer operating season was 13,525 m³. The total volume of

sewage transferred to the lagoon during the winter and summer operating seasons was 26,136 m³. Sewage flows are summarized in Table 4.

Table 4: Sewage Flow to Lagoon

| Winter Operating Season | | Summer Operating Season | |
|---|--------------------------|-------------------------|--------------------------|
| Date | Volume (m ³) | Date | Volume (m ³) |
| October 14-31, 2020 | 1,173 | April 4-30, 2021 | 1,851 |
| November 2020 | 2,080 | May 2021 | 1,841 |
| December 2020 | 2,583 | June 2021 | 1,920 |
| January 2021 | 1,672 | July 2021 | 1,850 |
| February 2021 | 1,582 | August 2021 | 1,418 |
| March 2021 | 3,307 | September 2021 | 1,790 |
| April 1-3, 2021 | 214 | October 2021 | 1,897 |
| | | November 1-9, 2021 | 958 |
| Sub-Total | 12,611 | Sub-Total | 13,525 |
| Total Volume - Summer and Winter Operating Season (m ³) | | | 26,136 |

Treatment and Sampling Protocol

Final treatment of the sewage begins by isolating Cell No. 1 for a period of approximately 30 days, depending on operational constraints. During this period, all sewage received at the lagoon is retained in Cell No. 2. To ensure adequate storage volume in Cell No. 2 during the treatment period, the operator transfers as much of the volume of Cell No. 2 to Cell No. 1 by pump.

During the treatment period, composite samples are collected to determine the quality of the effluent. If the effluent quality is below the C of A compliance limits, the cell is discharged without further treatment. If treatment is required, it is accomplished by batch chemical treatment with liquid aluminum sulphate (alum). Alum is added to the lagoon contents to initiate precipitation of the suspended matter. Although the treatment is essentially to reduce P_t levels, a significant reduction of BOD₅ and TSS is also achieved. The volume of alum required to treat

the cell is calculated based on jar test results to determine the optimum alum concentration and the estimated gross volume of liquid in the cell. The formulae for calculating the required volume of alum are presented in Appendix D. The stage-storage curves used to estimate the gross volume of liquid in the cells are presented in Appendix E. The addition of liquid alum is carried out using the procedure outlined and recommended by the MECP in a technical report issued January 16, 1974.

Pre and post-treatment samples are obtained from representative locations in Cell No. 1 and analyzed for BOD₅, P_t, TSS, pH, TA, TKN and Alkalinity. Discharge samples are collected from the downstream end of the Cell No. 1 discharge pipe and analyzed for the same parameters.

Grab samples are obtained from the Green River, upstream and downstream of the lagoon discharge point to monitor impacts of the discharge on the river. Samples are analyzed for BOD₅, P_t, TSS, pH, TA, TKN and Alkalinity.

Laboratory analysis reports for effluent and river samples are enclosed in Appendix F.

Treatment / Discharge

Spring Discharge

Three pre-discharge samples were taken from Cell No.1 for the spring discharge and three more during discharge to confirm effluent quality. The concentrations of P_t, TSS and BOD₅ reported in the pre-discharge samples were below the compliance limit. Based on the results of the pre-discharge samples, the discharge of Cell No. 1 commenced without batch chemical treatment. Results of the analysis are outlined in Table 5.

Table 5: Pre-Discharge Sampling – Spring Discharge

| | Date | TSS (mg/L) | BOD₅ (mg/L) | P_t (mg/L) | TA (mg/L) |
|-------------------|----------------|-----------------------|-----------------------------------|---------------------------------|----------------------|
| Sample 1 | March 29, 2021 | 17 | 16 | 0.50 | 9.9 |
| Sample 2 | April 6, 2021 | 17 | 8 | 0.12 | 7.5 |
| Sample 3 | April 13, 2021 | 8 | 6 | 0.19 | 4.7 |
| C of A Objective | | 20 | 15 | 1 | N/A |
| C of A Compliance | | 25 | 25 | 1 | N/A |

The spring discharge commenced on May 3, 2021. The total volume of effluent discharged was 20,502 m³ at a mean discharge rate of 2928 m³/day. During the discharge, the mean concentrations of TSS, BOD₅ and P_t were below compliance limits. A summary of the effluent quality and waste loadings is illustrated in Table 6.

Table 6: Effluent Discharge Summary – Spring Discharge

| | Date | TSS (mg/L) | BOD₅ (mg/L) | P_t (mg/L) | TA (mg/L) |
|------------------------|--------------|-----------------------|-----------------------------------|---------------------------------|----------------------|
| Start Discharge | May 3, 2021 | 6 | 6 | 0.13 | 2.8 |
| Mid Discharge | May 5, 2021 | 2 | <4 | 0.10 | 1.6 |
| End Discharge | May 10, 2021 | 4 | 6 | 0.22 | 3.8 |
| Mean Concentration | | 4 | 5.3 | 0.15 | 2.7 |
| C of A Objective | | 20 | 15 | 1 | N/A |
| C of A Compliance | | 25 | 25 | 1 | N/A |
| Effluent Waste Loading | | 82 | 109 | 4.51 | 55.4 |

Samples were obtained from the Green River, upstream and downstream of the lagoon discharge point, at the start, middle and end of the discharge. Results of the analysis are illustrated in Table 7. Analysis of the receiving stream samples showed no impact on the Green River due to the discharge of Cell No.1.

Table 7: Green River Monitoring – Spring Discharge

| | Date | TSS (mg/L) | BOD₅ (mg/L) | P_t (mg/L) | TA (mg/L) |
|-----------------|--------------|-----------------------|-----------------------------------|---------------------------------|----------------------|
| Start Discharge | May 3, 2021 | | | | |
| Upstream | | <2 | <4 | <0.03 | <0.1 |
| Downstream | | 4 | <4 | <0.03 | <0.1 |
| Mid Discharge | May 5, 2021 | | | | |
| Upstream | | 4 | <4 | <0.03 | <0.1 |
| Downstream | | 2 | <4 | <0.03 | <0.1 |
| End Discharge | May 10, 2021 | | | | |
| Upstream | | <2 | <4 | 0.03 | <0.1 |
| Downstream | | <2 | <4 | <0.03 | <0.1 |

Fall Discharge

Three pre-discharge samples were taken from Cell No. 1 to confirm effluent quality prior to the fall discharge. All parameters were below the C of A compliance limits. Based on these results, the discharge of Cell No. 1 commenced without batch chemical treatment. Results of the analysis are illustrated in Table 8.

Table 8: Pre-Discharge Sampling – Fall Discharge

| | Date | TSS (mg/L) | BOD₅ (mg/L) | P_t (mg/L) | TA (mg/L) |
|-------------------|--------------|-----------------------|-----------------------------------|---------------------------------|----------------------|
| Sample 1 | Nov 8, 2021 | 3 | 18 | 0.55 | 1.1 |
| Sample 2 | Nov 15, 2021 | 21 | 14 | 0.59 | 0.9 |
| Sample 3 | Nov 24, 2021 | 4 | 4 | 0.04 | 0.2 |
| C of A Objective | | 20 | 15 | 1 | N/A |
| C of A Compliance | | 25 | 25 | 1 | N/A |

The discharge of Cell No. 1 commenced December 13, 2021. The total volume of effluent discharged was 36,187 m³ at a mean discharge rate of 4,523 m³/day.

During the discharge, the mean concentrations of TSS, BOD₅ and P_t were below compliance limits. A summary of the effluent quality and waste loadings is illustrated in Table 9.

Table 9: Effluent Discharge Summary – Fall Discharge

| | Date | TSS (mg/L) | BOD₅ (mg/L) | P_t (mg/L) | TA (mg/L) |
|------------------------|--------------|-----------------------|-----------------------------------|---------------------------------|----------------------|
| Start Discharge | Dec 13, 2021 | 11 | 13 | 0.10 | 0.3 |
| Mid Discharge | Dec 16, 2021 | 3 | 5 | 0.03 | 0.005 |
| End Discharge | Dec 21, 2021 | 13 | 12 | 0.07 | 4.6 |
| Mean Concentration | | 9 | 10 | 0.07 | 1.6 |
| C of A Objective | | 20 | 15 | 1 | N/A |
| C of A Compliance | | 25 | 25 | 1 | N/A |
| Effluent Waste loading | | 325 | 361 | 2.53 | 57.9 |

Samples were obtained from the Green River, upstream and downstream of the lagoon discharge point, at the start, middle and end of the discharge. Analysis of the receiving stream samples showed no impact on the Green River due to the discharge of Cell No. 1. Results of the analysis are illustrated in Table 10.

Table 10: Green River Monitoring – Fall Discharge

| | Date | TSS (mg/L) | BOD₅ (mg/L) | P_t (mg/L) | TA (mg/L) |
|-----------------|--------------|-----------------------|-----------------------------------|---------------------------------|----------------------|
| Start Discharge | Dec 13, 2021 | | | | |
| Upstream | | 2 | <4 | <0.03 | <0.01 |
| Downstream | | <2 | <4 | <0.03 | <0.01 |
| Mid Discharge | Dec 16, 2021 | | | | |
| Upstream | | 3 | <4 | <0.03 | <0.01 |
| Downstream | | 2 | 4 | <0.03 | <0.01 |
| End Discharge | Dec 21, 2021 | | | | |

| | | | | | |
|------------|--|----|----|-------|-------|
| Upstream | | <2 | <4 | <0.03 | <0.01 |
| Downstream | | 12 | <4 | <0.03 | <0.01 |

Efforts and Results in Meeting Effluent Objectives of Certificate of Approval

The lagoon is operated and maintained such that all effluent quality objectives are strived for. Objectives and limits are based on an average.

All effluent objectives were met for 2021 lagoon discharges.

2021 Operating Year Summary

The volumes of influent received, and effluent discharged from the lagoon during the 2021 operating year are summarized in Table 11. The total volume of sewage received plus the net precipitation during the 2021 operating year was 56,689 m³. A total effluent volume of 56,689 m³ was discharged from the lagoon.

Table 11: Influent and Discharge Volume Summary

| | |
|------------------------------|-----------------------|
| Total Influent Volume Sewage | 26,136 m ³ |
| Total Effluent Discharged | 56,689 m ³ |
| Approx. Precipitation Volume | 30,553 m ³ |

The waste loadings during the 2021 operating year are summarized in Table 12.

Table 12: Waste Loading Summary

| | Spring 2020 (kg) | Fall 2020 (kg) | Total Loading (kg) |
|------|------------------|----------------|--------------------|
| TSS | 82 | 325 | 407 |
| BOD5 | 109 | 361 | 470 |
| Pt | 4.51 | 2.53 | 7.04 |
| TA | 55 | 57.9 | 112.9 |

Conclusions and Recommendations

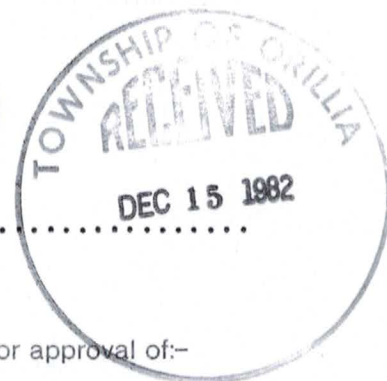
The performance of the Washago Sewage Treatment Works during the 2021 operating year satisfied all requirements of the Certificate of Approval. To ensure that the seasonal operating capacity of the lagoon is not exceeded, the spring and fall discharges should continue to be scheduled as early in the spring and as late in the fall as practical to reduce the length of the winter operating season, when the volume of precipitation accumulation is the greatest and the rate of evaporation is the lowest.

Appendix A

Certificate of Approval



Certificate of Approval (Sewage)



Whereas TOWNSHIP OF ORILLIA

xx

has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:-

the construction of sanitary sewerage works facilities to service the Community of Washago as follows:

SANITARY SEWERS

| <u>STREET</u> | <u>FROM</u> | <u>TO</u> |
|----------------|---|--|
| Quetton Street | Approx. 218 m South of Leith Street | Approx. 29 m North of Leith Street |
| Quetton Street | Orillia Street (Highway No. 69) | Hamilton Street |
| Muskoka Street | Approx. 235 m South of Rama Street | Approx. 303 m North of Ramsay Street |
| Mill Lane | Hamilton Street | Albany Street |
| Easement | Mill Lane | Approx. 129 m North of Edgar Street |
| Ramsay Street | Muskoka Street | Approx. 80 m West of Muskoka Street |
| Edgar Street | Muskoka Street | Approx. 75 m West of Muskoka Street |
| Edgar Street | Approx. 60 m East of Mill Lane (Easement) | Approx. 100 m East of Mill Lane (Easement) |
| Albany Street | Muskoka Street | Approx. 75 m West of Muskoka Street |
| Albany Street | Mill Lane | Approx. 34 m East of Mill Lane (Easement) |

...2

Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

DATED AT TORONTO this 8th day of December 19 82

- Attn:-Mr. J.B. Mather, Clerk, Twp. of Orillia
- cc:-Mr. G. Mierzynski, MOE C. Reg. Dir.
- Reid & Assoc. Ltd.
- Mr. W.A.S. Marshall, Project Engrg.
- Mr. N. Embree, MOE Barrie Office
- Mr. J. Toth, Design & Equipment
- Mr. W. Brink, Design & Equipment

Director

ec



Certificate of Approval (Sewage)

- 2 -

Whereas

of has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:-

SANITARY SEWERS (Cont'd)

Table with 3 columns: STREET, FROM, TO. Lists various streets and locations such as Orillia Street, Rama Street, Muskoka Street, Albany Street, and Quetton Street with their respective distances and directions.

...3

Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

DATED AT TORONTO this 8th day of December 19 82

Handwritten signature of the Director



Certificate of Approval (Sewage)

- 3 -

Whereas

of

has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:-

including building sewers from the main sewer to the street line, as shown on the drawing or as may be approved by the operating authority in the future together with three (3) sewage pumping stations as follows:

SEWAGE PUMPING STATION NO.1: to be located on the east side of Muskoka Street approximately 235 m south of Orillia Street and consisting of the construction of a submersible type raw sewage pumping station c/w the installation of two (2) 14.4 L/s @ 15.6 m T.D.H. submersible raw sewage pumps; an emergency forcemain by-pass; an emergency overflow to the Severn River and all necessary appurtenances and controls;

SEWAGE PUMPING STATION NO.2: to be located on the south side of Albany Street approximately 103 m east of Muskoka Street and consisting of a submersible type raw sewage pumping station c/w the installation of two (2) 6.28 L/s @ 8.3 m T.D.H. submersible raw sewage pumps; an emergency forcemain by-pass; an emergency overflow to the Severn River and all necessary appurtenances and controls;

SEWAGE PUMPING STATION NO.3: to be located on the west side of Muskoka Street approximately 303 m north of Ramsay Street and consisting of a submersible type raw sewage pumping station c/w the installation of two (2) 6.76 L/s @ 9.0 m T.D.H. submersible raw sewage pumps; an emergency forcemain by-pass; an emergency overflow sewer to an adjacent watercourse and all necessary appurtenances and controls,

all in accordance with the final plans and specifications prepared by Reid and Associates Limited, Consulting Engineers, at a total estimated cost, including land charges, engineering and contingencies, of NINE HUNDRED FORTY FOUR THOUSAND DOLLARS (\$944,000.00).

Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

DATED AT TORONTO this

8th

day of

December

19 82



Certificate of Approval (Water)

Whereas TOWNSHIP OF ORILLIA

of

has applied in accordance with Section 23 of the Ontario Water Resources Act for approval of:-

the construction of watermains as follows:

| <u>STREET</u> | <u>FROM</u> | <u>TO</u> |
|---------------------|--------------------------------------|--|
| Quetton Street | Approx. 48 m South of Orillia Street | Orillia Street |
| Orillia Street | Quetton Street | Approx. 50 m East of Quetton Street (CNR Right-of-Way) |
| C.N.R. Right-of-Way | Orillia Street | Hamilton Street |

including stub watermains and service connections from the distribution main to the street line, as shown on the drawings or as may be approved by the operating authority in the future, all in accordance with the final plans and specifications prepared by Reid and Associates Limited, Consulting Engineers, at a total estimated cost, including engineering and contingencies, of SEVENTEEN THOUSAND DOLLARS (\$17,000.00).

DATE OF APPROVAL OF THIS
 Certificate of Approval is SET
 ON May 31/83

Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 23 of the Ontario Water Resources Act.

DATED AT TORONTO this 29th day of April 19 83

- Attn:-Mr. J.B. Mather, Clerk, Twp. of Orillia
- cc:-Mr. J. Ferguson, Road Supt.
- Mr. G. Mierzynski, MOE C. Reg. Dir.
- Reid & Assoc. Ltd.
- Mr. W.A.S. Marshall, Proj. Engrg.
- Mr. A.J. Forsyth, Proj. Engrg.
- Mr. J. Toth, Design & Equipment
- Mr. W. Brink, Design & Equipment

.....
 Director



Certificate of Approval (Sewage)

Whereas TOWNSHIP OF ORILLIA

XX

has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:-

the construction of sanitary sewage works facilities as follows:

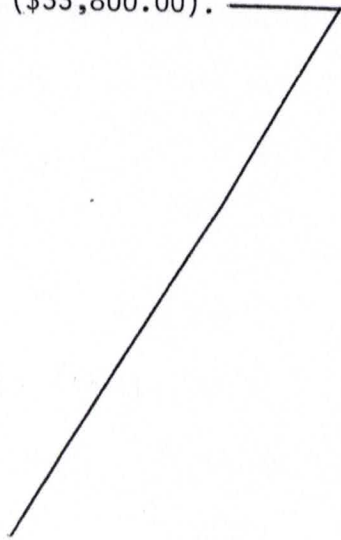
SANITARY SEWER

STREET FROM TO
C.N.R. Right-of-Way Hamilton Street Quetton Street

FORCEMAIN

C.N.R. Right-of-Way Orillia Street Hamilton Street

including service connections from the main sewer to the street line, as shown on the drawings or as may be approved by the operating authority in the future, all in accordance with the final plans and specifications prepared by Reid and Associates Limited, Consulting Engineers, at a total estimated cost, including engineering and contingencies, of THIRTY THREE THOUSAND EIGHT HUNDRED DOLLARS (\$33,800.00).



Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

DATED AT TORONTO this 29th day of April 19 83

- Attn:-Mr. J.B. Mather, Clerk, Twp. of Orillia
cc:-Mr. J. Ferguson, Road Supt.
-Mr. G. Mierzynski, MOE C. Reg. Dir.
-Reid & Assoc. Ltd.
-Mr. W.A.S. Marshall, Proj. Engrg.
-Mr. A.J. Forsyth, Proj. Engrg.
-Mr. J. Toth, Design & Equipment
-Mr. W. Brink, Design & Equipment

[Signature]
Director



Ministry of the Environment

Ministère de l'Environnement

Certificate of Approval (Sewage)
Certificat d'autorisation (eaux usées)

Number / Numéro 3-1459-87-006

Whereas / Attendu que Hope-Smith Lands Limited

of / d Washago, Ontario

has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:

a fait, conformément à l'article 24 de la loi sur les ressources en eau de l'Ontario, une demande d'autorisation: Private sanitary pumping station and forcemain to service a commercial development located on Part of Lot 14 and all of Lots 15, 16, 17 & 18 in the Township of Orillia equipped with 2 submersible grinder pumps each rated at 1.9 l/s at a total dynamic head of 6.8m with float switch controls, associated valves, electrical equipment, interconnecting piping, a natural vent, a forcemain and appurtenances.

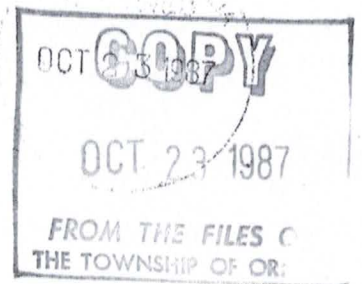
Table with 3 columns: Street, From, To. Row 1: Forcemain, Hamilton St., Approx. 45m E of Cumberland St., Quetton St.

all in accordance with the revised plans received on August 26, 1987 plans and specifications prepared by Marshall Macklin Monaghan Limited, Consulting Engineers, at a total estimated cost, including engineering and contingencies, of FORTY TWO THOUSAND TWO HUNDRED DOLLARS (\$42,200.00).

THIS IS A TRUE COPY OF THE ORIGINAL CERTIFICATE MAILED

ON Oct-16/87

(Signed) [Signature]



Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

Le présent document certifie qu'après vérification en bonne et due forme la construction dudit projet d'ouvrages a été approuvée aux termes de l'article 24 de la loi sur les ressources en eau de l'Ontario.

DATED AT TORONTO this 16 day of October 1987
DATÉ À TORONTO ce

- cc: Mr. J.B. Mather, Clerk, Township of Orillia
Mr. A.F. Pelletier, Clerk, County of Simcoe
Mr. N. Embree, Chief Approvals and Planning Unit
Marshall Macklin Monaghan Limited

[Signature]

Certificate of Approval (Sewage)

Whereas TOWNSHIP OF ORILLIA

xx
has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:-
the construction of a 4.77 ha two celled seasonal discharge waste stabilization pond to be located approximately 1700 m north and northwest of Hamilton Street - Washago (Part of Lots 10 and 11, Concession XV, Township of Orillia) in a natural rock basin and including an influent structure; four (4) berms; inter-connecting piping; and outfall structure and all necessary appurtenances (Total effective storage volume at 1.5 m effective liquid depth = 47,800 m³; BOD loading rate = 8.11 kg/ha/d) with effluent discharge via an existing natural drainage course to the Severn River,

all in accordance with the final plans prepared by Reid and Associates Limited, Consulting Engineers, at a total estimated cost, including land charges, engineering and contingencies, of ONE HUNDRED THOUSAND DOLLARS (\$100,000.00), subject to the following special terms and conditions which are considered necessary by the undersigned.

SPECIAL TERMS AND CONDITIONS

(1) The Township will notify homeowners along the Severn River, in the area immediately east of the Highway No. 11 bridge, prior to the discharge of the waste stabilization pond effluent.

(2) TYPE OF SAMPLE

Grab Sample

a) The waste stabilization pond shall be operated in such a manner and with such facilities as to maintain the following objectives in terms of effluent concentrations and waste loadings:

| <u>Effluent Parameter</u> | <u>Effluent Concentration</u> | <u>Effluent Waste Loading</u> |
|---------------------------|-------------------------------|-------------------------------|
| BOD ₅ | 15 mg/L | 614 kg |
| Suspended Solids | 20 mg/L | 815 kg |
| Total Phosphorus | 1.0 mg/L | 41 kg |

.../2

Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

DATED AT TORONTO this 18th day of November 1983

ttn:-Mr. J.B. Mather, Clerk, Twp. of Orillia
cc:-Mr. G. Mierzynski, MOE C, Reg. Dir.
-Reid and Associates Limited
-Mr. W.A.S. Marshall, Project Supervisor
-Mr. J. Toth, Value Engineering
-Mr. C.W. Brink Value Engineering

Ontario
**Certificate of Approval
(Sewage)**

Whereas

- 3 -

of

has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:-

Special Terms and Conditions Cont'd.

- e) Non-compliance with respect to effluent waste loadings is considered to occur when the arithmetic mean of either BOD₅, suspended solids or phosphorus concentration of samples collected during the discharge period incorporated with the total flow over the discharge period exceeds the corresponding value as stated in Condition 2b above.

NOTE:

The total flow referred to above shall be the total flow registered by the magnetic flow meter at the Main Sewage Pumping Station between the end of one discharge period and the end of the next discharge period.

- f) Procedures related to the sampling programme shall be in accordance with the attached Appendix A.
- (3) A routine sampling and analysis programme shall be implemented and maintained in accordance with the following:

SAMPLE LOCATIONS

- Raw Sewage (Main Sewage Pumping Station Wet Well)
- Final Effluent (Waste Stabilization Pond)

ANALYSIS SAMPLING PARAMETERS

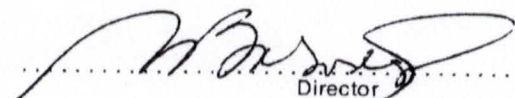
- BOD₅
- Suspended Solids
- Total Phosphorus
- Ammonia plus ammonia nitrogen (effluent stream only)

SAMPLING FREQUENCY

Raw Sewage - minimum one (1) grab sample per month
Final Effluent - as per Condition 2c above.

Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

DATED AT TORONTO this 18th day of November 1983


.....
Director

SAMPLE COLLECTION

- (a) All equipment coming in contact with the sample shall be clean.

SAMPLE PRESERVATION

- (a) If an automatic sampler is used, it should be located in a shaded area, rather than in direct sunlight.
- (b) The sample itself should be refrigerated at 4⁰ C, if at all possible, throughout the collection period and during the time taken to transport the sample. If plant personnel deliver the samples, a styrofoam cooler can be used for this purpose. Small refreezable ice packs can be placed within the cooler. If, however, the samples must be shipped by courier or express service, it is recommended that a one-day delivery period should be requested.

SAMPLE SIZE

- (a) At least one litre of sample from each sampling location should be submitted for the minimum analysis requirements (BOD₅, SS, Ammonia plus Ammonia Nitrogen and Total Phosphorus). If the effluent sample has less than 1 mm of solid matter when settled, or is almost clear when shaken, provide an extra litre of sample.

SUBMISSION OF ANALYSIS

- (a) Samples should be submitted for analysis as soon as possible following collection. Sample delivery should ideally be made to the laboratory within 24 hours. Allowances should be made to schedule sampling and delivery to coincide with the days on which the analyses are normally performed.

SAMPLE ANALYSIS AND DATA REPORTING

- (a) If the operating authority wishes to use its own analytical equipment or submit samples to commercial laboratories the operating authority shall still submit samples to the Ministry of the Environment Laboratory for purposes of quality control auditing. Until the capability and accuracy of the plant or other laboratory are known, samples shall be submitted as normally required to the Ministry of the Environment Laboratory. As the capability and accuracy of the plant or commercial laboratory become known, the frequency of sample submission to the Ministry Laboratory may be reduced or possibly eliminated entirely. The frequency of such submissions for quality control auditing shall be as determined in writing by the District Officer, Municipal and Private Abatement, Barrie District Office. To allow comparison of analytical results, samples submitted for quality auditing purposes shall be duplicates of the samples analyzed by the plant or commercial laboratory.
- (b) To satisfy all, or a part of, the analytical requirements, operating authorities using their own facilities or commercial laboratories shall submit copies of the analytical results at least once per month to the District Officer, Municipal and Private Abatement, Barrie District Office.

Appendix "A" Cont'd.

- (c) The operating authority shall maintain records of the analysis results for a minimum of five (5) years.



NOTICE

TO: Mr. J.B. Mather, Clerk
Township of Orillia
P.O. Box 159, R.R. #4
West Street North
Orillia, Ontario
L3V 6J3

You are hereby notified that Final Certificate of Approval No. 3-1081-83-006 has been issued to you subject to the conditions outlined therein.

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

Condition 1

Notification of the homeowners is necessary to ensure they are aware of the impending discharge.

Condition 2

The effluent criteria relating BOD₅, Suspended Solids and Ammonia plus Ammonia Nitrogen are being imposed to prevent discharges of inadequately treated sewage. The concentration parameters are compatible with the proposed treatment system under normal operating and loading conditions.

The effluent criteria relating to Total Phosphorus concentration comply with the policy of the Ministry of the Environment to reduce nutrients loading to the Great Lakes Basin so as to minimize the nuisance growth of aquatic plant and algae.

Condition 3

The condition relating to the routine sampling program and analysis is being imposed to ensure that all pertinent data are available for the evaluation of the performance of the system and the water pollution control plant is operated and maintained at the level consistent with the design.

You may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board.

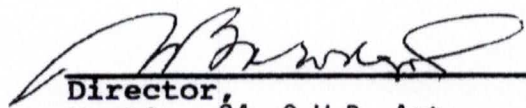
This Notice should be served upon:

**The Secretary,
Environmental Appeal Board,
1 St. Clair Ave. West,
5th Floor,
Toronto, Ontario.
M4V 1K7**

AND

**The Director,
Section 24, O.W.R. Act,
Ministry of the Environment,
135 St. Clair Ave. West,
Toronto, Ontario.
M4V 1P5**

DATED at Toronto this 18th day of November , 19 83.



**Director,
Section 24, O.W.R. Act,
Ministry of the Environment.**



Ministry
of the
Environment
and Energy

Ministère
de
l'Environnement
et de l'Énergie

AMENDMENT TO CERTIFICATE OF APPROVAL
MUNICIPAL SEWAGE

NUMBER 3-1081-83-006

Page 1 of 2



NOTICE OF AMENDMENT

To the Applicant:

The Corporation of the Township of Orillia
R. R. # 4, Box 159
Orillia, Ontario
L3V 6J3

The Applicant is hereby notified that the approval issued under Certificate of Approval No. 3-1081-83-006 dated November 18, 1983 for the construction of a two celled seasonal discharge waste stabilization pond for the Hamlet of Washago on part of Lots 10 and 11, Concession XV, Township of Orillia, is hereby amended as follows:

The Statement, "the magnetic flow meter" of Special Terms and Conditions (2) (e) is hereby revoked;

In substitution for the above revocation, the following is inserted:

"three (3) elapsed time meters with a data logging system and verification of pump rates for the two sewage pumps on a semi-annual basis".

This Notice shall constitute part of the approval issued under Certificate of Approval No. 3-1081-83-006 dated November 18, 1983.

The Applicant may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

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

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the sewage works are located;

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



Ontario

Ministry
of the
Environment
and Energy

Ministère
de
l'Environnement
et de l'Énergie

AMENDMENT TO CERTIFICATE OF APPROVAL
MUNICIPAL SEWAGE
NUMBER 3-1081-83-006
Page 2 of 2

This Notice must be served upon:


The Secretary,
Environmental Appeal Board,
112 St. Clair Avenue West,
Suite 502,
Toronto, Ontario.
M4V 1N3

AND

The Director,
Section 53, Ontario Water Resources Act,
Ministry of Environment and Energy,
250 Davisville Avenue, 3rd Floor,
Toronto, Ontario.
M4S 1H2

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 30th day of June, 1993.



W. Gregson, P. Eng.
Director
Section 53
Ontario Water Resources Act

GL/nk

Att: Mr. J. B. Mather, Clerk, Twp. of Orillia
cc: Mr. G. Carpentier, Supervisor, Approvals & Pesticides Management
Mr. D.G. Carr, P. Eng., Ainley and Associates Ltd.



Whereas / Attendu que

TOWNSHIP OF ORILLIA

of / d

has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:

a fait, conformément à l'article 24 de la loi sur les ressources en eau de l'Ontario, une demande d'autorisation:

a new 250 mm diameter polyethylene effluent outfall from the existing two celled seasonal discharge waste stabilization pond located approximately 1700 m north and northwest of Hamilton Street, Washago (Part of Lots 10 and 11, Concession XV, Township of Orillia) consisting of approximately 225 m of Series 45 butt-fused outfall following the existing ground profile together with a gate valve box shut-off terminations at Highway No. 11 immediately north of the Severn River,

all in accordance with the detailed drawing and supporting information prepared by Reid and Associates Limited, Consulting Engineers, at a total estimated cost, including engineering and contingencies, of SEVENTEEN THOUSAND DOLLARS (\$17,000.00).



Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

Le présent document certifie qu'après vérification en bonne et due forme la construction dudit projet d'ouvrages a été approuvée aux termes de l'article 24 de la loi sur les ressources en eau de l'Ontario.

DATED AT TORONTO this 24th day of April 1986

DATÉ À TORONTO ce

jour d

Attn: Mr. J.B. Mather, Clerk, Township of Orillia

cc: Mr. J.C. Ferguson, Twp. Engineer

Mr. G. Mierzynski, MOE C, Reg. Dir.

Reid & Associates Ltd.

.....
Director / Directeur



RECEIVED

AUG 8 1975

REID & ASSOC. LTD.

Atten: Mr. W.A. Marshall
cc: J.D. Reid and Assoc. Ltd.
Mr. P. Cockburn (MOE Central
Region)
Mr. J. Toth (MOE Tech.
Svc. Br.)

MINISTRY OF THE ENVIRONMENT

SEWAGE WORKS APPROVAL

/aw

Whereas THE PROVINCE OF ONTARIO

of

has applied in accordance with Section 42 of The Ontario Water Resources Act for approval of: -

construction of a sanitary sewerage works system to serve the Township of Orillia (Community of Washago) as follows:

| <u>STREET</u> | <u>FROM</u> | <u>TO</u> |
|-----------------------------------|--|--|
| Easement | Sanitary sewers Rama St. (Hwy. #69) | approx. 500' S. of Rama St. (Proposed Sewage Pumping Station No.2) |
| Easement | approx. 160' N. of Rama St. | approx. 1140' N. of Edgar St. |
| Easement | approx. 300' S. of Hamilton St. | approx. 1700' N. of Hamilton St. |
| Hamilton St. and Easement | approx. 200' W. of Muskoka St. (Easement) | approx. 300' E. of Muskoka St. (Severn River) |
| Easement parallel to Severn River | Hamilton St. Easement | Edgar St. |
| Edgar St. | approx. 200' E. of Muskoka St. (proposed Sewage Pumping Station No. 1) | approx. 630' E. of Muskoka St. |
| Forcemains | | |
| Easement | Edgar St. (proposed Sewage Pumping Station No. 1) | Hamilton St. |
| Hamilton Street | Easement | approx. 400' W. of Muskoka St. (Easement) |
| Easement | Hamilton St. | approx. 1850' N. of Hamilton St. (Proposed Sewage Treatment Plant) |

Now Therefore this is to certify that after due enquiry the said proposed works have been approved under Section 42 of The Ontario Water Resources Act.

continued:

DATED AT TORONTO this 1st day of August 19 75

Director

continued:



PRELIMINARY APPROVAL for purpose of facilitating works herein set out - not to be regarded as fulfilling requirements of this Act. Final certificate will be issued when detailed plans and specifications are approved.

MINISTRY OF THE ENVIRONMENT

SEWAGE WORKS APPROVAL

Whereas

of

- 2 -

has applied in accordance with Section 42 of The Ontario Water Resources Act for approval of: -

construction of a sanitary sewerage works system to serve the Township of Orillia (Community of Washago) (continued: -)

| <u>STREET</u> | <u>FROM</u> | <u>TO</u> |
|--------------------------|------------------------------------|-----------------------------|
| Easement | Proposed Sewage Pumping Station #2 | approx. 180' N. |
| <u>Outfall sewer</u> | | |
| Easement | Proposed Sewage Treatment Plant | West Branch of Severn River |

including building sewers from the main sewer to the street line together with the construction of two (2) sewage pumping stations as follows:

Sewage Pumping Station No. 1 - to be located at the west end of Edgar Street approx. 400' N. of Albany St. and to be equipped with two (2) 183 IGPM submersible type raw sewage pumps a standby diesel generator, an emergency overflow to the Severn River and all necessary appurtenances and controls,

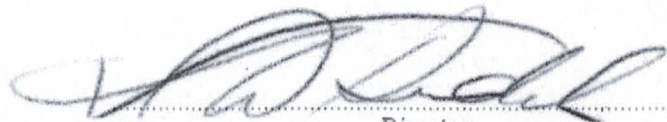
Sewage Pumping Station No. 2 - to be located on the south side of Rama St. approx. 150' E. of Muskoka St. and to be equipped with one (1) 81 IGPM submersible type raw sewage pump, an emergency overflow to the adjacent sanitary sewers and all necessary appurtenances and controls,

Sewage Treatment Plant - to be located approx. 1725' N. of Hamilton St. on the E. side of Hwy. #11 (Part Orillia Island, Twp. of Orillia) and consisting of a 50,000 IGPD extended aeration sewage treatment plant c/w influent works, grit channels, an aeration tank, a final clarifier; effluent chlorination; phosphorus removal facilities, a control building and all necessary appurtenances and controls with effluent discharge to the West Branch Severn River, all in accordance with the report prepared

Now Therefore this is to certify that after due enquiry the said proposed works have been approved under Section 42 of The Ontario Water Resources Act.

continued:

DATED AT TORONTO this 1st day of August 19 75


Director



MINISTRY OF THE ENVIRONMENT
SEWAGE WORKS APPROVAL

Whereas

of

- 3 -

has applied in accordance with Section 42 of The Ontario Water Resources Act for approval of: -

by J.D. Reid and Associates Limited, Consulting Engineers, at a total estimated cost, including land charges, engineering and contingencies, of FIVE HUNDRED FORTY SIX THOUSAND NINE HUNDRED AND SIXTY DOLLARS (\$546,960.00),

PRELIMINARY APPROVAL for purpose of facilitating works herein set out - not to be regarded as fulfilling requirements of this Act. Final certificate will be issued when detailed plans and specifications are approved.

Now Therefore this is to certify that after due enquiry the said proposed works have been approved under Section 42 of The Ontario Water Resources Act.

DATED AT TORONTO this **1st** day of **August** 19**75**


Director

Appendix B

Municipality Monitoring Program Mechanical Plants Forms

Comments

Return completed form to:

1. Environmental Monitoring and Reporting Branch, MOE, at WasteWaterReporting@Ontario.ca AND
2. Your Environmental Officer at your local District/Area MOE Office. (Find your local MOE office: <http://www.ene.gov.on.ca/environment>)

Comments

Return completed form to:

1. Environmental Monitoring and Reporting Branch, MOE, at WasteWaterReporting@Ontario.ca AND
2. Your Environmental Officer at your local District/Area MOE Office. (Find your local MOE office: <http://www.ene.gov.on.ca/environment>)

Fields marked with an asterisk (*) are mandatory.

Project Name
Washago Lagoon

Facility Address

| | | | |
|--|------------------------------|-------------------------------------|-------------------------------|
| Unit Number | Street Number 1024 | Street Name Hurlwood Lane | PO Box 159 |
| Municipality/City/Town Orillia | | Province ON - Ontario | Postal Code L3V 6J3 |

Operating Authority
The Corporation of the Township of Severn

Mailing Address

| | | | |
|--|------------------------------|-------------------------------------|-------------------------------|
| Unit Number | Street Number 1024 | Street Name Hurlwood Lane | PO Box 159 |
| Municipality/City/Town Orillia | | Province ON - Ontario | Postal Code L3V 6J3 |

| | | | | | | |
|------------|--------------------------|---------------------|------------------------|------------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| 4 6 | 1 2 0 0 0 2 2 7 3 | Month 0 2 | Year 2 0 2 1 | 2 8 | 2 | R |
| 1 2 | 3 11 | 16 | 19 | 20 21 | 22 | 80 |

| | | | | | |
|-------|------------|--|----------------|----------|-----------------|
| C.P. | 3 5 | Flows | Parameter Code | Dec. | Monthly Results |
| 12 13 | | Total Flow (10 ³ m ³) | 50010 | 3 | 1582.000 |
| | | Average Daily Flow (10 ³ m ³ /d) | 50015 | 3 | 57.000 |
| | | Maximum Daily Flow (10 ³ m ³ /d) | 50020 | 3 | |
| | | | 30 34 | 35 38 | 46 |

| | | | | | | |
|------------|---------------|---|--------------|----------|--|------------------|
| 3 5 | Bypass | Plant Bypass Volume (10 ³ m ³) | 50270 | 3 | | # of Occurrences |
| 12 13 | | Duration (hours) | 81680 | 1 | | |
| | | | 30 34 | 35 38 | | |

| | | | | | | |
|------------|-------------------|-------------------------|--------------|----------|--------------|--------------|
| 3 6 | Raw Sewage | BOD ₅ (mg/L) | 00001 | 0 | 193 | # of Samples |
| 12 13 | | Suspended Solids (mg/L) | 00006 | 0 | 145 | |
| | | TKN (mg/L) | 00020 | 2 | 65.80 | |
| | | Total Phosphorus (mg/L) | 00033 | 1 | 7.1 | |
| | | | 30 34 | 35 38 | 48 | 51 |

| | | | | | | |
|------------|-----------------------|---|--------------|----------|----|----|
| 3 9 | Final Effluent | Total Effl. Volume To Watercourse (10 ³ m ³) | 50280 | 3 | | |
| 12 13 | | Flow Duration (hours) | 81680 | 1 | | |
| | | Cell Depth (m) | 50290 | 1 | | |
| | | CBOD ₅ (mg/L) | 00002 | 1 | | |
| | | BOD ₅ (mg/L) | 00001 | 1 | | |
| | | Suspended Solids (mg/L) | 00006 | 1 | | |
| | | Ammonia + Ammonium (mg/L) | 00019 | 2 | | |
| | | TKN (mg/L) | 00020 | 2 | | |
| | | Total Phosphorus (mg/L) | 00033 | 2 | | |
| | | | 30 34 | 35 38 | 48 | 51 |

| | | | | | | |
|------------|---------------------|--|--------------|----------|----|----|
| 0 9 | Disinfection | Chlorine Used (kg as Cl ₂) | 50320 | 1 | | |
| 12 13 | | Chlorine Dosage (mg/L as Cl ₂) | 80410 | 1 | | |
| | | Chlorine Residual (mg/L as Cl ₂) | 80420 | 1 | | |
| | | | 30 34 | 35 38 | 48 | 51 |

Operator Telephone Number
705-345-1841

Operator Email Address *
tdrouin@severn.ca

Comments

Return completed form to:

- Environmental Monitoring and Reporting Branch, MECP, at WasteWaterReporting@ontario.ca And
- Your Environmental Officer at your local District/Area MECP Office.

Ministry Contact Email Address *
WasteWaterReporting@ontario.ca

Fields marked with an asterisk (*) are mandatory.

Project Name
Washago Lagoon

Facility Address

| | | | |
|-----------------------------------|-----------------------|------------------------------|------------------------|
| Unit Number | Street Number 1024 | Street Name Hurlwood Lane | PO Box 159 |
| Municipality/City/Town Orillia | | Province ON - Ontario | Postal Code L3V 6J3 |

Operating Authority
The Corporation of the Township of Severn

Mailing Address

| | | | |
|-----------------------------------|-----------------------|------------------------------|------------------------|
| Unit Number | Street Number 1024 | Street Name Hurlwood Lane | PO Box 159 |
| Municipality/City/Town Orillia | | Province ON - Ontario | Postal Code L3V 6J3 |

| | | | | | | |
|----------|-------------------|---------------|---------|-------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| 4 6 | 1 2 0 0 0 2 2 7 3 | Month | Year | 3 1 | 2 | R |
| 1 2 | 3 11 | 0 3 | 2 0 2 1 | 16 19 | 20 21 | 22 80 |

C.P.

3 5

| Flows | Parameter Code | Dec. | Monthly Results |
|--|----------------|------|-----------------|
| Total Flow (10 ³ m ³) | 50010 | 3 | 3.307 |
| Average Daily Flow (10 ³ m ³ /d) | 50015 | 3 | 0.107 |
| Maximum Daily Flow (10 ³ m ³ /d) | 50020 | 3 | |

3 5

| Bypass | Parameter Code | Dec. | Monthly Results | # of Occurrences |
|---|----------------|------|-----------------|------------------|
| Plant Bypass Volume (10 ³ m ³) | 50270 | 3 | | 0 |
| Duration (hours) | 81680 | 1 | | |

3 6

| Raw Sewage | Parameter Code | Dec. | Monthly Results | # of Samples |
|-------------------------|----------------|------|-----------------|--------------|
| BOD ₅ (mg/L) | 00001 | 0 | 161 | 1 |
| Suspended Solids (mg/L) | 00006 | 0 | 225 | 1 |
| TKN (mg/L) | 00020 | 2 | 64.60 | 1 |
| Total Phosphorus (mg/L) | 00033 | 1 | 7.0 | 1 |

3 9

| Final Effluent | Parameter Code | Dec. | Monthly Results | # of Samples |
|---|----------------|------|-----------------|--------------|
| Total Effl. Volume To Watercourse (10 ³ m ³) | 50280 | 3 | | |
| Flow Duration (hours) | 81680 | 1 | | |
| Cell Depth (m) | 50290 | 1 | | |
| CBOD ₅ (mg/L) | 00002 | 1 | | |
| BOD ₅ (mg/L) | 00001 | 1 | | |
| Suspended Solids (mg/L) | 00006 | 1 | | |
| Ammonia + Ammonium (mg/L) | 00019 | 2 | | |
| TKN (mg/L) | 00020 | 2 | | |
| Total Phosphorus (mg/L) | 00033 | 2 | | |

0 9

| Disinfection | Parameter Code | Dec. | Monthly Results | # of Samples |
|--|----------------|------|-----------------|--------------|
| Chlorine Used (kg as Cl ₂) | 50320 | 1 | | |
| Chlorine Dosage (mg/L as Cl ₂) | 80410 | 1 | | |
| Chlorine Residual (mg/L as Cl ₂) | 80420 | 1 | | |

Operator Telephone Number
705-345-1841

Operator Email Address *
tdrouin@severn.ca

Comments

Return completed form to:

1. Environmental Monitoring and Reporting Branch, MECP, at WasteWaterReporting@ontario.ca And
2. Your Environmental Officer at your local District/Area MECP Office.

Ministry Contact Email Address *
Peter.Vreugdenhil@ontario.ca

Fields marked with an asterisk (*) are mandatory.

Project Name
Washago Lagoon

Facility Address

| | | | |
|---|------------------------------|-------------------------------------|-------------------------------|
| Unit Number | Street Number 1021 | Street Name Hurlwood Lane | PO Box 159 |
| Municipality/City/Town Orillia | | Province ON - Ontario | Postal Code L3V 6J3 |
| Operating Authority The Corporation of the Township of Severn | | | |

Mailing Address

| | | | |
|--|------------------------------|-------------------------------------|-------------------------------|
| Unit Number | Street Number 1021 | Street Name Hurlwood Lane | PO Box 159 |
| Municipality/City/Town Orillia | | Province ON - Ontario | Postal Code L3V 6J3 |

| | | | | | | |
|------------|--------------------------|---------------------|------------------------|------------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| 4 6 | 1 2 0 0 0 2 2 7 3 | Month 0 4 | Year 2 0 2 1 | 3 0 | 2 | R |
| 1 2 | 3 11 | 16 | 19 | 20 21 | 22 | 80 |

| | | | | | | | | | |
|------------|----|---|-------------------------------------|--------------|----------|----------------|------|------------------|----|
| C.P. | | 3 5 | | Flows | | Parameter Code | Dec. | Monthly Results | |
| 12 | 13 | Total Flow | (10 ³ m ³) | 50010 | 3 | 2.136 | | | |
| | | Average Daily Flow | (10 ³ m ³ /d) | 50015 | 3 | 0.026 | | | |
| | | Maximum Daily Flow | (10 ³ m ³ /d) | 50020 | 3 | | | | |
| | | | | 30 | 34 | 35 | 38 | 46 | |
| 3 5 | | Bypass | | | | | | # of Occurrences | |
| 12 | 13 | Plant Bypass Volume | (10 ³ m ³) | 50270 | 3 | 0.000 | | | |
| | | Duration | (hours) | 81680 | 1 | | | | |
| | | | | 30 | 34 | 35 | 38 | | |
| 3 6 | | Raw Sewage | | | | | | # of Samples | |
| 12 | 13 | BOD ₅ | (mg/L) | 00001 | 0 | 151 | | 1 | |
| | | Suspended Solids | (mg/L) | 00006 | 0 | 180 | | 1 | |
| | | TKN | (mg/L) | 00020 | 2 | 58.70 | | 1 | |
| | | Total Phosphorus | (mg/L) | 00033 | 1 | 5.6 | | 1 | |
| | | | | 30 | 34 | 35 | 38 | 48 | 51 |
| 3 9 | | Final Effluent | | | | | | | |
| 12 | 13 | Total Effl. Volume To Watercourse (10 ³ m ³) | | 50280 | 3 | 0.000 | | | |
| | | Flow Duration | (hours) | 81680 | 1 | 0.0 | | | |
| | | Cell Depth | (m) | 50290 | 1 | | | | |
| | | CBOD ₅ | (mg/L) | 00002 | 1 | | | | |
| | | BOD ₅ | (mg/L) | 00001 | 1 | | | | |
| | | Suspended Solids | (mg/L) | 00006 | 1 | | | | |
| | | Ammonia + Ammonium | (mg/L) | 00019 | 2 | | | | |
| | | TKN | (mg/L) | 00020 | 2 | | | | |
| | | Total Phosphorus | (mg/L) | 00033 | 2 | | | | |
| | | | | 30 | 34 | 35 | 38 | 48 | 51 |
| 0 9 | | Disinfection | | | | | | | |
| 12 | 13 | Chlorine Used | (kg as Cl ₂) | 50320 | 1 | | | | |
| | | Chlorine Dosage | (mg/L as Cl ₂) | 80410 | 1 | | | | |
| | | Chlorine Residual | (mg/L as Cl ₂) | 80420 | 1 | | | | |
| | | | | 30 | 34 | 35 | 38 | 48 | 51 |

Operator Telephone Number
705-345-1841

Operator Email Address *
tdrouin@severn.ca

Comments

Return completed form to:

1. Environmental Monitoring and Reporting Branch, MECP, at WasteWaterReporting@ontario.ca And
2. Your Environmental Officer at your local District/Area MECP Office.

Ministry Contact Email Address *
Peter.Vreugdenhil@ontario.ca

Fields marked with an asterisk (*) are mandatory.

Project Name
Washago Lagoon

Facility Address

| | | | |
|------------------------|---------------|---------------|-------------|
| Unit Number | Street Number | Street Name | PO Box |
| | 1021 | Hurlwood Lane | 159 |
| Municipality/City/Town | | Province | Postal Code |
| Orillia | | ON - Ontario | L3V 6J3 |

Operating Authority
The Corporation of the Township of Severn

Mailing Address

| | | | |
|------------------------|---------------|---------------|-------------|
| Unit Number | Street Number | Street Name | PO Box |
| | 1021 | Hurlwood Lane | 159 |
| Municipality/City/Town | | Province | Postal Code |
| Orillia | | ON - Ontario | L3V 6J3 |

| | | | | | | |
|----------|-------------------|---------------|---------|-------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| 4 6 | 1 2 0 0 0 2 2 7 3 | Month | Year | 3 1 | 2 | R |
| 1 2 | 3 11 | 0 5 | 2 0 2 1 | 20 21 | 22 | 80 |

C.P.
3 5

| Flows | Parameter Code | Dec. | Monthly Results |
|--|----------------|------|-----------------|
| Total Flow (10 ³ m ³) | 50010 | 3 | 1.841 |
| Average Daily Flow (10 ³ m ³ /d) | 50015 | 3 | 0.059 |
| Maximum Daily Flow (10 ³ m ³ /d) | 50020 | 3 | |

| Bypass | Parameter Code | Dec. | Monthly Results | # of Occurrences |
|---|----------------|------|-----------------|------------------|
| Plant Bypass Volume (10 ³ m ³) | 50270 | 3 | | 181 |
| Duration (hours) | 81680 | 1 | | |

| Raw Sewage | Parameter Code | Dec. | Monthly Results | # of Samples |
|-------------------------|----------------|------|-----------------|--------------|
| BOD ₅ (mg/L) | 00001 | 0 | 181 | 1 |
| Suspended Solids (mg/L) | 00006 | 0 | 156 | 1 |
| TKN (mg/L) | 00020 | 2 | 44.80 | 1 |
| Total Phosphorus (mg/L) | 00033 | 1 | 4.9 | 1 |

| Final Effluent | Parameter Code | Dec. | Monthly Results | # of Samples |
|---|----------------|------|-----------------|--------------|
| Total Effl. Volume To Watercourse (10 ³ m ³) | 50280 | 3 | 20.502 | |
| Flow Duration (hours) | 81680 | 1 | 263.0 | |
| Cell Depth (m) | 50290 | 1 | | |
| CBOD ₅ (mg/L) | 00002 | 1 | | |
| BOD ₅ (mg/L) | 00001 | 1 | 5.3 | 3 |
| Suspended Solids (mg/L) | 00006 | 1 | 4.0 | 3 |
| Ammonia + Ammonium (mg/L) | 00019 | 2 | 1.63 | 3 |
| TKN (mg/L) | 00020 | 2 | | |
| Total Phosphorus (mg/L) | 00033 | 2 | 0.15 | 3 |

| Disinfection | Parameter Code | Dec. | Monthly Results | # of Samples |
|--|----------------|------|-----------------|--------------|
| Chlorine Used (kg as Cl ₂) | 50320 | 1 | | |
| Chlorine Dosage (mg/L as Cl ₂) | 80410 | 1 | | |
| Chlorine Residual (mg/L as Cl ₂) | 80420 | 1 | | |

Operator Telephone Number
705-345-1841

Operator Email Address *
tdrouin@severn.ca

Comments

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- Your Environmental Officer at your local District/Area MECP Office.

Ministry Contact Email Address *
Peter.Vreugdenhil@ontario.ca

Fields marked with an asterisk (*) are mandatory.

Project Name
Washago Lagoon

Facility Address

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| | | | | | | |
|----------|-------------------|---------------|---------|-------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| 4 6 | 1 2 0 0 0 2 2 7 3 | Month | Year | 3 0 | 2 | R |
| 1 2 | 3 11 | 0 6 | 2 0 2 1 | 20 21 | 22 | 80 |

C.P.

3 5

Flows

| 12 | 13 | Parameter Code | Dec. | Monthly Results |
|--------------------|-------------------------------------|----------------|------|-----------------|
| Total Flow | (10 ³ m ³) | 50010 | 3 | 1.920 |
| Average Daily Flow | (10 ³ m ³ /d) | 50015 | 3 | 0.064 |
| Maximum Daily Flow | (10 ³ m ³ /d) | 50020 | 3 | |

3 5

Bypass

| 12 | 13 | Parameter Code | Dec. | Monthly Results | # of Occurrences |
|---------------------|-----------------------------------|----------------|------|-----------------|------------------|
| Plant Bypass Volume | (10 ³ m ³) | 50270 | 3 | | |
| Duration | (hours) | 81680 | 1 | | |

3 6

Raw Sewage

| 12 | 13 | Parameter Code | Dec. | Monthly Results | # of Samples |
|------------------|--------|----------------|------|-----------------|--------------|
| BOD ₅ | (mg/L) | 00001 | 0 | 167 | 1 |
| Suspended Solids | (mg/L) | 00006 | 0 | 310 | 1 |
| TKN | (mg/L) | 00020 | 2 | 54.50 | 1 |
| Total Phosphorus | (mg/L) | 00033 | 1 | 6.7 | 1 |

3 9

Final Effluent

| 12 | 13 | Parameter Code | Dec. | Monthly Results | # of Samples |
|---|---------|----------------|------|-----------------|--------------|
| Total Effl. Volume To Watercourse (10 ³ m ³) | | 50280 | 3 | | |
| Flow Duration | (hours) | 81680 | 1 | | |
| Cell Depth | (m) | 50290 | 1 | | |
| CBOD ₅ | (mg/L) | 00002 | 1 | | |
| BOD ₅ | (mg/L) | 00001 | 1 | | |
| Suspended Solids | (mg/L) | 00006 | 1 | | |
| Ammonia + Ammonium | (mg/L) | 00019 | 2 | | |
| TKN | (mg/L) | 00020 | 2 | | |
| Total Phosphorus | (mg/L) | 00033 | 2 | | |

0 9

Disinfection

| 12 | 13 | Parameter Code | Dec. | Monthly Results | # of Samples |
|-------------------|----------------------------|----------------|------|-----------------|--------------|
| Chlorine Used | (kg as Cl ₂) | 50320 | 1 | | |
| Chlorine Dosage | (mg/L as Cl ₂) | 80410 | 1 | | |
| Chlorine Residual | (mg/L as Cl ₂) | 80420 | 1 | | |

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Washago Lagoon

Facility Address

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|---|------------------------------|-------------------------------------|-------------------------------|
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| Operating Authority <u>The Corporation of the Township of Severn</u> | | | |

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| | | | | | | |
|------------|--------------------------|---------------|----------------|------------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| <u>4 6</u> | <u>1 2 0 0 0 2 2 7 3</u> | Month | Year | <u>3 1</u> | <u>2</u> | <u>R</u> |
| 1 2 | 3 11 | <u>0 7</u> | <u>2 0 2 1</u> | 20 21 | 22 | 80 |

C.P.
3 5

| Flows | Parameter Code | Dec. | Monthly Results |
|--|----------------|----------|-----------------|
| Total Flow (10 ³ m ³) | <u>50010</u> | <u>3</u> | <u>1.850</u> |
| Average Daily Flow (10 ³ m ³ /d) | <u>50015</u> | <u>3</u> | <u>0.059</u> |
| Maximum Daily Flow (10 ³ m ³ /d) | <u>50020</u> | <u>3</u> | |

| Bypass | Parameter Code | Dec. | # of Occurrences |
|---|----------------|----------|------------------|
| Plant Bypass Volume (10 ³ m ³) | <u>50270</u> | <u>3</u> | |
| Duration (hours) | <u>81680</u> | <u>1</u> | |

| Raw Sewage | Parameter Code | Dec. | # of Samples |
|-------------------------|----------------|----------|--------------|
| BOD ₅ (mg/L) | <u>00001</u> | <u>0</u> | <u>154</u> |
| Suspended Solids (mg/L) | <u>00006</u> | <u>0</u> | <u>130</u> |
| TKN (mg/L) | <u>00020</u> | <u>2</u> | <u>67.90</u> |
| Total Phosphorus (mg/L) | <u>00033</u> | <u>1</u> | <u>6.3</u> |

| Final Effluent | Parameter Code | Dec. | # of Samples |
|---|----------------|----------|--------------|
| Total Effl. Volume To Watercourse (10 ³ m ³) | <u>50280</u> | <u>3</u> | |
| Flow Duration (hours) | <u>81680</u> | <u>1</u> | |
| Cell Depth (m) | <u>50290</u> | <u>1</u> | |
| CBOD ₅ (mg/L) | <u>00002</u> | <u>1</u> | |
| BOD ₅ (mg/L) | <u>00001</u> | <u>1</u> | |
| Suspended Solids (mg/L) | <u>00006</u> | <u>1</u> | |
| Ammonia + Ammonium (mg/L) | <u>00019</u> | <u>2</u> | |
| TKN (mg/L) | <u>00020</u> | <u>2</u> | |
| Total Phosphorus (mg/L) | <u>00033</u> | <u>2</u> | |

| Disinfection | Parameter Code | Dec. | # of Samples |
|--|----------------|----------|--------------|
| Chlorine Used (kg as Cl ₂) | <u>50320</u> | <u>1</u> | |
| Chlorine Dosage (mg/L as Cl ₂) | <u>80410</u> | <u>1</u> | |
| Chlorine Residual (mg/L as Cl ₂) | <u>80420</u> | <u>1</u> | |

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Ministry Contact Email Address *
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Washago Lagoon

Facility Address

| | | | |
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| | | | | | | |
|-------------------|--|---------------|------|-------------------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| <u>4</u> <u>6</u> | <u>1</u> <u>2</u> <u>0</u> <u>0</u> <u>0</u> <u>2</u> <u>2</u> <u>7</u> <u>3</u> | Month | Year | <u>3</u> <u>1</u> | <u>2</u> | <u>R</u> |
| 1 2 | 3 11 | 16 | 19 | 20 21 | 22 | 80 |

C.P.
3 5

| Flows | Parameter Code | Dec. | Monthly Results |
|--|----------------|----------|-----------------|
| Total Flow (10 ³ m ³) | <u>50010</u> | <u>3</u> | <u>1.418</u> |
| Average Daily Flow (10 ³ m ³ /d) | <u>50015</u> | <u>3</u> | <u>0.046</u> |
| Maximum Daily Flow (10 ³ m ³ /d) | <u>50020</u> | <u>3</u> | |

| Bypass | Parameter Code | Dec. | # of Occurrences |
|---|----------------|----------|------------------|
| Plant Bypass Volume (10 ³ m ³) | <u>50270</u> | <u>3</u> | |
| Duration (hours) | <u>81680</u> | <u>1</u> | |

| Raw Sewage | Parameter Code | Dec. | Monthly Results | # of Samples |
|-------------------------|----------------|----------|-----------------|--------------|
| BOD ₅ (mg/L) | <u>00001</u> | <u>0</u> | <u>151</u> | <u>1</u> |
| Suspended Solids (mg/L) | <u>00006</u> | <u>0</u> | <u>118</u> | <u>1</u> |
| TKN (mg/L) | <u>00020</u> | <u>2</u> | <u>67.70</u> | <u>1</u> |
| Total Phosphorus (mg/L) | <u>00033</u> | <u>1</u> | <u>4.6</u> | <u>1</u> |

| Final Effluent | Parameter Code | Dec. | Monthly Results | # of Samples |
|---|----------------|----------|-----------------|--------------|
| Total Effl. Volume To Watercourse (10 ³ m ³) | <u>50280</u> | <u>3</u> | | |
| Flow Duration (hours) | <u>81680</u> | <u>1</u> | | |
| Cell Depth (m) | <u>50290</u> | <u>1</u> | | |
| CBOD ₅ (mg/L) | <u>00002</u> | <u>1</u> | | |
| BOD ₅ (mg/L) | <u>00001</u> | <u>1</u> | | |
| Suspended Solids (mg/L) | <u>00006</u> | <u>1</u> | | |
| Ammonia + Ammonium (mg/L) | <u>00019</u> | <u>2</u> | | |
| TKN (mg/L) | <u>00020</u> | <u>2</u> | | |
| Total Phosphorus (mg/L) | <u>00033</u> | <u>2</u> | | |

| Disinfection | Parameter Code | Dec. | Monthly Results | # of Samples |
|--|----------------|----------|-----------------|--------------|
| Chlorine Used (kg as Cl ₂) | <u>50320</u> | <u>1</u> | | |
| Chlorine Dosage (mg/L as Cl ₂) | <u>80410</u> | <u>1</u> | | |
| Chlorine Residual (mg/L as Cl ₂) | <u>80420</u> | <u>1</u> | | |

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| | | | | | | |
|----------|-------------------|---------------|------|-------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| 4 6 | 1 2 0 0 0 2 2 7 3 | Month | Year | 3 0 | 2 | R |
| 1 2 | 3 11 | 16 | 19 | 20 21 | 22 | 80 |

C.P.
3 5

| Flows | Parameter Code | Dec. | Monthly Results |
|--|----------------|------|-----------------|
| Total Flow (10 ³ m ³) | 50010 | 3 | 1.790 |
| Average Daily Flow (10 ³ m ³ /d) | 50015 | 3 | 0.059 |
| Maximum Daily Flow (10 ³ m ³ /d) | 50020 | 3 | |

| Bypass | Parameter Code | Dec. | # of Occurrences |
|---|----------------|------|------------------|
| Plant Bypass Volume (10 ³ m ³) | 50270 | 3 | |
| Duration (hours) | 81680 | 1 | |

| Raw Sewage | Parameter Code | Dec. | Monthly Results | # of Samples |
|-------------------------|----------------|------|-----------------|--------------|
| BOD ₅ (mg/L) | 00001 | 0 | 185 | 1 |
| Suspended Solids (mg/L) | 00006 | 0 | 166 | 1 |
| TKN (mg/L) | 00020 | 2 | 41.00 | 1 |
| Total Phosphorus (mg/L) | 00033 | 1 | 3.9 | 1 |

| Final Effluent | Parameter Code | Dec. | Monthly Results | # of Samples |
|---|----------------|------|-----------------|--------------|
| Total Effl. Volume To Watercourse (10 ³ m ³) | 50280 | 3 | | |
| Flow Duration (hours) | 81680 | 1 | | |
| Cell Depth (m) | 50290 | 1 | | |
| CBOD ₅ (mg/L) | 00002 | 1 | | |
| BOD ₅ (mg/L) | 00001 | 1 | | |
| Suspended Solids (mg/L) | 00006 | 1 | | |
| Ammonia + Ammonium (mg/L) | 00019 | 2 | | |
| TKN (mg/L) | 00020 | 2 | | |
| Total Phosphorus (mg/L) | 00033 | 2 | | |

| Disinfection | Parameter Code | Dec. | Monthly Results | # of Samples |
|--|----------------|------|-----------------|--------------|
| Chlorine Used (kg as Cl ₂) | 50320 | 1 | | |
| Chlorine Dosage (mg/L as Cl ₂) | 80410 | 1 | | |
| Chlorine Residual (mg/L as Cl ₂) | 80420 | 1 | | |

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| | | | | | | |
|------------|--------------------------|---------------|----------------|------------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| <u>4 6</u> | <u>1 2 0 0 0 2 2 7 3</u> | Month | Year | <u>3 1</u> | <u>2</u> | <u>R</u> |
| 1 2 | 3 11 | <u>1 0</u> | <u>2 0 2 1</u> | 16 19 | 20 21 | 22 80 |

C.P.

3 5

Flows

| | | |
|-------|--------------------|-------------------------------------|
| 12 13 | Total Flow | (10 ³ m ³) |
| | Average Daily Flow | (10 ³ m ³ /d) |
| | Maximum Daily Flow | (10 ³ m ³ /d) |

| Parameter Code | Dec. | Monthly Results |
|----------------|----------|-----------------|
| <u>50010</u> | <u>3</u> | <u>1.897</u> |
| <u>50015</u> | <u>3</u> | <u>0.061</u> |
| <u>50020</u> | <u>3</u> | |

3 5

Bypass

| | | |
|-------|---------------------|-----------------------------------|
| 12 13 | Plant Bypass Volume | (10 ³ m ³) |
| | Duration | (hours) |

| | | |
|--------------|----------|--|
| <u>50270</u> | <u>3</u> | |
| <u>81680</u> | <u>1</u> | |

of Occurrences

3 6

Raw Sewage

| | | |
|-------|------------------|--------|
| 12 13 | BOD ₅ | (mg/L) |
| | Suspended Solids | (mg/L) |
| | TKN | (mg/L) |
| | Total Phosphorus | (mg/L) |

| | | |
|--------------|----------|--------------|
| <u>00001</u> | <u>0</u> | <u>358</u> |
| <u>00006</u> | <u>0</u> | <u>148</u> |
| <u>00020</u> | <u>2</u> | <u>63.10</u> |
| <u>00033</u> | <u>1</u> | <u>6.5</u> |

of Samples

| |
|---|
| 1 |
| 1 |
| 1 |
| 1 |

3 9

Final Effluent

| | | |
|-------|--|---------|
| 12 13 | Total Eff. Volume To Watercourse (10 ³ m ³) | |
| | Flow Duration | (hours) |
| | Cell Depth | (m) |
| | CBOD ₅ | (mg/L) |
| | BOD ₅ | (mg/L) |
| | Suspended Solids | (mg/L) |
| | Ammonia + Ammonium | (mg/L) |
| | TKN | (mg/L) |
| | Total Phosphorus | (mg/L) |

| | | |
|--------------|----------|--|
| <u>50280</u> | <u>3</u> | |
| <u>81680</u> | <u>1</u> | |
| <u>50290</u> | <u>1</u> | |
| <u>00002</u> | <u>1</u> | |
| <u>00001</u> | <u>1</u> | |
| <u>00006</u> | <u>1</u> | |
| <u>00019</u> | <u>2</u> | |
| <u>00020</u> | <u>2</u> | |
| <u>00033</u> | <u>2</u> | |

of Samples

| |
|--|
| |
| |
| |
| |
| |
| |
| |
| |

0 9

Disinfection

| | | |
|-------|-------------------|----------------------------|
| 12 13 | Chlorine Used | (kg as Cl ₂) |
| | Chlorine Dosage | (mg/L as Cl ₂) |
| | Chlorine Residual | (mg/L as Cl ₂) |

| | | |
|--------------|----------|--|
| <u>50320</u> | <u>1</u> | |
| <u>80410</u> | <u>1</u> | |
| <u>80420</u> | <u>1</u> | |

of Samples

| |
|--|
| |
|--|

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| | | | | | | |
|-------------------|--|-------------------|-------------------------------------|-------------------|----------------|-------------|
| File No. | Works Number * | Data Period * | | Days | Discharge Type | Update Code |
| <u>4</u> <u>6</u> | <u>1</u> <u>2</u> <u>0</u> <u>0</u> <u>0</u> <u>2</u> <u>2</u> <u>7</u> <u>3</u> | Month | Year | <u>3</u> <u>0</u> | <u>2</u> | <u>R</u> |
| 1 2 | 3 11 | <u>1</u> <u>1</u> | <u>2</u> <u>0</u> <u>2</u> <u>1</u> | 20 21 | 22 | 80 |

C.P.
3 5

| Flows | Parameter Code | Dec. | Monthly Results |
|--|----------------|----------|-----------------|
| Total Flow (10 ³ m ³) | <u>50010</u> | <u>3</u> | <u>2.194</u> |
| Average Daily Flow (10 ³ m ³ /d) | <u>50015</u> | <u>3</u> | <u>0.073</u> |
| Maximum Daily Flow (10 ³ m ³ /d) | <u>50020</u> | <u>3</u> | |

| Bypass | Parameter Code | Dec. | # of Occurrences |
|---|----------------|----------|------------------|
| Plant Bypass Volume (10 ³ m ³) | <u>50270</u> | <u>3</u> | |
| Duration (hours) | <u>81680</u> | <u>1</u> | |

| Raw Sewage | Parameter Code | Dec. | # of Samples |
|-------------------------|----------------|----------|--------------|
| BOD ₅ (mg/L) | <u>00001</u> | <u>0</u> | <u>188</u> |
| Suspended Solids (mg/L) | <u>00006</u> | <u>0</u> | <u>142</u> |
| TKN (mg/L) | <u>00020</u> | <u>2</u> | <u>28.20</u> |
| Total Phosphorus (mg/L) | <u>00033</u> | <u>1</u> | <u>3.4</u> |

| Final Effluent | Parameter Code | Dec. | # of Samples |
|---|----------------|----------|--------------|
| Total Effl. Volume To Watercourse (10 ³ m ³) | <u>50280</u> | <u>3</u> | <u>0.000</u> |
| Flow Duration (hours) | <u>81680</u> | <u>1</u> | |
| Cell Depth (m) | <u>50290</u> | <u>1</u> | |
| CBOD ₅ (mg/L) | <u>00002</u> | <u>1</u> | |
| BOD ₅ (mg/L) | <u>00001</u> | <u>1</u> | <u>12.0</u> |
| Suspended Solids (mg/L) | <u>00006</u> | <u>1</u> | <u>9.0</u> |
| Ammonia + Ammonium (mg/L) | <u>00019</u> | <u>2</u> | <u>0.73</u> |
| TKN (mg/L) | <u>00020</u> | <u>2</u> | <u>1.76</u> |
| Total Phosphorus (mg/L) | <u>00033</u> | <u>2</u> | <u>0.39</u> |

| Disinfection | Parameter Code | Dec. | # of Samples |
|--|----------------|----------|--------------|
| Chlorine Used (kg as Cl ₂) | <u>50320</u> | <u>1</u> | |
| Chlorine Dosage (mg/L as Cl ₂) | <u>80410</u> | <u>1</u> | |
| Chlorine Residual (mg/L as Cl ₂) | <u>80420</u> | <u>1</u> | |

Operator Telephone Number
705-345-1841

Operator Email Address *
tdrouin@severn.ca

Comments

Return completed form to:

1. Environmental Monitoring and Reporting Branch, MECP, at WasteWaterReporting@ontario.ca And
2. Your Environmental Officer at your local District/Area MECP Office.

Ministry Contact Email Address *
Peter.Vreugdenhil@ontario.ca

Fields marked with an asterisk (*) are mandatory.

Project Name
Washago Lagoon

Facility Address

| | | | |
|---|------------------------------|-------------------------------------|-------------------------------|
| Unit Number | Street Number 1021 | Street Name Hurlwood Lane | PO Box 159 |
| Municipality/City/Town Orillia | | Province ON - Ontario | Postal Code L3V 6J3 |
| Operating Authority The Corporation of the Township of Severn | | | |

Mailing Address

| | | | |
|--|------------------------------|-------------------------------------|-------------------------------|
| Unit Number | Street Number 1021 | Street Name Hurlwood Lane | PO Box 159 |
| Municipality/City/Town Orillia | | Province ON - Ontario | Postal Code L3V 6J3 |

| | | | | | |
|------------|--------------------------|--|------------|----------------|-------------|
| File No. | Works Number * | Data Period * | Days | Discharge Type | Update Code |
| 4 6 | 1 2 0 0 0 2 2 7 3 | Month: 1 2 Year: 2 0 2 1 | 3 1 | 2 | R |
| 1 2 | 3 11 | 16 19 | 20 21 | 22 | 80 |

C.P.
3 5

| Flows | Parameter Code | Dec. | Monthly Results |
|--|----------------|------|-----------------|
| Total Flow (10 ³ m ³) | 50010 | 3 | 0.015 |
| Average Daily Flow (10 ³ m ³ /d) | 50015 | 3 | 0.001 |
| Maximum Daily Flow (10 ³ m ³ /d) | 50020 | 3 | |

| Bypass | Parameter Code | Dec. | Monthly Results | # of Occurrences |
|---|----------------|------|-----------------|------------------|
| Plant Bypass Volume (10 ³ m ³) | 50270 | 3 | 0.000 | 0 |
| Duration (hours) | 81680 | 1 | 0.0 | |

| Raw Sewage | Parameter Code | Dec. | Monthly Results | # of Samples |
|-------------------------|----------------|------|-----------------|--------------|
| BOD ₅ (mg/L) | 00001 | 0 | 214 | 1 |
| Suspended Solids (mg/L) | 00006 | 0 | 175 | 1 |
| TKN (mg/L) | 00020 | 2 | 23.30 | 1 |
| Total Phosphorus (mg/L) | 00033 | 1 | 4.0 | 1 |

| Final Effluent | Parameter Code | Dec. | Monthly Results | # of Samples |
|---|----------------|------|-----------------|--------------|
| Total Effl. Volume To Watercourse (10 ³ m ³) | 50280 | 3 | 36.817 | |
| Flow Duration (hours) | 81680 | 1 | | |
| Cell Depth (m) | 50290 | 1 | | |
| CBOD ₅ (mg/L) | 00002 | 1 | | |
| BOD ₅ (mg/L) | 00001 | 1 | 10.0 | 3 |
| Suspended Solids (mg/L) | 00006 | 1 | 9.0 | 3 |
| Ammonia + Ammonium (mg/L) | 00019 | 2 | 1.77 | 3 |
| TKN (mg/L) | 00020 | 2 | 2.60 | 3 |
| Total Phosphorus (mg/L) | 00033 | 2 | 0.07 | 3 |

| Disinfection | Parameter Code | Dec. | Monthly Results | # of Samples |
|--|----------------|------|-----------------|--------------|
| Chlorine Used (kg as Cl ₂) | 50320 | 1 | | |
| Chlorine Dosage (mg/L as Cl ₂) | 80410 | 1 | | |
| Chlorine Residual (mg/L as Cl ₂) | 80420 | 1 | | |

Operator Telephone Number
705-345-1841

Operator Email Address *
tdrouin@severn.ca

Comments

Return completed form to:

- Environmental Monitoring and Reporting Branch, MECP, at WasteWaterReporting@ontario.ca And
- Your Environmental Officer at your local District/Area MECP Office.

Ministry Contact Email Address *
Peter.Vreugdenhil@ontario.ca

Project Name
Washago Lagoon

Facility Address
 Unit Number: 1021 | Street Number: 1021 | Street Name: Hurlwood Lane | PO Box: 159
 Municipality/City/Town: Orillia | Province: ON - Ontario | Postal Code: L3V 6J3

Operating Authority
The Corporation of the Township of Severn

Mailing Address
 Unit Number: 1021 | Street Number: 1021 | Street Name: Hurlwood Lane | PO Box: 159
 Municipality/City/Town: Orillia | Province: ON - Ontario | Postal Code: L3V 6J3

File No. 46 | Works Number * 120002273 | Data Period * Month: 12, Year: 2021 | Days: 31 | Discharge Type: 2 | Update Code: R

| C.P. | Raw Sewage | Parameter Code | Dec | Monthly Average Results | # of Samples |
|-------|------------|----------------|-----|-------------------------|--------------|
| 36 | | | | | |
| 12 13 | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| C.P. | Final Effluent | Parameter Code | Dec | Monthly Average Results | # of Samples |
|-------|-------------------------------------|----------------|-----|-------------------------|--------------|
| 39 | Alkalinity, Total (mg/L) | 00051 | 4 | 75.0000 | 3 |
| 12 13 | Conductivity 25°C (µS/cm) | 91004 | 4 | | |
| | E. Coli (CT/100ml) | 91000 | 4 | | |
| | Nitrate, Unfiltered reactive (mg/L) | 00022 | 4 | | |
| | Nitrite, Unfiltered reactive (mg/L) | 00021 | 4 | | |
| | pH | 80770 | 4 | 7.5600 | 3 |
| | Temperature, Water (°C) | 80250 | 4 | 11.6000 | 3 |
| | Un-ionized Ammonia (mg/L) | 91012 | 4 | | |
| | Dissolved Oxygen (mg/L) | 00003 | 4 | | |
| | Hydrogen Sulphide (mg/L) | 83008 | 4 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Operator Telephone Number
705-345-1841

Operator Email Address
tdrouin@severn.ca

Comments

Return completed form to:

- Environmental Monitoring and Reporting Branch, MECP, at WasteWaterReporting@ontario.ca And
- Your Environmental Officer at your local District/Area MECP Office. (Find your local MECP office: <https://www.ontario.ca/environment-and-energy/ministry-environment-district-locator>)

Appendix C

Sewage Pump Station Draw Down Tests

Pump Drawdown Test Results at Pumping Station #1 in Washago

Completed: Aaron + Silas May 5/21
Performed By

Data:

Influent

Influent testing completed immediately before and after each trial for the pump drawdown. The increase in waste collected from an initial starting point over a 1 minute period. Results shown are in inches.

Drawdown

Drawdown testing was completed by measuring the drop of waste from an initial starting point over a 1 minute period. Results shown are in inches.

| | Trial No. | Influent | | | Drawdown | | | |
|--------|-----------|----------|-------|--------|----------|-------|--------|-------|
| | | Initial | Final | Result | Initial | Final | Result | |
| Pump 1 | | 2.53 | 2.51 | 0.02 | 2.51 | 2.64 | 0.13 | 5,905 |
| | | 2.56 | 2.54 | 0.02 | 2.54 | 2.66 | 0.12 | 5,511 |
| | | 2.60 | 2.58 | 0.02 | 2.58 | 2.70 | 0.12 | |
| Pump 2 | | 2.56 | 2.53 | 0.03 | 2.53 | 2.64 | 0.11 | 5,511 |
| | | 2.63 | 2.61 | 0.02 | 2.61 | 2.73 | 0.12 | 5,511 |
| | | 2.55 | 2.57 | 0.02 | 2.57 | 2.68 | 0.11 | |

Volume Calculations:

$$\begin{aligned}
 V &= \pi r^2 h, \text{ where } r = 1.2 \text{ m and} \\
 & \quad h = \frac{\text{drawdown result (inches)} \times 0.0254 \text{ m/inch}}{1 \text{ minute}} \\
 &= 4.5216 \text{ h} \times \frac{1000 \text{ litres}}{60 \text{ seconds}} \\
 &= (1.914144) \times \text{result (inches)}
 \end{aligned}$$

Pump Capacity:

$$V_{\text{total}} = V_{\text{pump}} + V_{\text{influent}}$$

Results:

Using the calculations shown above, the results of the average pump capacity of the pumps are indicated in L/s.

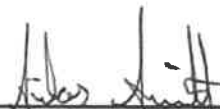
| | Trial 1 | Trial 2 | Trial 3 | Average |
|--------|---------|---------|---------|---------|
| Pump 1 | 11.30 | 10.54 | 10.54 | 10.79 |
| Pump 2 | 10.54 | 10.54 | 9.79 | 10.29 |

Therefore the pump capacity of Pump 1 is 12.76 L/s and Pump 2 is 11.96 L/s.

Prepar

Prepared By:

Signature: _____



Pump Drawdown Test Results at Pumping Station #1 in Washago

Completed:
Performed By

Data:

Influent

Influent testing completed immediately before and after each trial for the pump drawdown. The increase in waste collected from an initial starting point over a 1 minute period. Results shown are in inches.

Drawdown

Drawdown testing was completed by measuring the drop of waste from an initial starting point over a 1 minute period. Results shown are in inches.

| | Trial No. | Influent | | | Drawdown | | |
|--------|-----------|----------|-------|--------|----------|-------|--------|
| | | Initial | Final | Result | Initial | Final | Result |
| Pump 1 | | 0.88 | 0.89 | 1cm | 0.82 | 0.626 | 16cm |
| | | 0.87 | 0.89 | 2cm. | 0.77 | 0.621 | 15.6cm |
| | | 0.83 | 0.85 | 2cm. | 0.89 | 0.75 | 14cm. |
| Pump 2 | | 0.84 | 0.84 | 0cm. | 0.78 | 0.62 | 16cm |
| | | 0.86 | 0.88 | 2cm. | 0.73 | 0.61 | 12cm. |
| | | 0.86 | 0.88 | 2cm | 0.74 | 0.60 | 14cm. |

Volume Calculations:

OCT 24
2021
COMPLETED

$$V = \pi r^2 h, \text{ where } r = 1.2 \text{ m and}$$

$$h = \frac{\text{drawdown result (inches)} \times 0.0254 \text{ m/inch}}{1 \text{ minute}}$$

$$= 4.5216 \text{ h} \times \frac{1000 \text{ litres}}{60 \text{ seconds}}$$

$$= (1.914144) \times \text{result (inches)}$$

Pump Capacity:

$$V_{\text{total}} = V_{\text{pump}} + V_{\text{influent}}$$

Results:

Using the calculations shown above, the results of the average pump capacity of the pumps are indicated in L/s.

| | Trial 1 | Trial 2 | Trial 3 | Average |
|--------|---------|---------|---------|-----------|
| Pump 1 | 12.81 | 13.24 | 12.05 | 12.70 L/s |
| Pump 2 | 12.05 | 10.54 | 12.05 | 11.54 L/s |

Therefore the pump capacity of Pump 1 is 12.76 L/s and Pump 2 is 11.96 L/s.

Prepar

Prepared By:

Signature:

SILAS + MAGGIE

Appendix D

Alum Dosing Formula

Alum Dosing

Dry Alum

$$\text{Mass of Alum (kg)} = \frac{\text{Gross Volume of Cell (m}^3\text{)} \times \text{Optimum Alum Dosage (mg/L)} \times 1000\text{L/m}^3}{1,000,000 \text{ mg/kg}}$$

Liquid Alum

Volume of Alum (L) =

$$\frac{\text{Gross Volume of Cell (m}^3\text{)} \times 1,000\text{L/m}^3 \times \text{Optimum Alum Dosage (mg/L)}}{1,000,000 \text{ mg/kg} \times \text{Density of Alum (1.335 kg/L)} \times \% \text{ of alum concentration (48.5%)}}$$

OR

$$\frac{\text{Gross Volume of Cell (m}^3\text{)} \times \text{Optimum Alum Dosage (mg/L)}}{647.5 \text{ mg/L}}$$

Appendix E

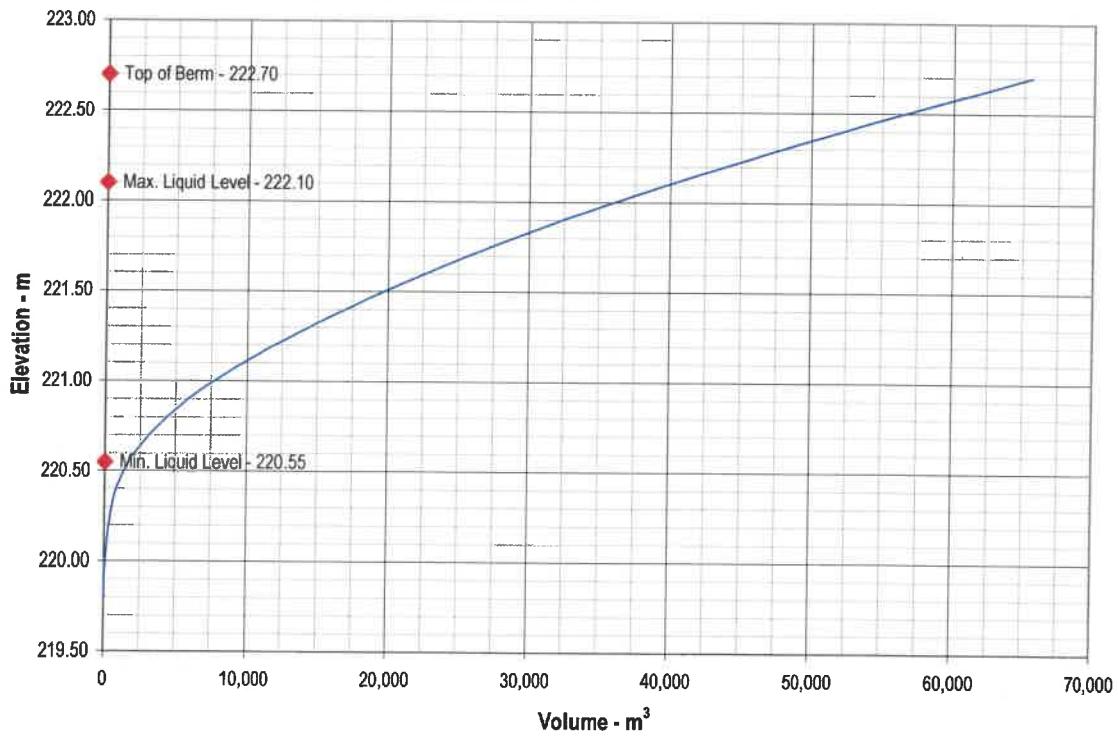
Lagoon Stage Storage Graphs

Note

Elevations are referenced to the following temporary benchmarks:

TBM No. 1 - Bolt in rock outcrop 37m north of Cell No. 1 outlet structure - Elev. 223.51

TBM No. 2 - Bolt in rock outcrop 26 m north of Cell No. 1 outlet structure - Elev. 223.51



C.C. Tatham & Associates Ltd.
Consulting Engineers

Collingwood Bracebridge Orillia Barrie

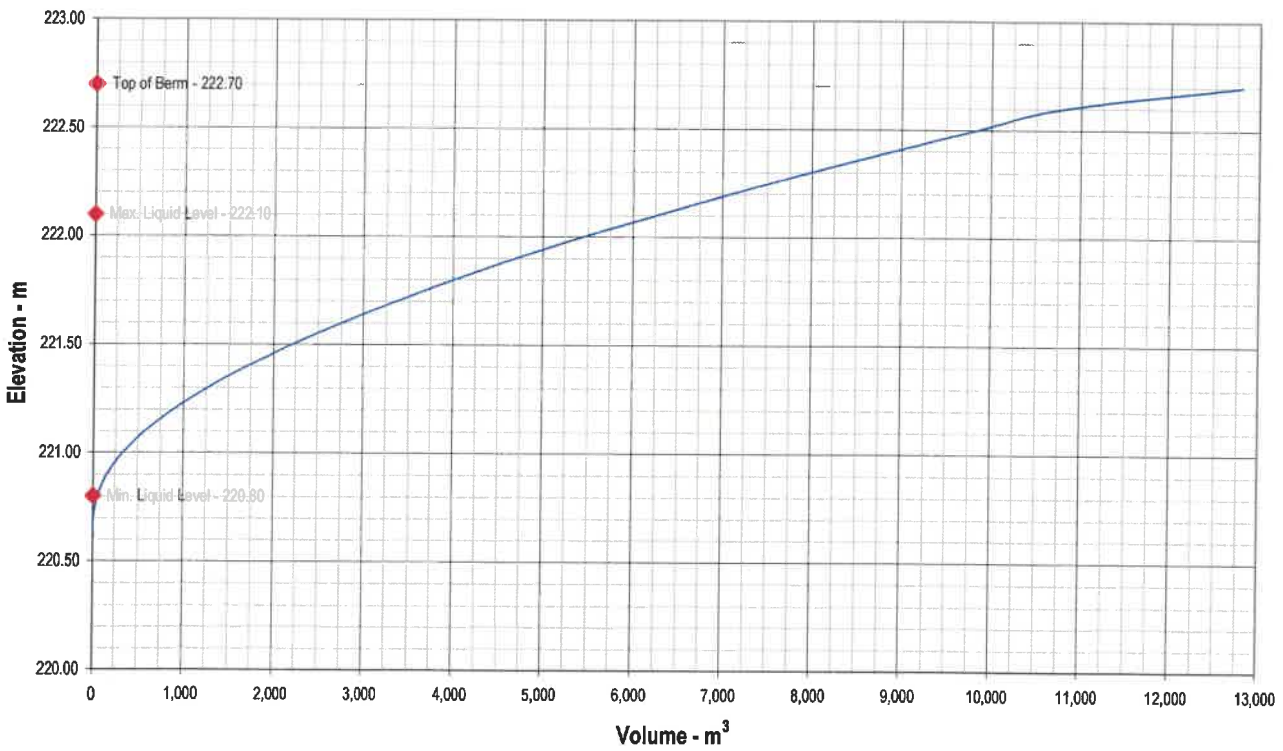
**Township of Severn
Village of Washago
Sewage Treatment Works
Stage Storage Graph - Cell No. 1
February 2012**

Note

Elevations are referenced to the following temporary benchmarks:

TBM No. 1 - Bolt in rock outcrop 37m north of Cell No. 1 outlet structure - Elev. 223.51

TBM No. 2 - Bolt in rock outcrop 26 m north of Cell No. 1 outlet structure - Elev. 223.51



C.C. Tatham & Associates Ltd.
Consulting Engineers

Collingwood Bracebridge Orillia Barrie

Township of Severn
Village of Washago
Sewage Treatment Works
Stage Storage Graph - Cell No. 2
February 2012

Appendix F

Laboratory Analysis Reports

C.O.C.: ---

REPORT No. B21-10329

Report To:

Severn, Township of
 1024 Hurlwood Lane, PO Box 159
 Orillia Ontario L3V 6J3 Canada

Caduceon Environmental Laboratories

112 Commerce Park Drive
 Barrie ON L4N 8W8
 Tel: 705-252-5743
 Fax: 705-252-5746

Attention: Tony Drouin

DATE RECEIVED: 13-Apr-21

JOB/PROJECT NO.: Washago Lagoon

DATE REPORTED: 20-Apr-21

P.O. NUMBER:

SAMPLE MATRIX: Waste Water

WATERWORKS NO.

| | | | Client I.D. | Washago Lagoon | | | |
|----------------------------|----------|------|----------------------|--------------------|------|--|--|
| | | | Sample I.D. | B21-10329-1 | | | |
| | | | Date Collected | 13-Apr-21 | | | |
| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | |
| pH @25°C | pH Units | | SM 4500H | 15-Apr-21/O | 9.14 | | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 15-Apr-21/O | 98 | | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 14-Apr-21/K | 6 | | |
| Total Suspended Solids | mg/L | 3 | SM2540D | 15-Apr-21/K | 8 | | |
| Phosphorus-Total | mg/L | 0.01 | E3199A.1 | 14-Apr-21/K | 0.19 | | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3199A.1 | 14-Apr-21/K | 6.3 | | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 14-Apr-21/K | 4.70 | | |
| pH | pH Units | | Client Supplied Data | 13-Apr-21 | 7.80 | | |
| Temperature | °C | | Client Supplied Data | 13-Apr-21 | 15.2 | | |

1. pH and temperature results provided by client.



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an *

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Steve Garrett
 Director of Laboratory Services

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from



SGS Canada Inc.
 P.O. Box 4300 - 185 Concession St.
 Lakefield - Ontario - KOL 2H0
 Phone: 705-652-2000 FAX: 705-652-6365

06-April-2021

Twp of Severn (Washago STP)
 Attn : Tony Drouin

Date Rec. : 29 March 2021
LR Report: CA14631-MAR21

P.O. Box 159
 Orillia, ON
 L3V 6J3, Canada

Copy: #1

Phone: 705-345-1841 (cell)
 Fax:705-325-1247

CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Washago Lagoon |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------|----------------------|
| Sample Date & Time | | | | | | 29-Mar-21 08:40 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 8.0 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 30-Mar-21 | 16:31 | 05-Apr-21 | 11:45 | 25 | 16 |
| Total Suspended Solids [mg/L] | 30-Mar-21 | 12:46 | 05-Apr-21 | 15:20 | 25 | 17 |
| pH [No unit] | 31-Mar-21 | 06:40 | 01-Apr-21 | 13:56 | | 7.64 |
| Alkalinity [mg/L as CaCO3] | 31-Mar-21 | 06:40 | 01-Apr-21 | 13:56 | | 134 |
| Phosphorus (total) [mg/L] | 30-Mar-21 | 18:15 | 31-Mar-21 | 10:16 | 1 | 0.50 |
| Total Kjeldahl Nitrogen [as N mg/L] | 30-Mar-21 | 17:00 | 31-Mar-21 | 11:31 | --- | 11.6 |
| Ammonia+Ammonium (N) [as N mg/L] | 30-Mar-21 | 18:01 | 05-Apr-21 | 13:54 | | 9.9 |

Patti Stark
 Project Specialist,
 Environment, Health & Safety



SGS Canada Inc.
 P.O. Box 4300 - 185 Concession St.
 Lakefield - Ontario - K0L 2H0
 Phone: 705-652-2000 FAX: 705-652-6365

12-April-2021

Twp of Severn (Washago STP)
 Attn : Tony Drouin

Date Rec. : 06 April 2021
 LR Report: CA12131-APR21

P.O. Box 159
 Orillia, ON
 L3V 6J3, Canada

Copy: #1

Phone: 705-345-1841 (cell)
 Fax:705-325-1247

CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Washago Lagoon |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------|----------------------|
| Sample Date & Time | | | | | | 06-Apr-21 11:30 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 10.0 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 07-Apr-21 | 17:43 | 12-Apr-21 | 14:10 | 25 | 8 |
| Total Suspended Solids [mg/L] | 09-Apr-21 | 09:02 | 12-Apr-21 | 12:08 | 25 | 17 |
| pH [No unit] | 07-Apr-21 | 15:33 | 09-Apr-21 | 08:08 | | 8.56 |
| Alkalinity [mg/L as CaCO3] | 07-Apr-21 | 15:33 | 09-Apr-21 | 08:08 | | 119 |
| Phosphorus (total) [mg/L] | 07-Apr-21 | 18:31 | 08-Apr-21 | 14:18 | 1 | 0.12 |
| Total Kjeldahl Nitrogen [as N mg/L] | 07-Apr-21 | 18:38 | 08-Apr-21 | 13:26 | --- | 8.3 |
| Ammonia+Ammonium (N) [as N mg/L] | 08-Apr-21 | 12:23 | 09-Apr-21 | 08:48 | | 7.5 |

Kimberley Didsbury
 Project Specialist,
 Environment, Health & Safety



SGS Canada Inc.
 P.O. Box 4300 - 185 Concession St.
 Lakefield - Ontario - K0L 2H0
 Phone: 705-652-2000 FAX: 705-652-6365

12-May-2021

Twp of Severn (Washago STP)
 Attn : Tony Drouin

Date Rec. : 03 May 2021
LR Report: CA13014-MAY21

P.O. Box 159
 Orillia, ON
 L3V 6J3, Canada

Copy: #1

Phone: 705-345-1841 (cell)
 Fax:705-325-1247

CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Lagoon Effluent | 7: Green River Upstream | 8: Green River Downstream |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------|-----------------------|-------------------------------|---------------------------------|
| Sample Date & Time | | | | | | 03-May-21 09:30 | 03-May-21 09:43 | 03-May-21 09:05 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 8.0 | 8.0 | 8.0 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 04-May-21 | 16:40 | 10-May-21 | 12:59 | 25 | 6 | < 4 | 4 |
| Total Suspended Solids [mg/L] | 07-May-21 | 12:36 | 09-May-21 | 14:11 | 25 | 6 | < 2 | 4 |
| Phosphorus (total) [mg/L] | 04-May-21 | 17:05 | 05-May-21 | 11:53 | 1 | 0.13 | < 0.03 | < 0.03 |
| Total Kjeldahl Nitrogen [as N mg/L] | 04-May-21 | 19:45 | 06-May-21 | 14:43 | --- | 2.8 | < 0.5 | < 0.5 |
| Alkalinity [mg/L as CaCO ₃] | 04-May-21 | 09:56 | 07-May-21 | 07:56 | | 93 | 99 | 102 |
| Ammonia+Ammonium (N) [as N mg/L] | 05-May-21 | 20:28 | 07-May-21 | 14:24 | | 1.4 | < 0.1 | < 0.1 |
| Unionized Ammonia [mg/L as N] | 05-May-21 | 20:28 | 10-May-21 | 19:53 | | 0.001 | < 0.001 | < 0.001 |
| Field pH [no unit] | --- | --- | --- | --- | --- | 6.7 | 6.9 | 6.8 |
| Field Temperature [celcius] | --- | --- | --- | --- | --- | 11.0 | 10.0 | 10.0 |

Note: Provincial unionized ammonia calculated from field pH and temperature provided on the chain of custody form.

Patti Stark
 Project Specialist,
 Environment, Health & Safety



SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2H0
Phone: 705-652-2000 FAX: 705-652-6365

Twp of Severn (Washago STP)
Attn : Tony Drouin

P.O. Box 159
Orillia, ON
L3V 6J3, Canada

Phone: 705-345-1841 (cell)
Fax: 705-325-1247

14-May-2021

Date Rec. : 06 May 2021
LR Report: CA13218-MAY21

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Lagoon Effluent | 7: Green River Upstream | 8: Green River Downstream |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------------------|---------------------|-----------------------|-------------------------------|---------------------------------|
| Sample Date & Time | | | | | | 05-May-21 08:40 | 05-May-21 09:00 | 05-May-21 09:10 |
| Temperature Upon Receipt [°C] | -- | -- | -- | -- | -- | 11.0 | 11.0 | 11.0 |
| Field pH [no unit] | -- | -- | -- | -- | -- | 7.4 | 7.5 | 7.4 |
| Field Temperature [celcius] | -- | -- | -- | -- | -- | 10.0 | 10.0 | 10.0 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 06-May-21 | 17:39 | 11-May-21 | 12:21 | 25 | < 4 | < 4 | < 4 |
| Total Suspended Solids [mg/L] | 10-May-21 | 07:51 | 12-May-21 | 16:18 | 25 | 2 | 4 | 2 |
| Alkalinity [mg/L as CaCO3] | 06-May-21 | 17:57 | 07-May-21 | 13:40 | | 87 | 99 | 100 |
| Phosphorus (total) [mg/L] | 07-May-21 | 15:45 | 10-May-21 | 18:27 | 1 | 0.10 | < 0.03 | < 0.03 |
| Total Kjeldahl Nitrogen [as N mg/L] | 07-May-21 | 18:55 | 10-May-21 | 15:07 | -- | 3.2 | 0.6 | 0.6 |
| Ammonia+Ammonium (N) [as N mg/L] | 12-May-21 | 17:43 | 13-May-21 | 20:56 | -- | 1.6 | < 0.1 | < 0.1 |
| Unionized Ammonia [mg/L as N] | 12-May-21 | 17:43 | 13-May-21 | 20:56 | -- | 0.007 | < 0.001 | < 0.001 |

Note: Provincial unionized ammonia calculated from field pH and temperature provided on the chain of custody form.



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LR Report : CA13218-MAY21

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17-May-2021

Twp of Severn (Washago STP)
Attn : Tony Drouin

Date Rec. : 10 May 2021
LR Report: CA13360-MAY21

P.O. Box 159
Orillia, ON
L3V 6J3, Canada

Copy: #1

Phone: 705-345-1841 (cell)
Fax: 705-325-1247

CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Lagoon Effluent | 7: Green River Upstream | 8: Green River Downstream |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------|-----------------------|-------------------------------|---------------------------------|
| Sample Date & Time | | | | | | 10-May-21 11:46 | 10-May-21 11:55 | 10-May-21 11:30 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 10.0 | 10.0 | 10.0 |
| Field pH [no unit] | --- | --- | --- | --- | --- | 7.5 | 7.4 | 7.6 |
| Field Temperature [celcius] | --- | --- | --- | --- | --- | 16 | 7.5 | 14 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 11-May-21 | 16:00 | 17-May-21 | 12:56 | 25 | 6 | < 4 | < 4 |
| Total Suspended Solids [mg/L] | 12-May-21 | 17:02 | 16-May-21 | 13:24 | 25 | 4 | < 2 | < 2 |
| Alkalinity [mg/L as CaCO ₃] | 12-May-21 | 15:41 | 13-May-21 | 13:59 | | 90 | 96 | 95 |
| Phosphorus (total) [mg/L] | 11-May-21 | 14:44 | 12-May-21 | 15:29 | 1 | 0.22 | < 0.03 | < 0.03 |
| Total Kjeldahl Nitrogen [as N mg/L] | 12-May-21 | 15:12 | 14-May-21 | 15:17 | --- | 3.8 | < 0.5 | < 0.5 |
| Ammonia+Ammonium (N) [as N mg/L] | 11-May-21 | 19:34 | 12-May-21 | 13:25 | | 1.9 | < 0.1 | < 0.1 |
| Unionized Ammonia [mg/L as N] | 11-May-21 | 19:34 | 12-May-21 | 13:25 | | 0.018 | < 0.001 | < 0.001 |

Note: Provincial unionized ammonia calculated from field pH and temperature provided on the chain of custody form.

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15-November-2021

Twp of Severn (Washago STP)
 Attn : Tony Drouin

Date Rec. : 08 November 2021
LR Report: CA14172-NOV21

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 L3V 6J3, Canada

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CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Washago Lagoon |
|---|------------------------------|------------------------------|----------------------------------|-------------------------------------|------------------------|----------------------|
| Sample Date & Time | | | | | | 08-Nov-21 11:15 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 14.0 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 09-Nov-21 | 15:23 | 15-Nov-21 | 10:29 | 25 | 18 |
| Total Suspended Solids [mg/L] | 11-Nov-21 | 16:32 | 15-Nov-21 | 10:03 | 25 | 3 |
| Phosphorus (total) [mg/L] | 09-Nov-21 | 17:17 | 10-Nov-21 | 11:38 | 1 | 0.55 |
| Total Kjeldahl Nitrogen [as N mg/L] | 09-Nov-21 | 19:48 | 11-Nov-21 | 08:04 | --- | 2.1 |
| Ammonia+Ammonium (N) [as N mg/L] | 09-Nov-21 | 15:32 | 10-Nov-21 | 10:55 | | 1.1 |
| pH [No unit] | 09-Nov-21 | 16:19 | 10-Nov-21 | 14:35 | | 8.17 |
| Alkalinity [mg/L as CaCO3] | 09-Nov-21 | 16:19 | 10-Nov-21 | 14:35 | | 90 |

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22-November-2021

Twp of Severn (Washago STP)

Attn : Tony Drouin

Date Rec. : 15 November 2021
LR Report: CA13561-NOV21

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CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Washago Lagoon |
|---|------------------------------|------------------------------|----------------------------------|-------------------------------------|------------------------|----------------------|
| Sample Date & Time | | | | | | 15-Nov-21 09:00 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 10.0 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 16-Nov-21 | 16:02 | 22-Nov-21 | 14:21 | 25 | 14 |
| Total Suspended Solids [mg/L] | 16-Nov-21 | 20:01 | 17-Nov-21 | 14:11 | 25 | 21 |
| pH [No unit] | 16-Nov-21 | 13:18 | 17-Nov-21 | 11:03 | --- | 8.41 |
| Alkalinity [mg/L as CaCO3] | 16-Nov-21 | 13:18 | 17-Nov-21 | 11:03 | --- | 88 |
| Phosphorus (total) [mg/L] | 16-Nov-21 | 08:00 | 17-Nov-21 | 09:43 | 1 | 0.59 |
| Total Kjeldahl Nitrogen [as N mg/L] | 16-Nov-21 | 13:20 | 17-Nov-21 | 12:28 | --- | 1.7 |
| Ammonia+Ammonium (N) [as N mg/L] | 16-Nov-21 | 21:15 | 17-Nov-21 | 10:23 | --- | 0.9 |

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02-December-2021

Twp of Severn (Washago STP)
 Attn : Tony Drouin

Date Rec. : 25 November 2021
 LR Report: CA13897-NOV21

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 L3V 6J3, Canada

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Phone: 705-345-1841 (cell)
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CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: | 2: | 3: | 4: | 5: | 6: |
|---|---------------------|---------------------|-------------------------|-------------------------|---------------|-----------------|
| | Analysis Start Date | Analysis Start Time | Analysis Completed Date | Analysis Completed Time | Client Limits | Washago Lagoon |
| Sample Date & Time | | | | | | 24-Nov-21 11:35 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 8.0 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 26-Nov-21 | 17:31 | 01-Dec-21 | 15:32 | 25 | 4 |
| Total Suspended Solids [mg/L] | 29-Nov-21 | 14:47 | 30-Nov-21 | 14:52 | 25 | 4 |
| pH [No unit] | 26-Nov-21 | 15:35 | 30-Nov-21 | 10:41 | | 8.74 |
| Alkalinity [mg/L as CaCO3] | 26-Nov-21 | 15:35 | 30-Nov-21 | 10:41 | | 99 |
| Ammonia+Ammonium (N) [as N mg/L] | 25-Nov-21 | 17:40 | 26-Nov-21 | 12:36 | | 0.2 |
| Phosphorus (total) [mg/L] | 25-Nov-21 | 16:52 | 26-Nov-21 | 12:09 | 1 | 0.04 |
| Total Kjeldahl Nitrogen [as N mg/L] | 26-Nov-21 | 16:33 | 29-Nov-21 | 09:52 | --- | 1.5 |

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20-December-2021

Twp of Severn (Washago STP)
 Attn : Tony Drouin

Date Rec. : 13 December 2021
LR Report: CA12418-DEC21

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CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Lagoon Effluent | 7: Green River Upstream | 8: Green River Downstream |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------|-----------------------|-------------------------------|---------------------------------|
| Sample Date & Time | | | | | | 13-Dec-21 09:20 | 13-Dec-21 09:35 | 13-Dec-21 09:00 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 8.0 | 8.0 | 8.0 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 14-Dec-21 | 16:12 | 20-Dec-21 | 10:20 | 25 | 13 | < 4 | < 4 |
| Total Suspended Solids [mg/L] | 14-Dec-21 | 13:50 | 15-Dec-21 | 13:31 | 25 | 11 | 2 | < 2 |
| Alkalinity [mg/L as CaCO3] | 14-Dec-21 | 15:08 | 15-Dec-21 | 11:06 | --- | 72 | 98 | 101 |
| pH [No unit] | 14-Dec-21 | 15:08 | 15-Dec-21 | 11:06 | --- | 7.79 | 8.12 | 8.16 |
| Temperature @ pH [°C] | 14-Dec-21 | 15:08 | 15-Dec-21 | 11:06 | --- | 21.4 | 21.5 | 21.7 |
| Phosphorus (total) [mg/L] | 15-Dec-21 | 18:23 | 15-Dec-21 | 11:52 | 1 | 0.10 | < 0.03 | < 0.03 |
| Total Kjeldahl Nitrogen [as N mg/L] | 14-Dec-21 | 17:53 | 15-Dec-21 | 08:24 | --- | 1.0 | < 0.5 | < 0.5 |
| Ammonia+Ammonium (N) [as N mg/L] | 14-Dec-21 | 18:05 | 15-Dec-21 | 12:25 | --- | 0.3 | < 0.1 | < 0.1 |
| Unionized Ammonia [mg/L as N] | 14-Dec-21 | 18:05 | 15-Dec-21 | 12:25 | --- | 0.009 | <0.003 | <0.003 |

Note: Unionized ammonia calculated using lab results for pH and temperature.

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23-December-2021

Date Rec. : 17 December 2021
LR Report: CA12578-DEC21

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CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Lagoon Effluent | 7: Green River Upstream | 8: Green River Downstream |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------|-----------------------|-------------------------------|---------------------------------|
| Sample Date & Time | | | | | | 16-Dec-21 10:30 | 16-Dec-21 10:40 | 16-Dec-21 10:15 |
| Temperature Upon Receipt [°C] | --- | --- | --- | --- | --- | 10.0 | 10.0 | 10.0 |
| Field pH [no unit] | --- | --- | --- | --- | --- | 7.8 | 6.2 | 8.2 |
| Field Temperature [celcius] | --- | --- | --- | --- | --- | 10.5 | 12.4 | 10.7 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 17-Dec-21 | 13:07 | 22-Dec-21 | 15:37 | 25 | 5 | < 4 | 4 |
| Total Suspended Solids [mg/L] | 22-Dec-21 | 11:08 | 22-Dec-21 | 15:05 | 25 | 3 | 3 | 2 |
| Alkalinity [mg/L as CaCO3] | 20-Dec-21 | 16:09 | 22-Dec-21 | 10:05 | | 45 | 104 | 104 |
| Phosphorus (total) [mg/L] | 20-Dec-21 | 21:19 | 21-Dec-21 | 13:17 | 1 | < 0.03 | < 0.03 | < 0.03 |
| Total Kjeldahl Nitrogen [as N mg/L] | 20-Dec-21 | 16:43 | 22-Dec-21 | 08:25 | --- | 1.0 | < 0.5 | < 0.5 |
| Ammonia+Ammonium (N) [as N mg/L] | 21-Dec-21 | 16:55 | 22-Dec-21 | 12:11 | --- | 0.4 | < 0.1 | < 0.1 |
| Unionized Ammonia [mg/L as N] | 21-Dec-21 | 16:55 | 22-Dec-21 | 12:11 | --- | 0.005 | < 0.001 | 0.002 |

Note:

- Unionized ammonia calculated from field pH and temperature provided on the chain of custody form.



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LR Report : CA12578-DEC21

Carrie Greenlaw
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Project Specialist,
Environment, Health & Safety



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29-December-2021

Date Rec. : 22 December 2021
LR Report: CA12709-DEC21

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CERTIFICATE OF ANALYSIS

Final Report

| Analysis | 1: Analysis Start Date | 2: Analysis Start Time | 3: Analysis Completed Date | 4: Analysis Completed Time | 5: Client Limits | 6: Lagoon Effluent | 7: Green River Upstream | 8: Green River Downstream |
|---|------------------------------|------------------------------|----------------------------------|-------------------------------------|------------------------|-----------------------|-------------------------------|---------------------------------|
| Sample Date & Time | | | | | | 21-Dec-21 10:20 | 21-Dec-21 10:43 | 21-Dec-21 10:10 |
| Temperature Upon Receipt [°C] | -- | -- | -- | -- | -- | 4.0 | 4.0 | 4.0 |
| Field pH [no unit] | -- | -- | -- | -- | -- | 7.2 | 8.2 | 8.2 |
| Field Temperature [celcius] | -- | -- | -- | -- | -- | 3 | 3 | 4 |
| Biochemical Oxygen Demand (BOD5) [mg/L] | 22-Dec-21 | 16:45 | 28-Dec-21 | 11:16 | 25 | 12 | < 4 | < 4 |
| Total Suspended Solids [mg/L] | 23-Dec-21 | 13:54 | 24-Dec-21 | 12:49 | 25 | 13 | < 2 | 12 |
| Alkalinity [mg/L as CaCO3] | 23-Dec-21 | 08:49 | 24-Dec-21 | 14:10 | -- | 109 | 110 | 107 |
| Phosphorus (total) [mg/L] | 23-Dec-21 | 14:52 | 24-Dec-21 | 11:44 | 1 | 0.07 | < 0.03 | < 0.03 |
| Total Kjeldahl Nitrogen [as N mg/L] | 23-Dec-21 | 15:30 | 24-Dec-21 | 09:25 | -- | 5.8 | < 0.5 | < 0.5 |
| Ammonia+Ammonium (N) [as N mg/L] | 23-Dec-21 | 17:19 | 24-Dec-21 | 10:30 | -- | 4.6 | < 0.1 | < 0.1 |
| Unionized Ammonia [mg/L as N] | 23-Dec-21 | 17:19 | 24-Dec-21 | 10:30 | -- | 0.008 | < 0.001 | < 0.001 |

Note: Provincial unionized ammonia calculated from field pH and temperature provided on the chain of custody form.



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