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THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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**REGULAR MEETING OF THE COUNCIL  
OF THE VILLAGE OF LIONS BAY  
HELD ON TUESDAY, FEBRUARY 5, 2019 at 7:00 PM  
COUNCIL CHAMBERS, 400 CENTRE ROAD, LIONS BAY**

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**AGENDA**

1. **Call to Order**
2. **Adoption of Agenda**
3. **Public Participation (2 minutes per person totalling 10 minutes maximum)**
4. **Public Delegation Requests Accepted by Agenda Deadline (10 minutes maximum)**
5. **Review & Approval of Minutes of Prior Meetings**
  - A. Regular Council Meeting – January 22, 2019 (Page 5)  

THAT the Regular Council Meeting Minutes of January 22, 2019 be approved as circulated.
6. **Business Arising from the Minutes**
7. **Unfinished Business**
  - A. Follow-Up Action Items from Previous Meetings

#	Meeting Date	Description of Action Item	Person Responsible
67	January 22, 2019	G8: International Day for the Elimination of Racial Discrimination – Staff to follow up with Ms. Simons to book the event	CAO DeJong
68	January 22, 2019	G9: 2019 Premier’s Awards for Excellence in Education – Councillor Cunliffe will inquire with the school PAC if there are any nomination potentialities.	Councillor Cunliffe

8. **Reports**
  - A. Staff
    - i. PWM: Information Report - Kelvin Grove Wastewater Treatment Plant Annual Report 2018 (Page 15)  

Recommendation: THAT the Information Report, “Kelvin Grove Wastewater Treatment Plant Annual Report for 2018” be received.

- ii. CAO: Direction Request - Kelvin Grove Wastewater Treatment Plant Replacement (Page 47)  
 Recommendation: THAT Council provide direction to staff with respect to the issues outlined in the attached report.
- iii. CFO: 2019 Draft Water, Solid Waste and Sewer Budgets (Page 53)  
 Recommendation: THAT the report “2019 Draft Water, Solid Waste and Sewer Budgets” be received for information purposes.

- iv. PWM: RFD – Award of Oceanview Drainage Study (Page 61)  
 Recommendation: THAT Council approve the award of the Oceanview Drainage Analysis and Engineering Design project to ISL Engineering and Land Services Ltd. in the amount of \$15,970; and

THAT the CAO be authorized to execute contract documents in accordance with the scope of work required up to the amount of \$15,970, not including GST; and

THAT the work be funded from the Public Works operational budget.

B. Mayor

- i. Canada Day (Page 73)
- ii. Volunteer Week Celebration Update (Verbal)
- iii. “New to the Village” Celebration Update (Verbal)

C. Council – None

D. Committees

- i. Memorial Committee: Report on the Direction of the Memorial Committee’s Project (Page 75)  
 Recommendation: THAT Council consider the suggestions and the direction of the Memorial Committee (MC) as outlined in the report attached.

E. Emergency Services – None

**9. Resolutions**

**10. Bylaws****A. Utility User Rate Amendment Bylaws No. 557, 558 and 559 (Page 79)**

Recommendation: THAT the following bylaws be read a first, second and third time:

1) Water Rates and Regulations Bylaw No. 2, 1971, Amendment Bylaw No. 557, 2019;

2) Sewer User Rates Bylaw No. 122, 1984, Amendment Bylaw No. 558, 2019;

3) Garbage and Recycling Collection Bylaw No. 455, 2013, Amendment Bylaw No. 559, 2019.

**11. Correspondence****A. List of Correspondence to January 31, 2019 (Page 91)**

THAT the following actions be taken with respect to the correspondence:

**12. New Business****13. Public Questions & Comments (2 minutes on any topic discussed in this meeting)****14. Closed Council Meeting**

THAT the meeting be closed to the public on the basis of matters to be considered under the following sections of the *Community Charter*:

**90** (1) A part of a council meeting may be closed to the public if the subject matter being considered relates to or is one or more of the following:

e) the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality;

j) information that is prohibited, or information that if it were presented in a document would be prohibited, from disclosure under section 21 of the Freedom of Information and Protection of Privacy Act;

**15. Reporting Out From Closed Portion of Meeting****16. Adjournment**

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## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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### **REGULAR MEETING OF THE COUNCIL OF THE VILLAGE OF LIONS BAY HELD ON TUESDAY, JANUARY 22, 2019 at 7:00 PM COUNCIL CHAMBERS, 400 CENTRE ROAD, LIONS BAY**

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#### **MINUTES**

In Attendance:

Council: Mayor Ron McLaughlin  
Councillor Neville Abbott  
Councillor Fred Bain  
Councillor Norm Barmeier  
Councillor Jaime Cunliffe

Staff: Chief Administrative Officer Peter DeJong (Recorder)  
Chief Financial Officer Pamela Rooke  
Public Works Manager Nai Jaffer

Delegations: 1

Public: 5

**1. Call to Order**

Mayor McLaughlin called the meeting to order at 7:08 p.m.

**2. Adoption of Agenda**

Moved/Seconded

THAT Item 8Bvi – LGLA Conference January 15-17 (Verbal) be moved to section 8C and numbered as Item 8Cii, and the balance of section 8B be renumbered;

THAT a verbal update regarding the Historical Society be added as Item 8Bvii; and

THAT the following grounds for closing the meeting be added under section 90 (1):

(a) personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the municipality or another position appointed by the municipality;

(n) the consideration of whether a council meeting should be closed under a provision of this subsection or subsection (2); and

THAT the agenda be adopted, as amended.

**CARRIED****3. Public Participation (2 minutes per person totalling 10 minutes maximum)**

None

**4. Public Delegation Requests Accepted by Agenda Deadline (10 minutes maximum)****A. Kambiz and Faro Azordegan regarding filming in Lions Bay**

Mrs. Azordegan stated the old bylaw required 100% of affected household approve an application for filming, but somehow this was changed last October without notice to Lower Kelvin Grove residents and she asked how this could happen. They were directly affected and have provide information in that regard to the Mayor. They want to ensure everyone understands the impacts that filming has on her and her family, including: noise contrary to the noise bylaw, loss of sleep, garbage left in public places. They are concerned that the new house at the bottom of Tidewater Way may also now want to film. Is there a new strategy to deal with filming?

CAO DeJong clarified that the filming policy is a policy rather than a bylaw and that there is a review pending.

Mayor McLaughlin advised that staff have been requested to review the filming policy and bring forward a report for Council consideration of the filming policy.

Mrs. Azordegan noted they are taxed on a residential basis and should not have to endure commercial activity in their neighbourhood. Filming only benefits one property owner but affects many others. She is also concerned about safety issues, including speeding on Tidewater.

Mr. Azordegan stated the situation is not fair and submitted that filming should not be allowed if one household objects. He then passed around and read a poem submitted On Table.

**5. Review & Approval of Minutes of Prior Meetings****A. Regular Council Meeting – December 18, 2018**

The following was amended:

- Item 8Bi – The third line should commence as follows: “...school would like to continue to stay open and that Council...”;
- The commentary in item 8Cii regarding communications protocols was assigned item 8Ciii;
- Item 11A, Correspondence, 3<sup>rd</sup> bullet – the wording in the parentheses should read: (Councillor Abbott noted for all that he would be recusing himself from any matters dealing with Woodfibre LNG as his company has worked for them in the past and his company may do so again)

Moved/Seconded

THAT the Regular Council Meeting Minutes of December 18, 2018 be approved as amended.

**CARRIED**

**6. Business Arising from the Minutes**

Staff to inquire with the Ministry of Transportation and Infrastructure as to the schedule for repaving Highway 99 through Lions Bay with the “quiet paving” product as local information indicates that was supposed to be every 5 years.

*Mayor McLaughlin suggested that the order of the agenda be amended to allow consideration of Item 12A to come forward as the applicants were present in the audience.*

*Moved/Seconded*

*THAT Item 12A be considered next on the Agenda.*

**CARRIED**

**12A Encroachment Agreement: 253 Bayview Road**

The report was reviewed along with updated drawings and a geotechnical report provided by the applicants On Table, to be added as schedules to the agreement. Assurances were provided by the Public Works Manager and the CAO that under the proposed agreement, the flat gravel area between the bottom rock wall and the paved portion of the road would remain undeveloped and available to the Municipality for drainage and/or ditching works if required in the future.

*Moved/Seconded*

(1) THAT the Municipality enter into an Encroachment Agreement with the Owners of 253 Bayview Rd in substantially the same form as the draft Agreement attached to this report (with schedules to be added); and

(2) THAT the CAO and Mayor be authorized to execute the Agreement.

**CARRIED**

*Council returned to the regular order of the Agenda.*

**7. Unfinished Business**

**A. Follow-Up Action Items from Previous Meetings**

#	Meeting Date	Description of Action Item	Action
56	July 3, 2018	G4: City of North Vancouver – Notice to Withdraw from the North Shore Bylaw Notice Dispute Adjudication Registry Agreement – CAO to follow up	CAO DeJong advised that he is awaiting an updated agreement from the DNV Mngr. of

			Administrative Services [remove from FUAL]
63	December 18, 2018	R1: Patrick Craig – Lions Bay Beach Park Renewal – CAO DeJong to respond	[Completed]
64	December 18, 2018	R2: Karl Buhr – Changing Highway 99 Speed Limits – Mayor McLaughlin to advise Mr. Buhr of Council’s policy decision	[Completed]
65	December 18, 2018	R4: Jon Povill – Climate Change Mitigation – CAO DeJong to respond to request for delegation and make arrangements for a suitable Council meeting in the New Year	[Completed – Delegation coming March 5, 2019]
66	December 18, 2018	R5: Rod Baker - \$40,000 RCMP – Mayor McLaughlin to respond	[Completed]

## 8. Reports

### A. Staff

#### i. CAO: Verbal Update re. Supplemental Policing Program

It was noted that the program essentially provides Canada’s 30% portion of the RCMP costs free, so an investment of \$40,000 would provide about \$57,000 worth of RCMP services to Lions Bay. Staff will be working with the Squamish RCMP Commander to gain a better understanding of costs per hour and how that resource could be tailored to suit the needs of Lions Bay, if approved.

Moved/Seconded

THAT the CAO Verbal Update re. Supplemental Policing Program be received.

#### i. CAO: Verbal Report re. Letter of Intent – New Horizons Services for Seniors

It was noted that a collective of collaborating partners, led by the District of West Vancouver and many non-profit organization around the Howe Sound region is forming to support a “Senior’s Connections” program aimed at reducing seniors’ isolation and connecting them to available programs. The group is seeking letters of support for this 100% grant funding initiative and Council is being requested to provide such support. Staff will also seek to involve the Lions Bay Seniors Social Circle as a member of the collective.

Moved/Seconded

THAT Council supports the Seniors Connection project and directs staff to prepare a letter of support for the program.

**CARRIED**

#### ii. CAO: Request for Decision – Media Training

Discussion took place regarding the costs of the training and the CAO was directed to get additional quotes and/or feedback from other jurisdictions with respect to costs.

iii. CFO: BDO Planning Report

Moved/Seconded

THAT the Information Report “BDO Planning Report” be received for information purposes.

**CARRIED**

iv. CFO: 2019 Draft Water, Sewer, and Solid Waste Budgets

The three draft utilities budgets were reviewed and a discussion took place regarding an increase in the water budget toward reserves to help address the water infrastructure deficit. Notwithstanding the Asset Management Plan has yet to be presented, a recommendation was made that the water budget be increased 5%, with sewer at 1.5% and solid waste at 5%.

Moved/Seconded

THAT the report “2019 Draft Water, Sewer and Solid Waste Budgets” be received; and

THAT the water, sewer and solid waste budgets be brought back to the February 5<sup>th</sup> meeting for three readings based on increases of 5%, 1.5% and 5% respectively.

**CARRIED**

v. CAO: Partnering Agreement with Saplings Outdoor Program Inc.  
 The report was briefly reviewed and there were no questions.

Moved/Seconded

(1) THAT the Partnering Agreement with Saplings Outdoor Program Inc. be approved subject to:

(a) notice being published in accordance with sections 24 (1) (d) and 94 of the Community Charter;

(b) publication of the notice being provided in accordance with section 94 (4) of the Community Charter through the Village Update electronic newsletter, which Council considers to be reasonably equivalent to that which would be provided by newspaper publication if it were practicable; and

(c) provision of an opportunity to be heard for any residents opposed to the proposed agreement.

- (2) THAT the Mayor and Corporate Officer be authorized to execute the Partnering Agreement subject to fulfillment of the conditions set out in the first resolution above.

**CARRIED**

- vi. CAO: Emergency Program Coordinator Update – CAO working on job description.
- vii. CAO: Emergency Management BC Webinar – Staff will be taking part in a webinar regarding emergency notification systems.

**B. Mayor**

- i. Meeting with MLA Sturdy & MP Goldsmith-Jones – the MLA and MP were provided with updates on Lions Bay grant applications and pledged to do what they could to assist.
- ii. Lions Bay Beach Park Grant Application – Lots of good work leading to submission of application on January 23<sup>rd</sup>.
- iii. Councillor Village Update Articles – Councillors were commended on their articles to date and Councillors Bain and Cunliffe were tasked with future articles on March 15<sup>th</sup> and 29<sup>th</sup> respectively.
- iv. Advice of Pending Meeting with Furry Creek – the Mayor will be meeting with the owners of the Furry Creek development to discuss issues of common interest, such as the Lions Bay School.
- v. Missing (deceased) Person – the Mayor dropped off a card with the family offering condolences on behalf of the Village.
- vi. E-Comm Board Representative (Verbal)
- vii. Historical Society – plans are in the works for a coffee table book
- viii. RCMP meeting – Mayor and CAO meeting with RCMP on February 5<sup>th</sup> to discuss further details regarding the potential for a Lions Bay part time officer.

**C. Council**

- i. Councillor Bain: Community Policing Public Information Meeting – a verbal report was provided by Councillor Bain regarding the meeting on January 17<sup>th</sup> at which about 22 people attended to receive an update from the RCMP on recent incidents and how best to protect oneself from fraud and other such crimes. Discussion focussed largely on Block Watch.
- ii. Councillor Abbott: LGLA Conference January 15-17 – a verbal report was provided by Councillor Abbott regarding the Local Government Leadership Academy conference attended by most of Council. Topics included bylaw enforcement, meeting procedures, Charter topics, conflict of interest, FOIPPA, regional district structures, indigenous interests, external organizations (eg: UBCM, FCM, MFA), Finance 101, DCCs and CACs, Planning/OCPs, DPAs, Zoning, Media tricks and tips, climate action and green building practices.

D. Committees – None

E. Emergency Services

i. RCMP Monthly Report

Moved/Seconded

THAT the RCMP Monthly Report be received.

**CARRIED**

**9. Resolutions**

None

**10. Bylaws**

A. Bylaw Notice Enforcement Bylaw No. 385, 2006, Amendment Bylaw No. 555, 2018 – Adoption

Moved/Seconded

THAT Bylaw Notice Enforcement Bylaw No. 385, 2006, Amendment Bylaw No. 555, 2018 be adopted.

**CARRIED**

B. Soil Deposit, Soil Removal and Land Alteration Bylaw No. 510, 2018, Amendment Bylaw No. 556, 2018 – Adoption

Moved/Seconded

THAT Soil Deposit, Soil Removal and Land Alteration Bylaw No. 510, 2018, Amendment Bylaw No. 556, 2018 be adopted.

**CARRIED**

**11. Correspondence**

A. List of Correspondence to January 17, 2019

Moved/Seconded

THAT the following actions be taken with respect to the correspondence:

- G-1: Metro Vancouver Nominations for Membership on Metro’s AAC – No response
- G-2: Avalanche Safety – No response
- G-3: Gas Tax Agreement Community Works Fund Payment – No response
- G-4: FLNR Response to Rural Dividend Program – No response
- G-5: Message from the Legislative Assembly of BC – No response

- G-6: Community Child Care Program – No response
- G-7: Climate Change Impacts – No response
- G-8: International Day for the Elimination of Racial Discrimination – CAO DeJong noted that Ruth Simons was proposing to organize an event at Broughton Hall that would be a mingling/dialogue event focussed on the subject of “belonging” and Squamish Nation representatives would be invited. Communications would inform Villagers on what CCMARD and the event are about and as part of our UNESCO nomination, Mrs. Simons would write about actions being taken to promote “belonging” in the region and what more can be done. Council provided their support in principle, including waving of fees for the hall and set-up/take-down.
- G-9: 2019 Premier’s Awards for Excellence in Education – Councillor Cunliffe will inquire with the school PAC if there are any nomination potentialities.
- G-10: Federation of Canada Municipalities – No response
- R-1: Response from Mayor re. \$40,000 RCMP – No response (completed)

**CARRIED**

**12. New Business**

**A. Encroachment Agreement: 253 Bayview Road**

*Considered earlier in the meeting, after Item 6: Business Arising.*

**13. Public Questions & Comments (2 minutes on any topic discussed in this meeting)**

None

*Moved/Seconded*

*THAT the meeting be extended to 11:00 pm.*

**CARRIED**

**14. Closed Council Meeting**

THAT the meeting be closed to the public on the basis of matters to be considered under the following sections of the *Community Charter*:

**90** (1) A part of a council meeting may be closed to the public if the subject matter being considered relates to or is one or more of the following:

- a) personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the municipality or another position appointed by the municipality
- b) personal information about an identifiable individual who is being considered for a municipal award or honour, or who has offered to provide a gift to the municipality on condition of anonymity;
- e) the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality;

- j) information that is prohibited, or information that if it were presented in a document would be prohibited, from disclosure under section 21 of the Freedom of Information and Protection of Privacy Act;
- n) the consideration of whether a council meeting should be closed under a provision of this subsection or subsection (2).

**CARRIED**

*The meeting was closed to the public at 9:54 p.m.*

*The meeting was re-opened to the public at 11:00 p.m. with an addition to the Agenda as follows:*

- 12B** Request for Decision – ICIP: Community, Culture and Recreation Grant Resolution – *Corporate Officer/Recording Secretary DeJong apologizes for failing to remember to turn on the recording device.*

Council debated the proposed resolutions set out below regarding support and commitment of the Municipality's 26.67% share of updated estimated costs, including a 25% contingency.

Councillor Abbott stated that he did not believe that a majority of Villagers would be in favour of committing \$300,000 for this project given the other pressing infrastructure needs.

Councillor Barmeier noted that the Lions Bay Beach Park is an important asset that needs work and we can still work to pare down the number.

Councillor Bain agreed that it was a difficult ask due to the amount and we do need to work at reducing the number.

Councillor Cunliffe stated the Park is a great asset for the community, especially to attract young families, and perhaps we can do some fundraising to help cover the Village cost.

Councillor Abbott stated he was concerned that reducing costs will be very difficult, notwithstanding the sentiment, if the budget/grant was approved for the full scope.

Moved/Seconded:

THAT staff submit an application for grant funding for the Lions Bay Beach Park Revitalization Project through the *Canada-British Columbia Investing in Canada Infrastructure Program – Community, Culture, and Recreation*; and

THAT Council supports the Lions Bay Beach Park Revitalization Project and commits the Village of Lions Bay’s share of the project of up to \$300,000, to be funded by transfers from reserves.

**CARRIED**  
**OPPOSED: COUNCILLOR ABBOTT**

Moved/Seconded

THAT the meeting be closed again to the public on the grounds previously provided at Item 14.

**CARRIED**

*The meeting was closed to the public again at 11:10 pm.  
The meeting was re-opened to the public at 12:38 am.*

**15. Reporting Out From Closed Portion of Meeting**

Matters were considered pertaining to the reasons for closing but there was nothing to report out at this time.

**16. Adjournment**

Moved/Seconded

THAT the meeting be adjourned generally.

**CARRIED**

*The meeting was adjourned generally at 12:38 am.*

\_\_\_\_\_  
Mayor

\_\_\_\_\_  
Corporate Officer

Date Approved by Council:	
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## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

<b>Type</b>	<b>Information Report</b>		
<b>Title</b>	<b>Kelvin Grove Wastewater Treatment Plant Annual Report for 2018</b>		
<b>Author</b>	<b>Naizam Jaffer</b>	<b>Reviewed By:</b>	<b>Peter DeJong</b>
<b>Date</b>	<b>January 30, 2019</b>	<b>Version</b>	<b>1</b>
<b>Issued for</b>	<b>February 5, 2019 Regular Council Meeting</b>		

### **Recommendation:**

THAT the Information Report, “Kelvin Grove Wastewater Treatment Plant Annual Report for 2018” be received.

### **Attachments:**

(1) Kelvin Grove Wastewater Treatment Plant 2018 Annual Report

### **Key Information:**

The upper and lower Kelvin Grove neighbourhoods in the Municipality are serviced by a sanitary sewer network that culminates in a wastewater treatment plant (WWTP) located on the waterfront at the Kelvin Grove Beach Park. The operation of this WWTP is governed by the Ministry of Environment under the provisions of the *Environmental Management Act*. In accordance with the Municipality’s permit (No. 5188), an annual report covering the previous year must be submitted within 30 days of the end of the previous year. The attached report fulfils this obligation.

### **Follow Up Action:**

As identified in the report, the main sprocket and chain driving the media packs and the gear reducer require replacement. Replacement parts have been ordered from Ontario at a cost of \$10,550. Additional costs will be incurred upon installation and commissioning of these repairs. Staff will effect the repairs immediately upon receipt of the parts.

### **Communication Plan:**

The annual report will be posted on the Municipality’s website at [www.lionsbay.ca](http://www.lionsbay.ca).

— THE VILLAGE OF LIONS BAY



# **KELVIN GROVE**

**Wastewater Treatment Plant**

## **2018 ANNUAL REPORT**

**JAN  
2019**

**Naizam Jaffer**  
Public Works Manager





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### INTRODUCTION

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# Introduction

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The upper and lower Kelvin Grove neighbourhoods in the Village of Lions Bay are serviced by a sanitary sewer network that culminates in a wastewater treatment plant (WWTP) that was constructed in 1981 on the waterfront of Howe Sound, at the Kelvin Grove Beach Park. A total of 94 residential lots are connected to the WWTP through a network of 2,173 meters of 200mm PVC sanitary sewer pipes, manholes, and property connections or service laterals. A map of this sanitary sewer system is shown in Appendix 1.

## TREATMENT AND MICROBIOLOGY

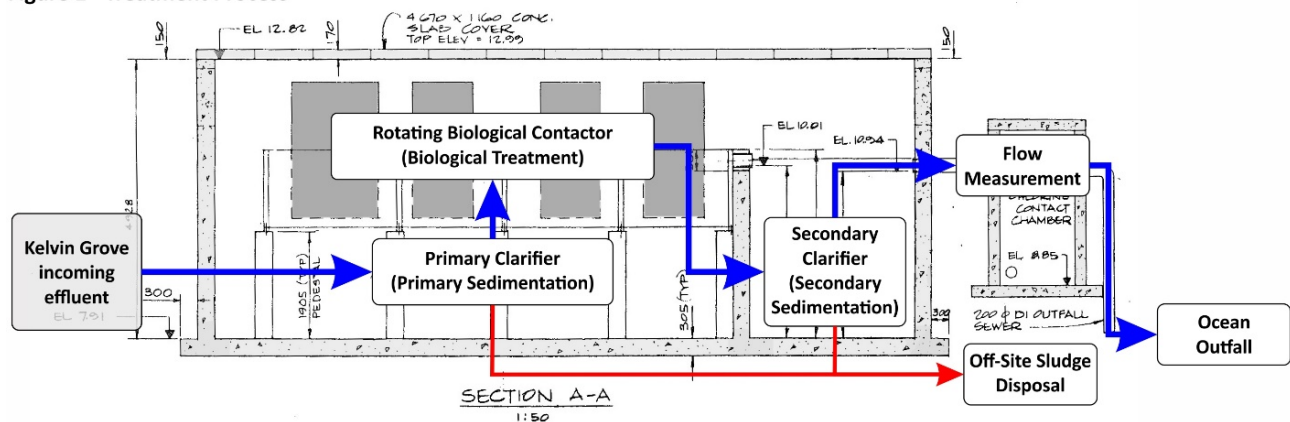
The Kelvin Grove WWTP is a fixed-film treatment process that consists of three distinct process phases:

- ◆ Primary Sedimentation;
- ◆ Biological Treatment; and
- ◆ Secondary Sedimentation.

Upon passing through each of these phases, the treated wastewater passes through a flow measurement device consisting of a weir and level transducer mounted within a metering chamber. Once through the flow meter, the wastewater is released into Howe Sound via an ocean outfall pipe 85 meters beyond the high tide mark and at a depth of 60 metres.

The treatment process is represented diagrammatically below:

Figure 1 - Treatment Process



The wastewater treatment process is dependent upon the presence and activity of the microorganisms within the wastewater and treatment plant. This microbial ecology is a complex combination of interrelationships among bacteria, protozoa, and metazoa with the organic contents of the wastewater. Microorganisms use this organic content as a carbon source for respiration, energy generation, and biomass production. Once the organic content of wastewater is depleted, microorganisms form floc and settle out of the wastewater stream as sludge.

## PRIMARY SEDIMENTATION

Wastewater enters the primary clarifier or primary sedimentation tank where suspended solids are removed by gravity sedimentation under quiescent conditions. The settled solids form a sludge blanket at the bottom of the clarifier. The primary clarifier also provides for effective removal of grit, debris, and excessive fats, oils or grease (dubbed 'FOG') prior to the supernatant's entry into the biological treatment phase.

Continual input of raw wastewater into the primary clarifier and gravity settlement results in a thickening of the sludge blanket over time. Sludge blanket depth is a crucial component to the proper functioning of the treatment system, so much so that at excessive sludge blanket depths (greater than 30 cm) the sludge may turn septic, which depletes oxygen levels that ultimately inhibits healthy biomass growth which thereby decreases treatment efficiency.

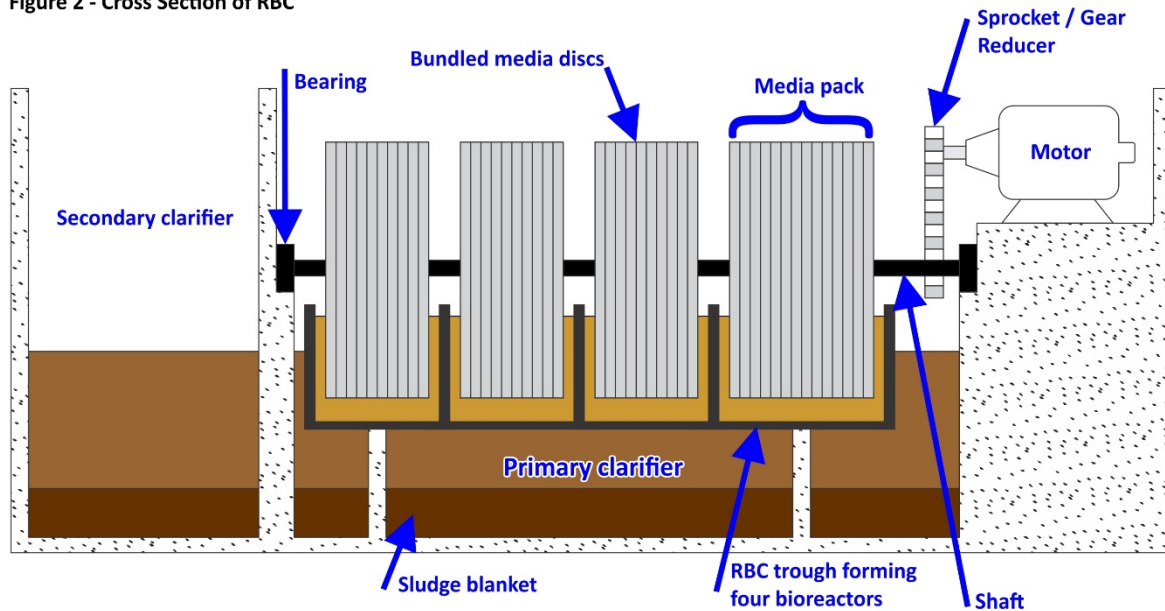
## BIOLOGICAL TREATMENT

From the primary clarifier, the supernatant with its colloidal and dissolved organic matter is further cleansed by biological treatment which is accomplished by a rotating biological contactor (RBC) treatment system. The RBC consists of multiple large diameter, closely spaced corrugated discs constructed of high-density polyethylene (HDPE). These disks are bundled together into what is termed a 'media pack' and are mounted in series along a horizontal shaft [Figure 2]. The Kelvin Grove WWTP utilizes the L400 ROTORDISKS™ system, which has four media packs separated by baffles into a series of bioreactors, each referred to as a stage. An electric motor rotates the shaft and media packs at a rate of 1.5 to 1.6 revolutions per minute, alternately exposing the media packs to wastewater and air. Microfauna within the wastewater affix themselves to the discs creating a biofilm over the entire surface area of the media. The corrugations on the media disks are designed to give extra surface area per unit volume to each disc thereby increasing the biofilms ability to metabolize and treat the organic materials contained in the wastewater. This permits high degrees of treatment to be achieved for relatively short wastewater retention times.



Photo: Initial biofilm growth on RBC media.

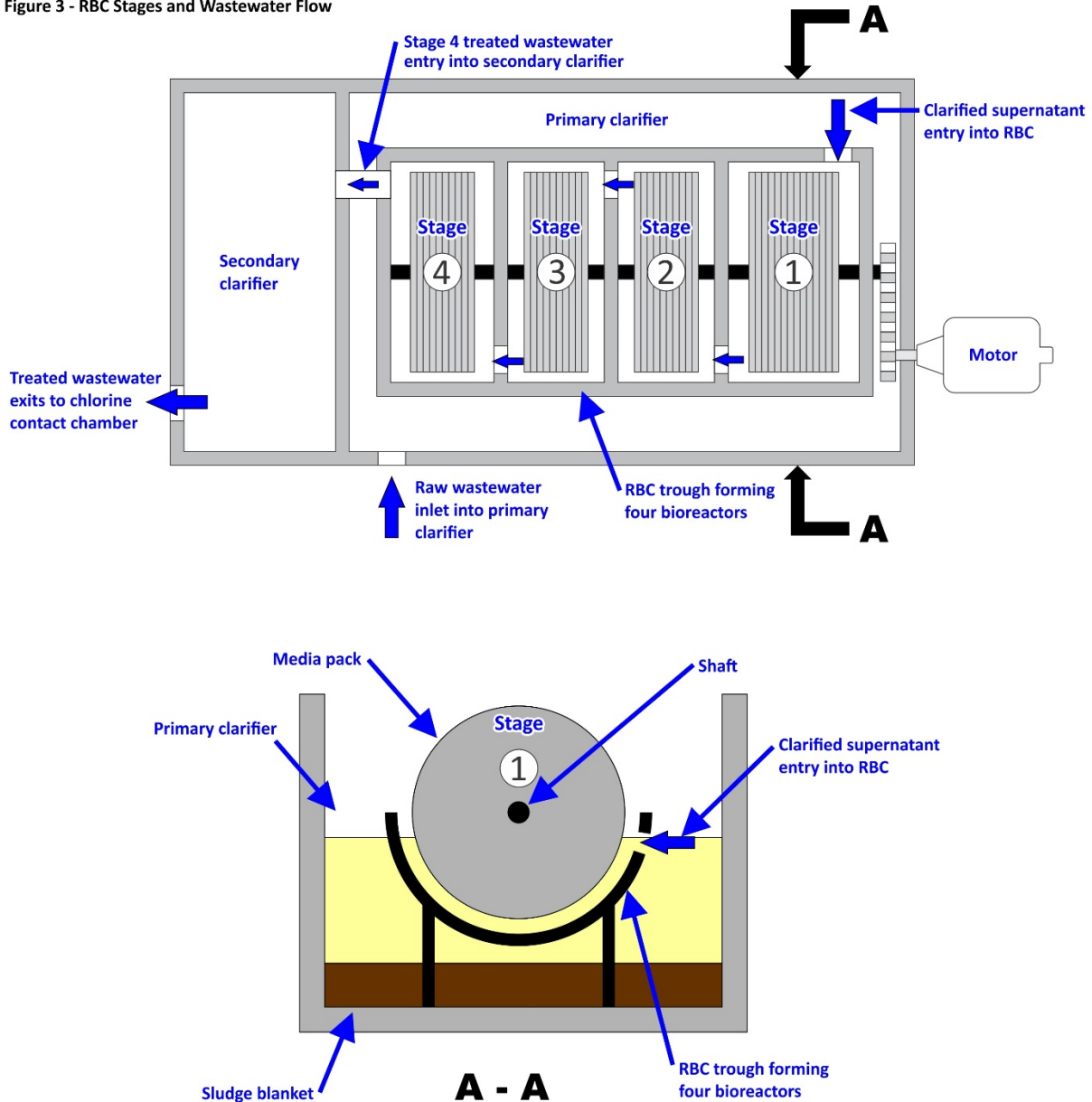
Figure 2 - Cross Section of RBC



From start to finish, the wastewater flows through the RBC's stages or bioreactors by simple displacement and gravity. As wastewater passes from stage to stage, it undergoes a progressively increasing degree of treatment by specific biological cultures in each stage, which are adapted to the changing wastewater.

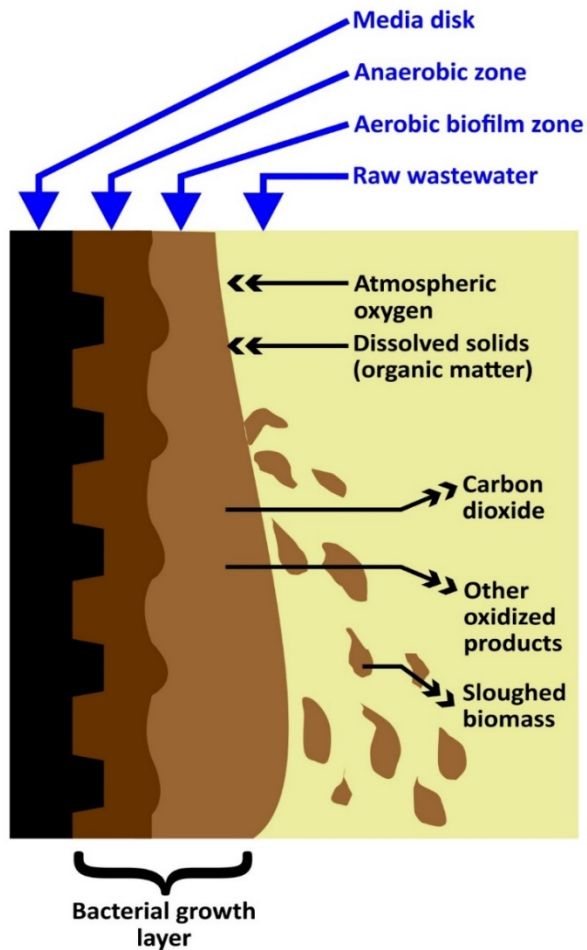
The supernatant enters the first bioreactor (Stage 1) at the point furthest away from the inlet to the plant [Figure 3]. This is the stage where the highest biological activity occurs and where biofilm accumulations are the greatest since the organic loading is highest. As the biofilm thickens, it develops into two layers: an active (aerobic) and an inactive (anaerobic) layer. By and large organics within the wastewater are transformed into biomass in the aerobic layer.

Figure 3 - RBC Stages and Wastewater Flow



Biofilm growth increases on the media disks until it reaches a tipping point with the continual drag caused by the media packs rotation generating shearing forces that causes excess biomass to slough off into the supernatant [Figure 4]. Rotation of the media also provides turbulence at the interface between biomass and wastewater so that dissolved oxygen and wastewater nutrients to the biomass through the mechanism of mixing and that of diffusion. This continual rotation also serves to keep the sloughed material in suspension through the progressive stages and into the secondary clarifier.

Figure 4 - Cross Section at RBC



Microfauna in the Initial stages are almost entirely constituted by species of ciliates and filamentous and nonfilamentous bacteria. As the wastewater passes through subsequent stages, it undergoes a progressively increasing degree of treatment by specific microfauna in each stage. The decreasing concentration of organic matter leads to the appearance of higher life forms including nitrifying bacteria, along with various types of protozoans, rotifers, and other predators.

In a well-functioning unit with the appropriate feed rate, nutrient loading, microfauna, and media rotation rates, the RBC will emit an earthy, humus-like (“musty”) smell inside the unit. A substantial sour or “sewage” smell is indicative of suboptimal conditions.

## SECONDARY SEDIMENTATION

Once through the fourth stage of the RBC, the treated wastewater enters the secondary clarifier. The large aggregates of biomass sloughed off the media packs retain their high density and settle rapidly in the secondary clarifier. At this point in the process the effluent is relatively clear and colourless and free of suspended matter. Sludge from the primary and secondary clarifiers is removed on an annual basis and transferred to the Iona Island wastewater treatment plant in Richmond where it undergoes further treatment.

# KELVIN GROVE WWTP OPERATING PERMIT

The authority to discharge wastewater into the waters of Howe Sound is governed by the provincial *Environmental Management Act*. The Kelvin Grove WWTP operates under permit number 5188 (the “Permit”) which regulates the quantity and quality of the plant’s discharge. The parameters stipulated in the Permit are as follows:

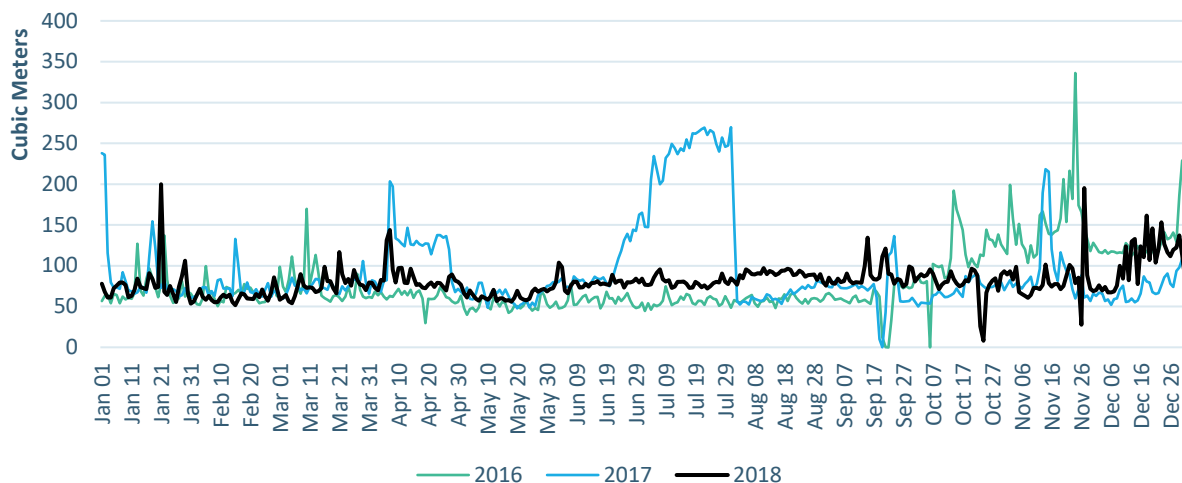
Parameter	Permit Value
Volume (m <sup>3</sup> /day)	340
BOD <sub>5</sub> (mg/L)	45
TSS (mg/L)	60

## Water Quality

Reporting requirements consist of quarterly sampling of treated wastewater for five-day biochemical oxygen demand (BOD<sub>5</sub>) and total suspended solids (TSS) as well as the submission of an annual report to the Ministry of the Environment each January.

The following graph indicates daily wastewater discharge volumes for 2018 (black line) in comparison to the previous two years – at no time did the plant exceed the maximum discharge volume. Detailed daily flow tables for 2018 are contained in Appendix 2.

**Kelvin Grove Wastewater Treatment Plant Flow Comparison**



The following table indicates quarterly sampling results for five-day biological BOD<sub>5</sub> and TSS. Complete laboratory analysis records are contained in Appendix 3.

Date	BOD <sub>5</sub> (mg/L)	TSS (mg/L)
	Max 45	Max 60
16-JAN-18	36.2	24.6
24-APR-18	26.6	33.1
25-JUL-18	8.9	12.6
18-OCT-18	3.8	10.6

As indicated by the table above, the sampling results were within permit compliance parameters for 2018. BOD<sub>5</sub> and TSS are governed by microbial activity and system efficiency. Temperature affects the operation of the treatment system and as indicated in the above table, colder temperatures in the late fall and early spring likely reduced biological activity thereby reducing their ability to reduce BOD<sub>5</sub> and TSS levels.

## Maintenance

In accordance with the Permit, regular inspection and maintenance activities are conducted to keep the facility in good working order. Biweekly inspections are performed to check for vandalism, damage to the media disks, misalignment or excessive shaft deflection, motor torque loading (excessive heat), and for clogging of weirs or orifice areas. At the time of inspection, grease fittings and bearings are lubricated.

In December of 2018, routine inspections identified a defect in the mechanical components of the RBC. The main sprocket driving the shaft and media pack lost some teeth resulting in damage to the chain and gear reducer. While serious in nature, the defects have not impacted the rotation rate of the media packs and the overall functioning of the system. Replacement parts were ordered and are expected to arrive in early February 2019 after which staff will conduct the required repairs.

## Annual Dewatering

Annual dewatering or removal of the sludge from the primary and secondary clarifiers is carried out in the fall of each year. This labour and resource intensive process involves the removal of the roof, pressure washing of clarifiers, and vacuuming out the sludge accumulations from the

bottom of the chambers. During this maintenance activity, a detailed inspection of the bearings, shaft, motor and media disc occurs with repairs or maintenance performed as needed.

## Outfall Pipe Inspection

Quinquennial inspection of the WWTP wastewater outfall pipe is performed by certified divers or remotely operated vehicles. Video footage of the inspection is reviewed and analyzed with remedial measures budgeted and scheduled as required.

A video inspection was conducted early in the New Year with no significant deficiencies identified. The inspection report is attached as Appendix 4. Two minor issues were noted:

- The outfall pipe diffuser appeared to be covered in sediment, and
- The outfall signage is obscured by vegetation

Planned remediation:

- Staff will continue to monitor the metering chamber for backup thereby indicating obstruction of the outfall pipe, and
- a new outfall sign will be installed at a location more visible to boaters.

The next outfall dive is scheduled to take place during the 2023 calendar year.

## Facility Classification and Operator Certification

The Kelvin Grove WWTP has been evaluated as a Small Wastewater System (Lagoon) by the Environmental Operators Certification Program Society (EOCP). One employee completed certification for the operation of the plant in 2018 and a second operator is expected to complete certification in 2019.

# Appendix 1 – Sanitary Sewer System Diagram



## Appendix 2 – Daily Flow Monitoring Logs

<i>Date</i>	Day Total (L)	Max. DF (L/sec.)	Max. DF Time (24 Hr.)	Min. DF (L/sec.)	Min. DF Time (24 Hr.)	Max. DF Temp. (°C)	Max. DFT Time (24 Hr.)	Min. DF Temp. (°C)	Min. DFT Time (24 Hr.)
1-Jan-18	78019.38	1.73	13:56	0.34	5:34	7	17:48	6	5:08
2-Jan-18	68223.05	1.79	20:10	0.33	4:31	7	21:06	6	6:16
3-Jan-18	61013.85	1.5	16:36	0.31	3:41	8	19:16	7	5:44
4-Jan-18	61082.79	1.48	9:13	0.28	3:36	8	23:42	7	5:22
5-Jan-18	72483.37	1.53	17:17	0.33	4:20	9	22:22	8	0:47
6-Jan-18	75508.94	1.94	16:43	0.42	3:53	9	17:51	8	3:59
7-Jan-18	79283.39	1.71	9:49	0.42	3:02	9	0:17	8	23:22
8-Jan-18	79595.46	1.67	8:31	0.46	2:12	9	22:29	8	3:41
9-Jan-18	76149.83	1.54	16:44	0.46	5:01	9	11:28	8	4:26
10-Jan-18	61265.4	1.23	21:44	0.18	10:50	9	12:39	8	10:50
11-Jan-18	62979.03	1.49	19:31	0.29	4:33	9	0:06	8	17:42
12-Jan-18	70574.51	1.64	16:48	0.35	3:39	8	0:04	8	5:40
13-Jan-18	84067.85	1.82	10:52	0.54	5:11	9	21:11	8	3:06
14-Jan-18	73408.37	1.67	19:13	0.36	4:55	9	21:49	8	6:43
15-Jan-18	72228.62	1.62	23:03	0.3	3:24	9	21:37	8	6:13
16-Jan-18	71066.6	1.67	20:43	0.4	5:00	9	20:00	9	3:12
17-Jan-18	90987.41	1.79	19:00	0.45	4:45	9	0:05	9	8:47
18-Jan-18	83646.07	1.63	19:09	0.57	3:47	9	0:04	9	10:28
19-Jan-18	72982.17	1.68	22:23	0.39	3:20	9	0:12	8	23:59
20-Jan-18	73995.98	1.51	10:54	0.39	4:16	9	0:51	8	23:51
21-Jan-18	199790.2	6.33	9:13	0.82	23:59	8	4:56	8	23:39
22-Jan-18	68058.76	1.39	8:17	0.46	3:48	8	11:54	8	5:14
23-Jan-18	64057.27	1.42	9:03	0.24	4:47	8	1:46	8	11:15
24-Jan-18	75064.27	1.88	21:51	0.4	3:21	8	19:17	8	1:45
25-Jan-18	64833.5	1.4	20:14	0.43	5:25	8	0:00	8	23:51
26-Jan-18	55721.61	1.45	9:30	0.32	3:34	8	18:36	7	8:21
27-Jan-18	74485.39	1.78	9:31	0.27	3:07	8	22:35	7	6:38
28-Jan-18	87051.96	1.98	19:56	0.32	5:24	8	23:32	7	6:16
29-Jan-18	106119.8	2.12	7:31	0.69	0:48	9	15:06	8	1:41
30-Jan-18	65566.36	2.15	21:43	0.31	13:19	8	0:00	8	23:59
1-Feb-18	53476.12	1.83	7:29	0.23	3:32	8	23:33	7	5:39
2-Feb-18	55762.44	1.42	8:12	0.2	3:24	8	21:56	7	3:20
3-Feb-18	64328.76	1.39	16:53	0.3	3:51	9	23:12	8	0:09
4-Feb-18	71671.37	1.5	8:38	0.36	5:16	9	22:56	9	7:35
5-Feb-18	61689.17	1.74	21:31	0.33	4:43	9	0:10	9	23:47
6-Feb-18	58197.9	1.24	9:22	0.26	3:51	9	20:30	9	5:56
7-Feb-18	62939.94	2.63	18:49	0.26	5:37	9	23:36	9	5:42

<i>Date</i>	Day Total (L)	Max. DF (L/sec.)	Max. DF Time (24 Hr.)	Min. DF (L/sec.)	Min. DF Time (24 Hr.)	Max. DF Temp. (°C)	Max. DFT Time (24 Hr.)	Min. DF Temp. (°C)	Min. DFT Time (24 Hr.)
8-Feb-18	58042.86	1.55	21:28	0.27	4:58	10	14:28	9	23:54
9-Feb-18	55087.26	1.4	7:13	0.24	4:55	9	0:03	8	23:53
10-Feb-18	55541.16	1.4	9:44	0.27	1:51	9	0:06	8	23:15
11-Feb-18	61175.86	1.54	9:45	0.25	4:00	8	16:27	7	8:06
12-Feb-18	64726.66	1.93	20:01	0.23	3:35	8	0:41	7	7:27
13-Feb-18	61537.7	1.58	20:12	0.33	4:18	7	16:34	7	5:50
14-Feb-18	64472.55	1.77	21:46	0.32	2:46	7	16:35	6	6:28
15-Feb-18	55665.48	1.28	21:42	0.25	3:37	7	21:47	7	5:57
16-Feb-18	51621.02	1.19	8:26	0.21	4:57	8	21:43	7	5:23
17-Feb-18	59378.4	1.78	18:06	0.23	3:05	8	18:56	7	22:46
18-Feb-18	66266.9	1.56	9:39	0.26	5:55	8	0:01	6	23:53
19-Feb-18	64968.76	1.62	21:05	0.22	3:23	6	0:00	5	5:29
20-Feb-18	60016.11	1.86	21:46	0.25	2:38	6	22:14	5	5:45
21-Feb-18	59645.22	1.59	19:33	0.23	2:46	6	0:11	5	4:04
22-Feb-18	59108.95	1.42	7:37	0.23	5:17	6	12:31	5	5:21
23-Feb-18	65190.66	1.37	21:37	0.2	5:43	6	0:18	5	5:28
24-Feb-18	61222.36	1.51	12:28	0.26	4:10	6	13:06	5	5:53
25-Feb-18	70794.85	2.09	10:19	0.21	2:18	7	15:43	6	0:27
26-Feb-18	62387.69	1.67	7:50	0.22	2:04	7	22:02	6	3:33
27-Feb-18	57219.42	1.63	19:17	0.2	2:18	7	19:32	6	5:02
28-Feb-18	67311.51	1.87	23:07	0.24	5:10	7	23:41	7	5:23
1-Mar-18	85862.54	1.84	2:00	0.48	23:51	8	15:57	7	6:26
2-Mar-18	58101.87	1.72	7:12	0.29	4:50	7	16:54	7	5:46
3-Mar-18	61138.85	1.89	10:05	0.27	2:36	8	15:30	7	5:03
4-Mar-18	64346.94	1.99	21:50	0.22	5:36	8	16:14	7	6:54
5-Mar-18	56259.81	1.42	7:14	0.21	2:31	8	19:50	7	6:02
6-Mar-18	53958.91	1.58	8:05	0.21	1:55	9	15:34	7	4:34
7-Mar-18	62453.48	1.74	7:34	0.24	5:16	8	23:15	7	6:40
8-Mar-18	75229.24	1.68	19:49	0.32	3:51	8	21:23	8	5:31
9-Mar-18	89550.27	1.7	18:56	0.66	12:33	9	16:14	8	9:41
10-Mar-18	75452.08	1.7	7:47	0.43	3:21	9	16:16	7	6:58
11-Mar-18	72932.42	1.86	19:21	0.35	3:46	9	17:39	8	4:09
12-Mar-18	73563.59	1.62	20:10	0.41	4:30	10	19:55	9	4:36
13-Mar-18	72946.11	1.72	21:51	0.43	23:59	10	15:13	10	23:50
14-Mar-18	67577.3	1.5	20:18	0.37	2:05	10	15:43	9	22:48
15-Mar-18	68987.2	1.82	6:49	0.32	1:42	10	17:52	9	9:04
16-Mar-18	72409.02	1.54	19:55	0.35	2:16	10	16:26	9	9:15
17-Mar-18	98636.14	2.08	7:07	0.46	2:02	10	16:35	9	9:03
18-Mar-18	81119.57	1.64	20:07	0.32	4:16	10	16:22	9	2:25

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19-Mar-18	80906.08	1.68	21:38	0.4	23:59	10	15:30	9	5:13
20-Mar-18	72337.11	1.5	6:39	0.34	3:07	10	16:19	10	21:43
21-Mar-18	66287.75	1.35	21:00	0.34	1:58	10	19:48	9	5:37
22-Mar-18	116781.8	2.07	10:16	0.51	0:22	10	0:22	9	23:50
23-Mar-18	89829.92	1.55	18:18	0.58	1:51	9	0:02	8	7:13
24-Mar-18	78836.79	1.66	8:48	0.56	23:47	9	15:01	8	5:43
25-Mar-18	83680.17	1.9	8:04	0.38	4:39	9	17:11	8	4:00
26-Mar-18	75622.35	1.43	22:31	0.38	1:15	9	19:34	9	4:46
27-Mar-18	94887.49	1.83	7:02	0.56	0:53	10	18:13	9	1:49
28-Mar-18	82713.35	2.17	21:25	0.55	3:22	10	15:13	9	9:52
29-Mar-18	76633	1.6	7:46	0.58	22:56	10	15:45	9	2:15
30-Mar-18	75753.54	1.93	8:22	0.39	1:31	10	17:49	9	3:56
31-Mar-18	70206.91	1.52	8:42	0.35	1:44	10	18:04	9	3:10
1-Apr-18	79317.79	1.45	10:32	0.35	3:07	10	14:03	9	17:42
2-Apr-18	78986.66	1.85	9:43	0.48	2:53	10	18:42	9	10:43
3-Apr-18	73315.89	1.58	18:43	0.36	1:47	10	22:12	9	0:03
4-Apr-18	69528.3	1.43	6:08	0.32	1:47	10	15:09	9	5:00
5-Apr-18	82404.38	1.93	16:53	0.39	2:07	10	23:55	9	4:37
6-Apr-18	81661.51	1.86	8:21	0.49	4:23	11	22:51	10	3:16
7-Apr-18	131344.3	2.94	9:54	0.46	1:56	11	0:05	10	3:37
8-Apr-18	143709.4	2.63	8:54	0.9	23:59	11	18:11	10	8:26
9-Apr-18	95099.13	1.87	8:58	0.5	23:59	11	16:42	10	6:38
10-Apr-18	79520.9	2.09	8:15	0.37	3:22	11	18:07	10	7:52
11-Apr-18	96994.39	2.39	21:51	0.39	3:18	11	0:00	10	23:38
12-Apr-18	97568.52	2.14	21:40	0.64	23:59	11	15:00	10	9:00
13-Apr-18	78901.95	1.73	6:38	0.46	2:07	10	0:51	9	17:56
14-Apr-18	78640.87	1.63	17:12	0.41	3:07	10	14:53	9	5:30
15-Apr-18	96228.94	2.35	21:35	0.48	2:19	11	15:51	10	5:09
16-Apr-18	86150.26	1.74	6:34	0.62	23:30	10	0:10	10	23:53
17-Apr-18	76458.7	1.81	20:05	0.43	1:53	11	15:06	10	10:54
18-Apr-18	77642.8	1.93	18:31	0.4	3:06	11	16:57	10	4:39
19-Apr-18	73231.21	1.65	18:24	0.36	2:40	11	18:22	10	7:53
20-Apr-18	72289.36	1.57	6:33	0.38	2:33	11	14:08	11	6:26
21-Apr-18	76723.74	1.85	8:15	0.4	2:28	11	14:44	10	5:25
22-Apr-18	79555.05	1.8	8:09	0.35	1:49	12	18:16	10	5:51
23-Apr-18	74103.32	1.87	20:17	0.38	3:55	13	18:54	11	8:26
24-Apr-18	79167.97	1.89	6:49	0.36	0:21	14	18:05	12	8:57
25-Apr-18	78844.39	1.74	17:21	0.47	23:41	14	19:53	12	8:11
26-Apr-18	73969.02	2.6	16:52	0.3	1:07	15	17:19	13	8:01

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27-Apr-18	69460.84	1.71	7:41	0.26	2:07	16	14:05	14	8:37
28-Apr-18	86575.3	1.82	17:56	0.35	4:27	15	0:10	13	23:58
29-Apr-18	89175.92	1.83	12:45	0.47	2:36	13	0:04	12	7:04
30-Apr-18	81905.1	2	20:14	0.39	1:18	13	17:17	12	5:27
1-May-18	80227.27	1.83	17:51	0.41	1:33	14	16:44	12	5:09
2-May-18	76837.21	1.77	20:45	0.37	3:15	15	19:15	13	7:50
3-May-18	66253.88	1.6	6:54	0.32	23:57	15	18:17	13	5:47
4-May-18	61059.23	1.44	7:21	0.18	1:59	15	0:45	14	23:57
5-May-18	69621.94	3.91	9:16	0.21	2:06	16	18:50	13	9:34
6-May-18	64595.47	2.15	9:28	0.2	3:59	17	20:29	15	8:24
7-May-18	59282.75	1.74	6:18	0.18	3:33	17	15:43	15	8:20
8-May-18	57279.51	1.54	6:24	0.2	2:58	17	19:05	15	8:17
9-May-18	62768.06	2.08	18:12	0.21	2:41	17	0:00	15	11:20
10-May-18	60680.27	1.64	6:14	0.22	4:24	16	15:44	15	6:57
11-May-18	58476	1.7	5:57	0.21	2:31	16	18:55	14	10:11
12-May-18	62006.5	1.65	9:33	0.21	1:15	17	18:25	15	8:28
13-May-18	70486.31	1.79	20:15	0.26	1:57	18	20:45	16	8:17
14-May-18	56571.76	1.49	6:29	0.19	4:00	19	21:25	17	10:37
15-May-18	59856.77	1.76	6:36	0.2	3:12	19	15:57	17	9:57
16-May-18	60432.31	1.46	18:47	0.27	1:40	18	0:05	17	23:53
17-May-18	57230.74	1.47	6:35	0.21	1:50	17	15:31	16	9:46
18-May-18	58020.58	1.6	21:23	0.21	2:04	16	17:07	16	6:41
19-May-18	55858.59	1.7	9:04	0.24	3:43	16	17:57	16	7:23
20-May-18	60802.11	1.54	12:01	0.22	2:42	17	18:25	16	5:29
21-May-18	69152.24	2.21	11:49	0.22	1:32	18	15:37	16	8:07
22-May-18	60617.53	1.71	6:29	0.3	1:34	18	20:19	16	10:09
23-May-18	58740.25	1.79	6:24	0.24	1:25	19	15:55	16	9:50
24-May-18	57593.33	1.51	21:45	0.22	1:26	19	15:42	17	9:10
25-May-18	59279.76	1.66	7:23	0.24	2:40	19	15:37	17	10:06
26-May-18	68378.65	1.68	9:17	0.32	1:17	18	17:44	16	8:53
27-May-18	71994.04	2.11	21:31	0.35	3:20	19	17:50	16	8:19
28-May-18	68166.4	1.53	21:39	0.3	3:19	19	15:21	17	7:37
29-May-18	70313.31	2.29	6:34	0.31	0:59	18	15:34	16	11:11
30-May-18	71669.24	1.79	6:37	0.29	2:02	18	15:40	16	10:14
31-May-18	68628.38	1.83	5:46	0.3	1:26	18	15:20	16	9:53
1-Jun-18	71259.97	1.62	20:45	0.3	3:42	17	0:01	16	23:55
2-Jun-18	72489.31	1.64	7:46	0.32	1:52	17	20:15	15	6:29
3-Jun-18	79951.42	1.98	18:30	0.34	4:49	17	0:01	16	23:51
4-Jun-18	103740.5	2.8	7:26	0.63	1:31	17	15:18	15	11:37

<i>Date</i>	Day Total (L)	Max. DF (L/sec.)	Max. DF Time (24 Hr.)	Min. DF (L/sec.)	Min. DF Time (24 Hr.)	Max. DF Temp. (°C)	Max. DFT Time (24 Hr.)	Min. DF Temp. (°C)	Min. DFT Time (24 Hr.)
5-Jun-18	98134.7	2.19	6:35	0.52	22:59	16	0:02	15	23:52
6-Jun-18	69392.2	1.72	6:57	0.3	1:29	17	20:22	15	5:11
7-Jun-18	65930.78	1.69	6:42	0.32	2:32	17	0:00	16	23:53
8-Jun-18	75212.54	2.08	21:43	0.33	3:07	16	0:00	15	23:56
9-Jun-18	80605.71	1.8	7:38	0.44	4:29	16	15:22	15	9:40
10-Jun-18	80253.48	1.65	9:47	0.36	3:15	17	15:18	15	10:45
11-Jun-18	73123.73	2.18	21:30	0.3	1:25	17	15:24	15	10:25
12-Jun-18	73533.69	1.8	18:56	0.37	1:20	16	0:00	15	5:10
13-Jun-18	77753.68	1.93	6:30	0.35	1:50	16	15:37	15	10:30
14-Jun-18	74193.91	1.98	6:20	0.36	1:47	16	15:27	15	4:31
15-Jun-18	78652.31	1.81	8:30	0.36	2:14	17	21:55	15	4:22
16-Jun-18	78880.2	2.94	9:26	0.41	4:02	18	22:03	16	8:08
17-Jun-18	81138.94	2.14	21:43	0.39	2:00	19	21:33	17	8:45
18-Jun-18	77041.5	1.72	8:10	0.33	2:52	21	20:52	18	7:09
19-Jun-18	78417.31	1.95	6:26	0.4	23:43	21	18:42	19	10:09
20-Jun-18	77085.18	2	21:41	0.32	2:31	21	18:02	19	8:18
21-Jun-18	76335.9	1.75	20:26	0.37	3:24	21	16:26	19	10:03
22-Jun-18	89055.56	1.84	6:27	0.52	0:39	20	0:00	18	23:23
23-Jun-18	78973.84	1.72	21:48	0.37	2:21	19	15:33	18	10:20
24-Jun-18	81392.03	1.86	21:14	0.28	3:17	19	0:00	17	23:49
25-Jun-18	81633.17	1.63	8:03	0.43	3:08	18	17:01	17	11:00
26-Jun-18	73122.21	1.56	21:45	0.36	2:12	19	15:32	17	10:25
27-Jun-18	79774.32	1.81	20:25	0.4	1:53	19	17:26	17	10:32
28-Jun-18	79307.92	1.8	18:10	0.38	2:34	19	0:00	17	11:50
29-Jun-18	80495.65	1.75	21:49	0.4	0:17	17	0:04	17	15:16
30-Jun-18	83997.58	1.9	12:23	0.41	3:05	17	19:14	17	5:48
1-Jul-18	79266.59	1.76	8:37	0.42	1:48	18	15:16	17	5:23
2-Jul-18	84077.48	1.81	21:51	0.39	3:05	18	17:09	17	10:31
3-Jul-18	76646.62	1.69	20:05	0.32	2:52	19	18:59	17	9:49
4-Jul-18	76251.56	1.74	20:23	0.36	1:40	20	21:14	17	9:11
5-Jul-18	77212.94	1.83	21:46	0.33	1:36	21	20:24	19	8:06
6-Jul-18	85464.35	1.78	20:53	0.36	2:33	21	15:15	19	23:53
7-Jul-18	91090.06	2.1	8:38	0.41	2:00	20	15:37	18	9:38
8-Jul-18	95416.06	2.23	8:25	0.38	3:25	20	20:03	18	9:54
9-Jul-18	83345.84	1.69	21:44	0.36	2:01	20	0:00	19	23:43
10-Jul-18	80602.67	1.58	8:14	0.41	3:55	19	0:04	18	23:52
11-Jul-18	82048.45	2.18	21:37	0.32	2:31	20	19:21	18	5:20
12-Jul-18	72657.37	1.6	6:35	0.36	4:03	21	18:17	19	8:49
13-Jul-18	74411.18	1.44	6:38	0.35	2:45	21	19:16	19	10:13

<i>Date</i>	Day Total (L)	Max. DF (L/sec.)	Max. DF Time (24 Hr.)	Min. DF (L/sec.)	Min. DF Time (24 Hr.)	Max. DF Temp. (°C)	Max. DFT Time (24 Hr.)	Min. DF Temp. (°C)	Min. DFT Time (24 Hr.)
14-Jul-18	80051.85	1.78	21:30	0.38	4:17	22	19:46	19	10:22
15-Jul-18	80321.82	1.72	11:35	0.38	3:42	22	18:20	20	9:56
16-Jul-18	80709.67	1.61	19:07	0.36	3:17	22	18:17	20	10:25
17-Jul-18	77869.15	2.04	21:33	0.35	3:20	22	18:55	20	9:48
18-Jul-18	72667.17	1.68	18:43	0.36	2:08	22	17:58	20	10:45
19-Jul-18	72989.94	1.76	21:02	0.34	3:12	21	0:03	20	23:58
20-Jul-18	80159.23	1.73	21:28	0.35	1:42	21	15:45	19	10:56
21-Jul-18	77693.63	2.15	9:05	0.39	4:23	20	18:46	19	10:35
22-Jul-18	73416.87	1.78	8:27	0.35	3:48	21	20:50	19	9:14
23-Jul-18	76078.04	1.79	18:53	0.34	3:56	22	18:58	20	8:53
24-Jul-18	71823.69	1.55	6:28	0.36	3:30	22	19:02	20	8:40
25-Jul-18	74834.25	1.7	21:31	0.34	1:15	23	17:48	21	10:02
26-Jul-18	78700.97	1.82	21:37	0.42	2:47	23	19:11	21	8:27
27-Jul-18	80305.21	1.84	8:31	0.39	1:00	23	15:51	21	9:25
28-Jul-18	79483.23	1.62	8:40	0.41	3:18	23	17:53	21	8:13
29-Jul-18	90546.55	1.87	21:23	0.5	3:12	23	19:13	21	8:19
30-Jul-18	80056.25	1.59	15:46	0.39	2:56	23	19:50	22	7:56
31-Jul-18	77427.26	1.75	19:23	0.41	2:30	23	15:38	22	8:38
1-Aug-18	84459.38	2.12	19:06	0.41	2:12	23	0:00	21	9:46
2-Aug-18	81000.86	1.58	8:43	0.41	3:24	21	0:02	20	9:29
3-Aug-18	76617.27	2.01	20:14	0.4	3:49	21	18:10	20	9:27
4-Aug-18	88646.52	1.97	21:29	0.39	2:04	21	19:23	19	10:18
5-Aug-18	84705.13	1.8	9:18	0.44	4:43	22	18:31	20	9:57
6-Aug-18	95614	3.49	9:27	0.45	0:54	22	16:42	21	9:58
7-Aug-18	93138.95	2.08	21:42	0.5	2:29	23	17:49	21	8:34
8-Aug-18	89515.67	1.87	17:45	0.49	3:08	23	18:12	21	9:23
9-Aug-18	89410.33	1.61	20:14	0.53	3:14	23	18:33	22	8:19
10-Aug-18	90783.28	1.89	7:22	0.54	3:12	23	19:26	22	8:13
11-Aug-18	89923.55	1.79	8:27	0.53	4:39	23	0:00	21	23:48
12-Aug-18	96915.96	2.33	9:11	0.56	4:39	21	0:00	20	23:58
13-Aug-18	89615.91	2.15	21:45	0.5	3:38	20	18:20	19	4:15
14-Aug-18	93486.62	1.88	21:22	0.55	0:55	21	19:32	20	9:04
15-Aug-18	92170.76	2.26	8:28	0.5	2:33	21	18:11	20	6:37
16-Aug-18	88424.7	1.8	21:26	0.5	3:51	21	15:58	20	10:26
17-Aug-18	90270.19	1.79	8:04	0.51	2:53	21	15:30	20	10:46
18-Aug-18	93907.76	1.75	9:00	0.59	3:51	20	19:09	19	7:31
19-Aug-18	93767.25	2.06	10:21	0.51	2:42	20	17:15	19	6:46
20-Aug-18	96242.4	1.78	20:19	0.51	2:47	21	21:04	19	9:53
21-Aug-18	95166.28	1.79	8:53	0.52	1:35	21	18:22	20	10:27

<i>Date</i>	Day Total (L)	Max. DF (L/sec.)	Max. DF Time (24 Hr.)	Min. DF (L/sec.)	Min. DF Time (24 Hr.)	Max. DF Temp. (°C)	Max. DFT Time (24 Hr.)	Min. DF Temp. (°C)	Min. DFT Time (24 Hr.)
22-Aug-18	88498.73	1.81	21:43	0.5	1:30	21	0:00	20	9:49
23-Aug-18	89452.24	1.66	17:10	0.49	4:04	20	0:00	19	23:52
24-Aug-18	93933.33	1.89	19:50	0.49	2:39	19	15:09	19	10:49
25-Aug-18	91696.74	2.73	9:06	0.5	2:49	19	0:32	18	23:51
26-Aug-18	86410.98	2.29	18:01	0.47	4:24	19	19:18	18	5:21
27-Aug-18	88473.26	1.97	20:22	0.44	4:05	19	19:19	18	10:21
28-Aug-18	88922.1	1.88	6:37	0.46	1:04	19	17:25	18	10:42
29-Aug-18	89097.26	1.76	18:35	0.5	3:44	19	14:59	19	2:28
30-Aug-18	82547.36	1.88	7:57	0.51	1:22	19	16:33	18	10:37
31-Aug-18	89691.36	1.88	7:30	0.54	3:55	19	17:28	19	10:48
1-Sep-18	79983.6	1.83	9:20	0.51	2:50	19	14:00	18	10:40
2-Sep-18	75677.25	1.61	9:17	0.37	2:14	19	18:19	18	10:45
3-Sep-18	85498.59	1.85	18:45	0.35	1:38	19	14:06	18	10:35
4-Sep-18	78863.98	1.64	19:02	0.37	3:37	19	18:01	18	10:07
5-Sep-18	77968.48	1.77	19:35	0.4	1:15	19	17:05	18	10:36
6-Sep-18	84191.97	1.85	7:02	0.39	3:57	20	17:40	18	8:06
7-Sep-18	79810.37	1.63	6:20	0.46	2:26	19	0:04	19	23:47
8-Sep-18	80985.2	2	8:57	0.44	1:41	19	13:35	18	23:53
9-Sep-18	90495.76	2	15:40	0.39	2:35	18	0:02	18	23:59
10-Sep-18	81828.68	1.63	16:49	0.39	1:45	18	0:03	17	4:27
11-Sep-18	78329.11	1.82	6:17	0.41	1:52	18	18:40	17	4:49
12-Sep-18	79679.89	1.76	18:40	0.4	2:22	17	18:31	17	4:28
13-Sep-18	79332.33	1.73	12:13	0.36	2:34	17	15:17	17	5:08
14-Sep-18	78871.75	1.82	9:16	0.44	3:14	17	18:34	17	4:58
15-Sep-18	99824.53	2.31	16:58	0.49	5:20	17	0:05	16	23:58
16-Sep-18	134389.6	2.93	8:09	0.68	23:47	17	0:02	16	23:51
17-Sep-18	88393.61	1.95	6:28	0.52	3:54	16	19:03	16	5:06
18-Sep-18	83323.63	1.97	19:02	0.43	2:11	16	19:12	15	5:57
19-Sep-18	82893.72	2.02	19:08	0.46	2:21	16	17:24	15	4:53
20-Sep-18	85402.04	1.69	9:03	0.48	2:30	16	0:06	16	23:54
21-Sep-18	111115.4	2.34	8:34	0.87	23:30	16	0:04	15	23:52
22-Sep-18	120870.7	2.93	7:59	0.73	1:29	16	15:03	15	4:56
23-Sep-18	90232.39	1.94	20:00	0.55	5:26	16	0:00	15	23:53
24-Sep-18	89427.63	2.24	21:37	0.46	2:25	16	20:34	15	5:15
25-Sep-18	77840.31	1.53	7:00	0.42	2:01	16	17:29	15	9:42
26-Sep-18	83791.49	2.53	17:13	0.44	3:58	16	17:24	15	5:21
27-Sep-18	82655.15	1.76	6:02	0.42	1:18	16	16:13	16	4:56
28-Sep-18	74499.37	2.16	7:29	0.38	1:54	17	17:45	16	9:06
29-Sep-18	77685.29	2.15	8:28	0.37	4:41	17	0:28	16	23:57

<i>Date</i>	Day Total (L)	Max. DF (L/sec.)	Max. DF Time (24 Hr.)	Min. DF (L/sec.)	Min. DF Time (24 Hr.)	Max. DF Temp. (°C)	Max. DFT Time (24 Hr.)	Min. DF Temp. (°C)	Min. DFT Time (24 Hr.)
30-Sep-18	99162.12	2.16	21:38	0.46	3:20	16	0:00	15	23:56
1-Oct-18	97008.38	2.38	6:14	0.59	23:59	15	0:01	15	5:46
2-Oct-18	80494.22	1.9	18:11	0.48	1:35	15	0:00	14	23:49
3-Oct-18	85659.27	1.88	21:50	0.42	2:18	14	0:00	13	23:56
4-Oct-18	89517.72	2.21	6:24	0.44	2:49	14	18:36	13	5:04
5-Oct-18	86902.76	1.62	7:34	0.5	3:43	14	18:44	13	5:06
6-Oct-18	88629.34	1.74	8:41	0.48	4:49	14	16:58	13	5:53
7-Oct-18	95498.8	3.81	11:35	0.39	3:29	14	14:35	14	6:43
8-Oct-18	90274.75	1.91	20:35	0.43	3:55	14	19:19	14	6:20
9-Oct-18	81202.78	1.92	21:45	0.4	0:31	15	22:14	14	4:49
10-Oct-18	71385.31	1.64	6:42	0.4	3:09	15	11:53	14	10:09
11-Oct-18	76713.48	2.06	6:45	0.39	3:43	15	0:11	14	9:19
12-Oct-18	79694.97	1.91	8:31	0.38	3:18	15	12:00	14	5:26
13-Oct-18	80249.75	2.17	20:24	0.38	3:04	15	15:03	14	10:32
14-Oct-18	93372.67	1.91	18:06	0.35	23:51	14	11:42	14	8:08
15-Oct-18	83679.6	1.7	6:09	0.37	1:14	14	21:50	14	9:03
16-Oct-18	78368.21	1.75	19:23	0.39	3:13	15	22:07	14	5:22
17-Oct-18	74718.69	1.82	6:42	0.37	3:54	15	16:46	14	2:13
18-Oct-18	76877.05	1.96	21:42	0.37	1:34	15	11:53	14	9:27
19-Oct-18	82083.52	1.83	20:52	0.44	3:53	15	12:01	14	9:50
20-Oct-18	80968.53	1.74	8:10	0.38	3:57	14	11:46	14	6:46
21-Oct-18	96386.86	2.15	10:20	0.53	3:16	14	11:51	14	5:26
22-Oct-18	94522.93	2.01	7:44	0.57	23:46	14	11:44	14	4:36
23-Oct-18	87727.37	1.67	20:18	0.37	1:12	14	19:01	13	11:20
24-Oct-18	25838.21	2.27	6:46	0.06	20:38	14	0:01	13	10:09
25-Oct-18	8055.21	0.12	12:16	0.07	1:57	13	0:19	13	23:52
26-Oct-18	67015.99	1.8	19:24	0.09	7:38	14	14:47	13	8:01
27-Oct-18	76344.99	1.88	8:33	0.41	4:19	13	17:24	13	6:54
28-Oct-18	82002.27	1.74	19:58	0.35	2:07	14	20:19	13	5:56
29-Oct-18	84386.86	1.7	7:20	0.45	23:59	13	0:06	13	23:52
30-Oct-18	69182.19	1.72	21:52	0.32	0:42	13	22:00	13	4:15
1-Nov-18	89422.83	1.81	21:26	0.35	0:40	14	23:43	13	1:57
2-Nov-18	93083.1	1.96	11:04	0.51	23:15	14	14:12	14	0:06
3-Nov-18	82945.63	1.91	15:41	0.29	2:14	14	0:34	13	22:53
4-Nov-18	98842.1	2.27	9:10	0.57	23:49	14	11:23	13	23:46
5-Nov-18	67644.9	1.66	21:49	0.29	4:26	13	11:16	13	23:48
6-Nov-18	65319.41	1.65	7:27	0.29	1:52	13	0:01	13	15:55
7-Nov-18	63078.76	1.44	8:48	0.32	4:38	13	0:02	12	23:58
8-Nov-18	60564.48	1.64	22:01	0.31	2:11	12	0:03	11	12:43

<i>Date</i>	Day Total (L)	Max. DF (L/sec.)	Max. DF Time (24 Hr.)	Min. DF (L/sec.)	Min. DF Time (24 Hr.)	Max. DF Temp. (°C)	Max. DFT Time (24 Hr.)	Min. DF Temp. (°C)	Min. DFT Time (24 Hr.)
9-Nov-18	64185.82	1.61	9:32	0.32	4:11	12	0:04	11	4:54
10-Nov-18	72611.76	1.49	10:12	0.35	6:01	12	11:34	11	6:20
11-Nov-18	72885.01	1.86	22:04	0.31	4:23	11	22:22	11	6:08
12-Nov-18	71091.06	1.51	10:09	0.32	3:51	12	21:03	11	6:35
13-Nov-18	76132.01	1.64	7:40	0.31	2:50	12	22:50	11	6:12
14-Nov-18	101232.9	1.95	6:48	0.77	3:35	12	18:54	11	10:13
15-Nov-18	78533.01	3.3	18:51	0.42	3:25	12	19:36	11	5:01
16-Nov-18	74366.27	1.58	9:50	0.47	2:46	12	11:32	11	23:11
17-Nov-18	77572.38	1.64	20:48	0.43	2:57	12	0:46	11	20:13
18-Nov-18	77535.97	1.59	11:50	0.42	3:56	11	0:08	10	7:46
19-Nov-18	71393.97	1.48	10:37	0.39	3:47	11	22:57	10	4:49
20-Nov-18	75315.88	1.65	21:39	0.42	3:41	11	22:16	10	2:43
21-Nov-18	87234.75	1.67	21:25	0.41	2:57	11	22:37	11	0:26
22-Nov-18	101113.7	1.79	16:49	0.72	12:43	11	8:38	11	15:54
23-Nov-18	96891.92	1.7	21:59	0.77	4:00	11	0:12	11	20:50
24-Nov-18	78501.53	1.67	9:30	0.48	5:19	11	0:00	10	6:47
25-Nov-18	85522.86	2	18:07	0.46	5:13	11	19:31	10	2:48
26-Nov-18	27516.84	2.07	7:31	0.48	1:56	11	8:15	10	1:59
27-Nov-18	195298	3.85	7:17	1.13	23:59	11	20:27	10	7:36
28-Nov-18	88645.28	1.77	7:39	0.7	23:59	11	0:03	10	21:18
29-Nov-18	71752.7	1.51	7:23	0.41	4:31	10	0:03	10	5:36
30-Nov-18	68841.07	1.6	7:17	0.41	3:44	10	0:03	10	3:42
1-Dec-18	70068.94	1.74	10:14	0.38	4:45	10	0:00	9	23:54
2-Dec-18	76109.23	1.83	22:59	0.36	5:05	10	11:46	9	8:12
3-Dec-18	69620.84	1.4	8:44	0.35	5:15	9	0:00	8	5:59
4-Dec-18	74107.51	1.6	20:33	0.3	2:50	9	0:07	8	6:34
5-Dec-18	67394.96	1.8	23:05	0.32	4:25	9	23:20	7	3:05
6-Dec-18	67175.99	1.52	8:33	0.32	3:33	8	0:01	7	4:49
7-Dec-18	68615.99	1.49	7:01	0.32	3:34	8	18:47	7	5:27
8-Dec-18	75427.32	1.65	10:11	0.33	3:55	9	23:38	8	1:45
9-Dec-18	99943.26	2.26	10:18	0.4	4:31	9	22:52	9	7:13
10-Dec-18	84336.99	1.95	23:21	0.59	3:28	10	23:25	9	1:27
11-Dec-18	123828.3	2.09	17:26	0.85	5:18	10	0:05	9	15:26
12-Dec-18	82024.61	1.82	7:53	0.54	4:50	9	0:03	9	20:21
13-Dec-18	129835.8	2.49	21:31	0.56	1:18	9	20:11	9	6:10
14-Dec-18	132774.1	2.58	3:30	0.99	23:59	9	17:39	9	22:27
15-Dec-18	77574.21	1.43	9:01	0.48	4:30	9	1:54	8	10:50
16-Dec-18	123916.6	2.5	17:53	0.45	2:42	10	23:52	9	0:33
17-Dec-18	110264.1	3.92	19:19	0.92	15:00	10	9:45	9	15:50

<i>Date</i>	Day Total (L)	Max. DF (L/sec.)	Max. DF Time (24 Hr.)	Min. DF (L/sec.)	Min. DF Time (24 Hr.)	Max. DF Temp. (°C)	Max. DFT Time (24 Hr.)	Min. DF Temp. (°C)	Min. DFT Time (24 Hr.)
18-Dec-18	161291.2	2.91	19:02	1.41	15:37	10	0:04	8	0:00
19-Dec-18	106712.5	1.99	0:01	0.83	23:10	9	0:23	9	6:34
20-Dec-18	145627.9	3.31	7:11	0.58	1:48	10	11:45	8	17:01
21-Dec-18	103643.2	1.88	8:01	0.73	23:46	9	0:01	8	22:39
22-Dec-18	120571.7	2.99	20:32	0.4	4:21	8	19:03	8	5:55
23-Dec-18	153202.6	2.86	10:19	1.23	2:05	9	23:07	8	10:28
24-Dec-18	126442.1	2.63	11:58	0.94	5:19	9	16:50	8	5:54
25-Dec-18	116256.5	2.39	10:22	0.75	4:53	8	0:24	8	6:35
26-Dec-18	111664.8	2.52	11:52	0.73	3:47	8	0:08	8	4:32
27-Dec-18	119493	2.58	12:18	0.8	5:10	8	0:25	7	12:52
28-Dec-18	122034.7	2.22	22:25	0.71	3:56	8	9:43	7	13:56
29-Dec-18	137278	2.72	11:30	0.93	4:37	9	20:04	7	2:26
30-Dec-18	112608.4	1.92	20:12	0.87	4:38	8	1:43	8	23:57
31-Dec-18	83148.27	1.8	11:00	0.66	23:04	8	0:01	7	18:39

## Appendix 3 – Laboratory Analysis Records

### Results Summary L2045427

#### Job Reference

<b>Report To</b>	Naizam Jaffer, VILLAGE OF LIONS BAY
<b>Date Received</b>	16-Jan-2018 12:42
<b>Report Date</b>	25-Jan-2018 12:40
<b>Report Version</b>	1

Client Sample ID	SEWER TREATMENT PLANT		
Date Sampled	16-Jan-2018		
Time Sampled	12:10		
ALS Sample ID	L2045427-1		
Parameter	Lowest Detection Limit	Units	Water
<b>Physical Tests (Water)</b>			
Total Suspended Solids	3.0	mg/L	24.6
<b>Aggregate Organics (Water)</b>			
BOD	6.0	mg/L	36.2

### Results Summary L2084148

#### Job Reference

<b>Report To</b>	Naizam Jaffer, VILLAGE OF LIONS BAY
<b>Date Received</b>	24-Apr-2018 12:55
<b>Report Date</b>	4-May-2018 15:10
<b>Report Version</b>	1

Client Sample ID	SEWER TREATMENT PLANT		
Date Sampled	24-Apr-2018		
Time Sampled	12:00		
ALS Sample ID	L2084148-1		
Parameter	Lowest Detection Limit	Units	Water
<b>Physical Tests (Water)</b>			
Total Suspended Solids	3.0	mg/L	33.1
<b>Aggregate Organics (Water)</b>			
BOD	6.0	mg/L	26.6

### Results Summary L2135676

**Job Reference**

**Report To** Naizam Jaffer, VILLAGE OF LIONS BAY  
**Date Received** 25-Jul-2018 12:50  
**Report Date** 7-Aug-2018 16:55  
**Report Version** 1

Client Sample ID SEWER TREATMENT PLANT

Date Sampled 25-Jul-2018  
Time Sampled 12:00  
ALS Sample ID L2135676-1

Parameter Lowest Detection Limit Units Water

**Physical Tests (Water)**

Total Suspended Solids 3.0 mg/L 12.6

**Aggregate Organics (Water)**

BOD 2.0 mg/L 8.9

**Results Summary** [L2183334](#)**Job Reference**

**Report To** Naizam Jaffer, VILLAGE OF LIONS BAY  
**Date Received** 18-Oct-2018 11:26  
**Report Date** 23-Oct-2018 16:54  
**Report Version** 1

Client Sample ID SEWER TREATMENT PLANT

Date Sampled 18-Oct-2018  
Time Sampled 10:30  
ALS Sample ID L2183334-1

Parameter Lowest Detection Limit Units Water

**Physical Tests (Water)**

Total Suspended Solids 3.0 mg/L 10.6

**Aggregate Organics (Water)**

BOD 2.0 mg/L 3.8

## Appendix 4 – Dive Inspection Report

**CAN-DIVE CONSTRUCTION LTD.**  
Underwater Innovators Since 1966



**CAN-DIVE CONSTRUCTION LTD.**  
**LIONS BAY STP OUTFALL INSPECTION**

**JANUARY 15, 2019**

Can-Dive Lions Bay Outfall Inspection Report Rev.1 January 15, 2019

1

**CAN-DIVE CONSTRUCTION LTD.**  
Underwater Innovators Since 1966



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5 REFERENCE PHOTOS.....5  
6 CONCLUSION.....6

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## 1 INTRODUCTION

Can-Dive Construction Ltd. has prepared the following report detailing the inspection of the Lions Bay STP Marine Outfall that was carried out on January 15, 2019.

## 2 SCOPE OF WORK

- Ensure the outfall is in good working condition.
- Examine the entire length of the pipes and diffusers for breaks, leaks or blockages
- Inspect and assess the condition of the outfall pipe anchoring
- List and provide a detailed description of deficiencies and provide recommendation

## 3 PERSONNEL

The following CAN-DIVE personnel were involved in the inspection of the outfalls:

- **Aron Kerwer**, *Diver/Diving Supervisor/ROV Operator*
- **Mark Kunyckyj**, *Diver/ROV Tender*
- **Kayle Houlihan**, *Diver*

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## 4 RESULTS

### LIONS BAY STP MARINE OUTFALL

MP4 Video File: *Lions Bay STP Outfall Insp.mp4*



Figure 1 Foreshore and partially obstructed outfall signage

The Lions Bay STP Outfall point of daylight was easily found in approximately 33 fsw at high tide. The pipe is well protected by sand and rock looking inshore. An outfall sign was visible but partially obstructed by vegetation. Moving offshore, the pipe rests on the seabed with little to no cover. Pipe ballast is of the C-type, non-reinforced concrete strap-on weights. All weights were found in good condition with the metal banding only showing light surface corrosion. At a depth of approximately 200 fsw the outfall transitions from steep rock to level mud/silt bottom. At this point debris buildup was increasing on one side of the pipe - indication of strong bottom currents. Moving along towards the diffuser, the pipe becomes increasingly buried and difficult to follow. We believe the diffuser was found in approximately 277 fsw. However, the diffuser ports were not observed due to the amount of sediment cover on the pipe. Additionally, the outfall pipe was found to be much longer and deeper than specified.

#### Summary Deficiencies:

- Sedimentation of terminus
- Vegetation obstructing outfall signage

#### Recommendation:

- Monitor backflow of outfall discharge for potential obstruction
- Maintain a frequent inspection and monitoring program for outfall
- Clear vegetation obstruction outfall signage

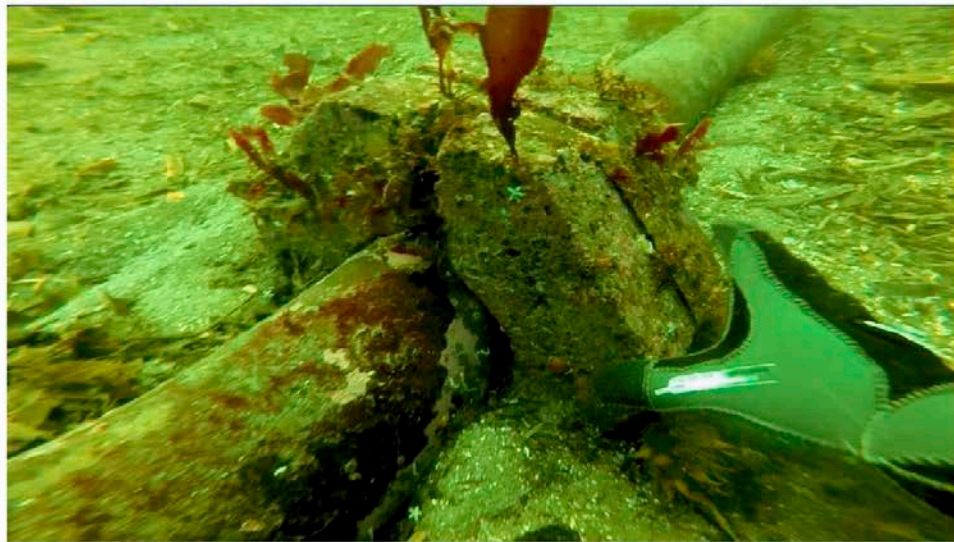
**CAN-DIVE CONSTRUCTION LTD.**  
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### 5 LIONS BAY OUTFALL REFERENCE PHOTOS



*Figure 2 Point of daylight approximately 33 fsw at high tide*



*Figure 3 Typical C-type strap-on weight*

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*Figure 4 Sedimentation on north side of pipe, indicating strong bottom currents*

## 7 CONCLUSION

I trust this information will meet with your approval. Thank you for allowing Can-Dive the opportunity to assist you with this project. Should you have any questions, or require further information, please do not hesitate to contact myself.

Best Regards,

Aron Kerwer  
CAN-DIVE CONSTRUCTION LTD.  
778-837-7800

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## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

<b>Type</b>	<b>Direction Request</b>		
<b>Title</b>	<b>Kelvin Grove Wastewater Treatment Plant Replacement</b>		
<b>Author</b>	<b>Peter DeJong</b>	<b>Reviewed By:</b>	<b>Nai Jaffer and Pam Rooke</b>
<b>Date</b>	<b>January 30, 2019</b>	<b>Version</b>	
<b>Issued for</b>	<b>February 5, 2019 Council Meeting</b>		

### Recommendation:

THAT Council provide direction to staff with respect to the issue(s) outlined in this report.

### Attachments:

None, but see:

- (a) Kelvin Grove Wastewater Treatment Plant 2018 Annual Report; and
- (b) Water, Solid Waste and Sewer Budget; presented elsewhere in this Agenda and
- (c) Infrastructure Master Plan here: [Village of Lions Bay Infrastructure Master Plan](#) (pp.51-64 of PDF)

### Key Information:

- The upper and lower Kelvin Grove neighbourhoods were developed in 1981. A Wastewater Treatment Plant (WWTP) was constructed adjacent to the Kelvin Grove Beach Park to service the development.
- The WWTP is 38 years old and has mechanical issues that need repair now and may well have more as it meets and exceeds its stated 40-year life expectancy over the next few years. Staff will continue to monitor and maintain/repair the Plant to extend its lifespan as much as possible, but 5-10 years is likely the limit.
- There are 94 lots in Kelvin Grove. Currently 85 lots are connected to the WWTP and pay the annual sewer utility fees. For 2019, the draft Sewer budget contemplates a 5% tax increase. This equates to an increase in revenue of about \$3,400 or approximately \$40 per household. The reason for the increase is to cover the cost of required repairs to the WWTP. The Sewer Fund currently has accumulated reserves of approximately \$200,000.



## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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- The 2016 Infrastructure Master Plan (IMP) estimated a new WWTP to be in the range of \$1.3 to \$4.0 million depending upon the required environmental treatment values, the treatment methodology, and treatment capacity (eg: just Kelvin Grove vs. all of Lions Bay). The IMP estimated the cost of an engineering study to address these and other design considerations to be in the order of \$70,000.

### **Current Condition Assessment:**

The major pieces of mechanical equipment for the RBC WWTP are the ROTORDisks Disks (4), the motor, the chain, the bearings and the shaft. In 2002, an overhaul of the plant consisted of the following fixes:

- The motor driving the ROTORDisks was replaced due to excessive strain and wear.
- The spherical roller bearings were replaced due to excessive wear.
- ROTORDisks one and two were replaced due to mechanical wear and excessive loading.

In 2010, a second overhaul of the plant consisted of the following fixes:

- The motor driving the ROTORDisks was replaced due to excessive wear.
- The spherical roller bearings were replaced due to excessive wear.
- The gear drive, chain, and bearings were replaced due to mechanical wear and excessive loading.
- ROTORDisks three and four were replaced due to mechanical wear and excessive loading.

The total cost of the 2002 overhaul is unknown; however, the cost of the 2010 overhaul was \$136,429.34.

The latest inspection of the plant indicates that the ROTORDisks are functioning normally but are evidencing signs of wear and loading. The motor appears to be in fair condition, the gear drive and chain including the motor sprocket requires replacement (estimated at \$12,000). The shaft appears to be functioning as designed. Continual immersion in wastewater accelerates the degradation of the galvanized metal shell housing the ROTORDisks as well as the concrete chamber itself. Staff have documented signs of this deterioration.



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Staff estimate the remaining life of the plant to be in the range of 5 to 10 years with the potential requirement of a motor and shaft replacement before the unit's end of service life.

Oil bath for chain / safety issues are still there – tie offs and anchor points for harnesses / lifting points for the lid showing signs of wear and required maintenance.

### **Desired Result:**

A well-planned, sufficiently funded replacement of the WWTP which provides short, medium and long-term service capacity options for Kelvin Grove and, ultimately, all of Lions Bay.

### **Options to Pursue Desired Result:**

(1) First and foremost, there is a need for a thorough engineering study of the potential options and design considerations for replacement of the WWTP. At a high level, the IMP touches on some of the design objectives (eg: low odour and visual impact, high standard of treatment, simple to operate) and constraints (proximity to residences, outfall near recreational area, limited space, small Municipal staff) for a future WWTP, but notes the desirability of an incrementally expandable model which would enable medium and longer term planning to gradually include more and more of the whole Village. This study needs to be done soon and, in fact, was scheduled for 2019 in the IMP.

(2) As noted in the Key Information section above, the Sewer Reserve presently sits around \$200,000. The draft budget could be amended to include a draw from reserves to cover the cost of the required WWTP study, which may be offset slightly by a small Infrastructure Planning Grant (max: \$10,000), or a FCM Green Municipal Fund grant (up to 50% if still available) if staff are instructed to apply and are successful.

(3) Another option for consideration to fund not only the engineering study but also all or a portion of a new WWTP, is to negotiate for such funding with a developer interested in adding the necessary capacity required to implement more than 10 household connections. At present, the WWTP is estimated to be operating at about 90% of capacity and is only



## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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capable of adding about 10 more connections. Staff had discussions along these lines with the owners of 175 and 185 Kelvin Grove Way, but after the presentation of their concept plan was not well received by some residents of that neighbourhood, they have taken a step back to reconsider their options.

(4) Option 3 may also be a consideration as well in terms of the current Public Works Yard, slated to move to Brunswick Hill if the Municipality's pending Crown Lease application is approved. However, from a timing perspective, while this may assist in terms of paying some of the costs of a WWTP replacement, it would come too late to contribute to the funding of the prerequisite study. Similar considerations would apply to any potential redevelopment of the central condominium lands, a subject which has been raised several times by numerous interested parties over the past year.

(5) Alternatively, funding for replacement of the WWTP could be financed through a parcel tax, which would be eligible for deferral under current provincial rules, although staff would have to confirm that such a tax can be levied prior to construction of the facility. Due to the short time frame required for replacement, this would result in a very high parcel tax (eg: a Phase 1 cost of \$2 million divided by 94 lots over 5 years would be over \$4,000/year, in addition to the regular utility billing amount). Debt financing is currently not an option as the Municipality has very limited borrowing capacity and this project was not included in the list of eligible projects under Infrastructure Master Plan Financing Loan Authorization Bylaw No. 508, 2016.

(6) If one were to look at the prospect of sewerage the entire Municipality and begin to sock away a parcel tax levied against each and every parcel in the Village, over 30 years, one might get close to \$1,000 per parcel per year, taking into account inflation on the estimated \$15 million in the IMP and compounding interest on the parcel taxes, with sufficient funds accumulated in about 5 years to build a new, modular WWTP and then add to the system in accordance with a phased plan. Any development opportunities that are approved could help to reduce such costs as they come on-stream, whether through amenity agreements or implementation of a Development Cost Charges (DCC) bylaw, or simply additional contributing parcels.

(7) Staff could also be directed to apply for any grant opportunities to offset the capital costs of replacing the WWTP. This too has complicating factors including that such grant



## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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opportunities tend to be under the same grant umbrella as those for water and other infrastructure for which the Municipality has borrowing capacity under Bylaw No. 508, but not borrowing capacity for sewer, making it difficult for the community to provide its required share of any sewer grant without a dedicated reserve.

**Legal Considerations:** Staff will need to explore all legal aspects of a potential parcel tax, whether for Kelvin Grove alone or for the whole Village, including the ability to charge it prior to construction, based on estimates of cost. Sharing of costs fronted by a developer may also be addressed through “Latecomer Agreements” under the *Local Government Act*. In this way, developers may be reimbursed for bearing the initial costs of infrastructure which may have far greater capacity than the development itself requires.

**Financial Considerations:** Many of the financial considerations associated with the foregoing options can be fine-tuned upon completion of the engineering study to be commissioned. This study needs to be funded in the 2019 budget. As well, Council may wish to consider increasing the utility rates in the sewer budget for 2019.

**Follow Up Action:** Upon confirmation of funding for the required engineering study, staff will apply for an Infrastructure Planning Grant and the FCM wastewater study grant, if available, and begin to prepare a Request for Proposals (RFP) which will address all of the necessary components of the study to be commissioned.

**Communication Plan:** Invite all residents to take an interest in budget considerations related to sewer matters, as well as the rest of the 2019 budget items up for discussion, via the Village Update and other communications opportunities (eg: at the Council Strategy Committee meeting on February 7<sup>th</sup> for presentation of the Asset Management Plan).

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<b>Type</b>	<b>Report to Council</b>		
<b>Title</b>	<b>2019 Draft Water, Solid Waste and Sewer Budgets</b>		
<b>Author</b>	<b>Pamela Rooke</b>	<b>Reviewed By:</b>	<b>Peter DeJong</b>
<b>Date</b>	<b>January 31, 2019</b>	<b>Version</b>	
<b>Issued for</b>	<b>February 5, 2019 Regular Council Meeting</b>		

### RECOMMENDATION

THAT the report “2019 Draft Water, Solid Waste and Sewer Budgets” be received for information purposes.

### ATTACHMENTS

1. 2019 Draft Water, Solid Waste and Sewer Budgets

### KEY INFORMATION

The attached 2019 draft budgets provide the details and backup for the calculation of the user rates that will form the basis of the Water, Solid Waste and Sewer Bylaws. The draft budgets were initially presented to Council at the January 22, 2019 regular Council meeting for review and discussion. Staff were directed to bring back the draft budgets to the February 5, 2019 meeting for additional review, along with the Water, Solid Waste and Sewer Bylaws for 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> reading with rate increases of 5% for Water, 5% for Sewer and 1.5% for Solid Waste (for single family residents).

### FOLLOW UP ACTION

Staff will be available to respond to any questions at the February 5, 2019 Council meeting.

**Village of Lions Bay  
2019 Draft Water Budget**

	2017 Actual	YTD Actual 2018	2018 Budget	2019 Budget	Change	%	Notes
Parcel Tax Brunswick Beach	10,585	10,585	10,585	10,585	-	0.0%	
Water User Rates	834,605	837,613	837,613	879,494	41,881	5.0%	1
Secondary Suite Fees	16,845	21,056	16,845	21,056	4,211	25.0%	2
Connection Fees	12,047	1,200	-	-	-	n/a	
Build Canada Grant	141,039	-	-	-	-	n/a	
CWWF Grant	213,369	35,522	2,036,761	1,961,229	(75,532)	-3.7%	3
Other Grants	-	-	10,000	10,000	-	0.0%	4
Loan Proceeds	456,291	-	-	-	-	n/a	
Emergency Financial Assistance (EMBC)	-	110,553	147,405	-	(147,405)	-100.0%	
Other - MFA Actuarial Gain	24,937	19,902	19,902	22,869	2,967	14.9%	
<b>Total Revenues</b>	<b>1,709,718</b>	<b>1,036,431</b>	<b>3,079,111</b>	<b>2,905,233</b>	<b>(173,878)</b>	<b>-5.6%</b>	
Amortization	163,456	212,235	212,535	212,535	0	0.0%	
Communications	2,761	2,775	2,700	2,900	200	7.4%	
Interest Payments	74,930	89,146	89,146	57,336	(31,810)	-35.7%	5
Emergency Repairs	-	110,553	147,405	-	(147,405)	-100.0%	
Insurance	22,752	26,446	26,446	26,649	203	0.8%	
Maintenance	40,255	50,363	47,500	45,500	(2,000)	-4.2%	
Material, Supplies and Equipment	25,312	45,059	47,793	46,000	(1,793)	-3.8%	
Professional Fees / Contract Services	31,014	46,421	72,000	66,200	(5,800)	-8.1%	6
Salaries and Benefits	256,957	283,338	326,749	363,026	36,278	11.1%	7
Sundry	15,801	15,931	17,500	17,500	-	0.0%	
Training / Professional Development	1,063	4,894	4,000	3,480	(520)	-13.0%	
Utilities	11,511	11,976	14,250	12,750	(1,500)	-10.5%	
Internal Allocations	55,000	55,000	55,000	55,000	-	0.0%	
<b>Total Expenditures</b>	<b>700,812</b>	<b>954,137</b>	<b>1,063,023</b>	<b>908,876</b>	<b>(154,147)</b>	<b>-14.5%</b>	

**Village of Lions Bay  
2019 Draft Water Budget**

	2017 Actual	YTD Actual 2018	2018 Budget	2019 Budget	Change	%	Notes
<b>Surplus / (Deficit)</b>	<b>1,008,906</b>	<b>82,293</b>	<b>2,016,087</b>	<b>1,996,357</b>			
Amortization	163,456	212,235	212,535	212,535			
MFA Actuarial Gain on Debt	(14,853)	(17,328)	(19,902)	(22,869)			
<b>Cash Surplus</b>	<b>1,157,509</b>	<b>277,200</b>	<b>2,208,720</b>	<b>2,186,023</b>			
Capital Expenditures	(239,717)	(91,003)	(2,453,929)	(2,420,426)			8
Repayment of Debt Principal	(52,872)	(53,021)	(53,021)	(62,862)			
Draw from Surplus (loan)		15,471	417,168	401,697			
Draw from Surplus (re-budget)			14,760	25,200			9
<b>Transfer (from) to Water Surplus</b>	<b>864,920</b>	<b>148,647</b>	<b>133,698</b>	<b>129,631</b>			

**Notes:**

- 1 The revenue includes a proposed 5% increase in user rates (equates to a \$75 increase over 2018 rates per household).
- 2 Secondary suite fees are based on the actual number of suites paid in 2018 (35).
- 3 The Clean Water Wastewater Fund (CWWF) grant revenue and related capital expense have been re-budgeted for 2019 as the project was not completed in 2018.
- 4 Staff successfully applied for an Infrastructure Planning grant in 2018 for the Bayview Road Watermain Design. Grant funds will be received in 2019 upon completion of the design.
- 5 The MFA lending rate for Issue 104 was set at 2.90% for the next five years (from previous rate of 5.15%) resulting in annual interest savings of \$31.5k.

**Village of Lions Bay  
2019 Draft Water Budget**

2017 Actual	YTD Actual 2018	2018 Budget	2019 Budget	Change	%	Notes
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6 Budget is comprised of:

Bayview Road Watermain Design	6,600	(re-budget)			
Rock Slope Remediation	30,000				
Water Testing	10,000				
Confined Space Review	7,600	(re-budget)			
General Contract Services	10,000				
UBC Hydrology Study Contribution	2,000		66,200		

7 Salaries include the full annual salary for the addition of a PW employee hired November 2018 (portion allocated to the water fund).

8 Capital Expenditures include:

Water Tank	2,362,926				
Magnesia Infiltration Gallery	50,000				
Pipe Locator (EM Scope)	7,500		2,420,426		

9 Re-budgets include:

Bayview Road Watermain Design	6,600				
Water Totes	6,500				
Confined Space Review	7,600				
Grundfos Pumps	4,500		25,200		

These items were budgeted in 2018 but will not be purchased/completed until 2019.

**Village of Lions Bay  
2019 Draft Solid Waste Budget**

	2017 Actual	YTD Actual 2018	2018 Budget	2019 Budget	Change	%	Notes
Garbage User Fees	185,795	183,570	183,570	186,357	2,787	1.5%	1
Secondary Suite Fees	3,710	4,690	3,752	4,690	938	25.0%	2
Miscellaneous Revenue	192	296	140	275	135	96.4%	
<b>Total Revenues</b>	<b>189,697</b>	<b>188,556</b>	<b>187,462</b>	<b>191,322</b>	<b>3,860</b>	<b>2.1%</b>	
Supplies and Education	776	103	1,000	2,000	1,000	100.0%	3
Collection Contract	60,777	49,907	49,762	50,171	409	0.8%	
Recycle Removal Contract	43,943	50,887	50,677	52,972	2,295	4.5%	4
Green Waste Contract	61,123	73,910	69,780	69,780	-	0.0%	
Prompt Payment Discounts	4,971	5,082	5,200	5,215	15	0.3%	
Internal Allocations	9,500	9,500	9,500	9,500	-	0.0%	
<b>Total Expenditures</b>	<b>181,090</b>	<b>189,389</b>	<b>185,919</b>	<b>189,638</b>	<b>3,719</b>	<b>2.0%</b>	
<b>Surplus / (Deficit)</b>	<b>8,608</b>	<b>(833)</b>	<b>1,543</b>	<b>1,684</b>			

**Notes:**

- 1 The revenue includes a 1.5% increase in residential user rates (equates to \$5 increase over 2018 rates per household).
- 2 Secondary suite fees are based on the actual number of suites paid in 2018 (35).
- 3 Budget includes \$1,500 for the Village's contribution for the North Shore Recycling Depot Agreement as approved by Council at the September 18, 2018 Council Meeting.
- 4 Recycling costs will increase in 2019 due to increased recycling disposal costs. Processing fees have increased due to more stringent inspection standards.

## Village of Lions Bay

### 2019 Draft Sewer Budget

	2017 Actual	YTD Actual 2018	2018 Budget	2019 Budget	Change	%	Notes
Utility Fees and Rates	67,234	68,034	68,034	71,436	3,402	5.0%	1
Secondary Suite Fees	1,921	2,561	1,921	2,689	768	40.0%	2
Conection Fees	3,911	-	-	-	-	n/a	
<b>Total Revenues</b>	<b>73,066</b>	<b>70,595</b>	<b>69,955</b>	<b>74,125</b>	<b>4,170</b>	<b>6.0%</b>	
Amortization	14,628	14,628	14,628	14,628	-	0.0%	
Communications	-	-	-	700	700	n/a	
Insurance	2,123	2,470	2,470	3,498	1,028	41.6%	
Maintenance	30,222	29,822	33,000	44,500	11,500	34.8%	3
Material, Supplies and Equipment	212	50	4,000	6,100	2,100	52.5%	4
Professional Fees / Contract Services	-	5,163	5,000	-	(5,000)	-100.0%	5
Salaries and Benefits	13,623	12,059	18,451	14,206	(4,245)	-23.0%	6
Sundry	1,772	1,943	1,867	2,100	233	12.5%	
Training / Professional Development	185	629	1,900	2,700	800	42.1%	7
Utilities	3,058	2,309	2,500	2,500	-	0.0%	
Internal Allocations	4,000	4,000	4,000	4,000	-	0.0%	
<b>Total Expenditures</b>	<b>69,822</b>	<b>73,074</b>	<b>87,816</b>	<b>94,932</b>	<b>7,116</b>	<b>8.1%</b>	
<b>Surplus / (Deficit)</b>	<b>3,244</b>	<b>(2,478)</b>	<b>(17,861)</b>	<b>(20,807)</b>			
Amortization	14,628	14,628	14,628	14,628			
<b>Cash Surplus / (Deficit)</b>	<b>17,872</b>	<b>12,150</b>	<b>(3,233)</b>	<b>(6,179)</b>			
Capital Expenditures	-	-	-	(15,000)			8
Transfer from Surplus - Re-Budgets				7,100			9
<b>Transfer (from) to Sewer Surplus</b>	<b>17,872</b>	<b>12,150</b>	<b>(3,233)</b>	<b>(14,079)</b>			

## **Village of Lions Bay**

### **2019 Draft Sewer Budget**

#### **Notes:**

- 1 The revenue includes a proposed 5% increase in user rates (equates to a \$40 increase over 2018 rates per household).
- 2 Secondary suite fees are based on the actual number of suites paid in 2018 (8).
- 3 Budget includes \$25k for the annual treatment plant pump-out, \$12.0k for required repairs to the treatment plant and \$5k for a re-budget of the video inspection of the WWTP outfall. The dive was completed in January 2019.
- 4 Budget includes \$1k for outfall signage, \$3k for a microscope and \$2.1k for a re-budget of the confined space rescue winch.
- 5 The 2018 budget included \$5k for a video inspection of the WW collection system. The inspection needs to be completed every five years.
- 6 The portion of PW salaries allocated to the sewer fund was reduced to better reflect the actual time spent on sewer tasks.
- 7 Budget includes Wastewater Treatment and Wastewater Collection courses for three staff.
- 8 Capital includes \$15k for a SCADA connection to the PW Yard.
- 9 \$7.1k will be drawn from surplus for the video inspection of the outfall pipe (\$5k) and the confined space rescue winch (\$2.1k). These items were budgeted in 2018 but will not be purchased/completed until 2019.

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## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

<b>Type</b>	<b>Request for Decision</b>		
<b>Title</b>	<b>Oceanview Drainage Analysis and Engineering Design</b>		
<b>Author</b>	<b>Naizam Jaffer</b>	<b>Reviewed By:</b>	<b>Peter DeJong</b>
<b>Date</b>	<b>February 1, 2019</b>	<b>Version</b>	
<b>Issued for</b>	<b>February 5, 2019 Regular Council Meeting</b>		

### RECOMMENDATION

THAT Council approve the award of the Oceanview Drainage Analysis and Engineering Design project to ISL Engineering and Land Services Ltd. in the amount of \$15,970; and

THAT the CAO be authorized to execute contract documents in accordance with the scope of work required up to the amount of \$15,970, not including GST; and

THAT the work be funded from the Public Works operational budget.

### ATTACHMENTS

1. Oceanview Drainage Request for Quotation

### KEY INFORMATION

At its December 4, 2018 Regular Council Meeting, staff were directed to commission a drainage study for Oceanview Road. Accordingly, staff issued a targeted request for quotation to four firms:

1. Kerr Wood Leidal Associates Ltd.;
2. ISL Engineering and Land Services Ltd.;
3. Stantec Inc.; and
4. AECOM Canada Inc.

The request was put out on December 14, 2018 with a closing date of December 21, 2018. AECOM immediately responded indicating they would not be able to participate in this quote due to an extremely heavy workload. Shortly thereafter, Stantec requested an extension of the closing to January 14, 2019. This request was approved and the remaining three firms were notified of the extension.



## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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Staff reviewed the ISL proposal and believe it to a reasonable cost for the services required. The proposal is available in the Closed Meeting materials for review.

### **OPTIONS**

1. Approve the recommendation;
2. Amend the recommendation and then approve;
3. Direct staff on another course of action.

### **PREFERRED OPTION**

Approve the recommendation.

### **FOLLOW UP ACTION**

Inclusion of the contract amount in the Public Works Operational budget.

**From:** [Naizam Jaffer](#)  
**To:** [REDACTED]  
**Cc:** [Pam Rooke](#); [Hayley Cook](#)  
**Subject:** Oceanview Road Drainage - Request for Quote  
**Date:** Friday, December 14, 2018 12:24:00 PM  
**Attachments:** [260 Oceanview.pdf](#)  
[Oceanview Engineers Report.pdf](#)  
[IC Recommendations.pdf](#)

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Hi [REDACTED]

The Village of Lions Bay's Council and Infrastructure Committee has requested an engineering review of the Oceanview Road drainage catchment in order to resolve drainage deficiencies over the course of the catchment.

### Background

Road run-off and surface drainage from the top of Oceanview Road starting at address 395 down to the switchback corner at 245 Oceanview Road was captured in a ditch on the east side of the road. At the driveway for 270 Oceanview this stormwater was conveyed through a driveway culvert into an open ditch and then into another culvert that crossed between 260 and 270 Oceanview to Rundle Creek. I've attached a scan of what we have – page two is a markup that shows what we believe the layout of this drainage system looked like (260 Oceanview.pdf).

At some point before 2005, the cmp crossing between 260 and 270 Oceanview failed (corroded bottom) and the basement of the residence at 260 was flooded. The Village looked at options for remediation and the unbudgeted costs were not appealing. As an alternative, they decided to redirect the stormwater across Oceanview road from the driveway at 270 to the opposite side of the street at the switchback corner (245 Oceanview). As part of this work, the driveway culvert at 270 along with a portion of the culvert between 260 and 270 were filled with a slurry of concrete – we don't know how far along this went or if the entire run was filled.

Three years later, residents further down on Oceanview Road (210, 220, and 230) complained that the additional stormwater caused by this diversion was resulting in road damage and increased subsurface infiltration onto their properties. Golder Engineering was retained by the Village to assess these claims (Oceanview Engineers Report.pdf), much to the chagrin of the owner of 260 Oceanview who is staunchly opposed to any notion of re-installing a drainage line along the easement within his property. To alleviate the complaints being received about the added drainage to lower Oceanview, the Village installed an HDPE CMP carrier pipe into the ditch from the switchback corner at 245 Oceanview, along the east side of Oceanview to the intersection of Oceanview and Highview. [Streetview shows this existing condition](#). Members of the Infrastructure Committee believe that the additional stormwater directed down Oceanview to be the culprit for the deterioration and dilapidated condition of Oceanview Road down to its terminus at the intersection of Crosscreek Road. A complicating factor to this view is that many of the driveway culverts along this section of roadway are undersized or are CMP with deteriorated bottoms and in some areas, water flowing through the ditch disappears underground without any clear outlet.

### Options

The foremost options appear to be:

- Reinststate the drainage course through the easement at 260 Oceanview Road to Rundle Creek, or
- Redesign the drainage system down Oceanview Road to its intersection at Crosscreek Road where it discharges into Harvey Creek.

### Engineering Review

Review the existing drainage catchment area and determine flow rates and use the flow rates to compare the existing capacity of ditches and culverts along Oceanview Road.

Prepare a technical memo outlining the results including calculated flows and possible conveyance options. Outline the advantages/disadvantages to reinstating the old drainage line through the easement at 260 Oceanview versus permanently directing the stormwater down to its discharge at Harvey Creek at 15 Oceanview Road. Include within this review, the viability of trenchless or other options (full replacement) to rehabilitate or replace the drainage through the easement at 260 Oceanview Road to Rundle Creek.

Prepare a drainage system design including survey and cost estimate to convey the flows determined to either Rundle or Harvey Creek to 100% design. Include survey and cost estimate

### Response Timeline and Details

Please provide a cost estimate to perform the works outlined above no later than 12:00 noon on Friday, December 21, 2018. Your digital response must be sent to [works@lionsbay.ca](mailto:works@lionsbay.ca) and copied to [accounting@lionsbay.ca](mailto:accounting@lionsbay.ca) and [finance@lionsbay.ca](mailto:finance@lionsbay.ca).

Thank you kindly for your interest.

All the best,

Naizam (Nai) Jaffer

Public Works Manager | Village of Lions Bay

Village Office (604) 921-9833 | [www.lionsbay.ca](http://www.lionsbay.ca)

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This email is intended only for the persons addressed and may contain confidential or privileged information. If you received this email in error, it'd be appreciated if you notify the sender and delete it. Statements and opinions herein are made by their authors in a personal capacity, and are not binding on the Municipality of the Village of Lions Bay until contracted. Be aware that this email is the property of the Municipality and may not be disseminated in whole or part without consent. This email may be exempt from disclosure under the British Columbia Freedom of Information and Protection of Privacy Act and other freedom of information or privacy legislation, and no admissible disclosure of this email can be made without the consent of the Municipality. Conversely, be aware that any response to the sender may be subject to disclosure under a freedom of information request.



## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

<b>Type</b>	<b>Recommendation to Council</b>		
<b>Title</b>	Recommendation for a study into Oceanview Drainage Improvement		
<b>Author</b>	Fred Bain	<b>Reviewed By:</b>	
<b>Date</b>	2018-11-29	<b>Version</b>	
<b>Issued for</b>	Council meeting of December 4 2018		

### **RECOMMENDATION**

THAT Council direct staff to commission the study to assess the resulting drainage flow scenarios for Option A and Option B and to provide cost estimates for both options. Cost estimates for Option A should include costs for both directional drilling and open trenching alternatives and the challenges associated with each.

#### 1. **BACKGROUND**

In the last Infrastructure Committee (IC) meeting the IC recommended that Council direct Staff to determine how far the concrete plug extended into the abandoned culvert from Oceanview to Rundle Creek. This activity was carried out and Nai presented the results together with a 2008 Golder Associates report on the drainage in this area.

The options identified at last meeting were:

Option A: Re-establish original drainage path to Rundle Creek.

Option B: Maintain current drainage path all the way down to lower Oceanview.

Option A was, at the last meeting, considered the 'technically right' thing to do notwithstanding cost. Now that it is essentially confirmed that the least cost solution to Option A (relining the culvert) is eliminated, only the higher cost directional drilling or open excavation solutions remain. The pro's and con's of these solutions were discussed at length.

Option B was, at the last meeting, considered more of a band aid solution. It includes addressing the infiltration in the swale under the big (ugly) black pipe and upgrading the drainage ditch and all the undersized driveway culverts to handle the increased flow all the way down Oceanview to Harvey Creek. In this meeting Option B seemed to be attractive to several IC members since it solves the current issues along lower Oceanview (infiltration to properties, road damage, culverts & ditch capacity). These issues may or may not still exist if the flow were reduced by implementing Option A and diverting significant volume to Rundle.

The map shows that the Option A distance from 260 Oceanview to Rundle is very much shorter than the Option B distance from 260 all the way down to Harvey Creek. This prompted the question as to whether Option B is really more expensive than Option A. Specifically, is drilling or trenching the short distance really more expensive

than excavating/replacing 10 or 11 driveways/culverts, and excavating/geo-lining the entire length of lower Oceanview ditch?

**RECOMMENDATION**

See above.

A previous estimate to do Option B was around \$300K, without any detailed drainage calculations or detailed design. It is not known how much it would cost to directional drill or excavate to Rundle. Nor is it known how much the flow down lower Oceanview would be reduced if upper flow is re-established to Rundle.

Nai indicated that a study to determine the flows, designs and costs for both options would cost \$15K to \$18K. This would help us understand the resulting stormwater flows in each option, and provide accurate costs for directional drilling, and open excavating for Option A and a scope review and refinement of the previous cost estimate for Option B. Given the potential to make a poor decision that future Councils would have to deal with, the IC agreed that it is worth spending the money on this study.

2. **PREFERRED OPTION**

As stated

For Council's consideration.



## **2.0 BACKGROUND**

The roadway and homes are understood to have been in-place for some 30 years or more. The drainage swale on the uphill side of the roadway has also been in-place for some 30 years or more and consists of a generally grassed, relatively shallow channel, with some gravel and cobble sizes along the base of the swale. The swale in the area of interest was originally hydraulically separated from the upper drainage swale system servicing those portions of Oceanview Road uphill of the switchback turn at Lot 260. It is understood that the upper drainage swale system was previously piped south between Lots 260 and 270 to a discharge outlet into Rundle Creek.

Approximately three years ago, the surface runoff flow within the upper drainage swale was redirected through a culvert crossing under Oceanview Road, from about the front of Lot 290 to the south side of Lot 245, and now discharges into the lower swale. The redirection of the upper swale drainage into the lower swale reportedly resulted in a significant increase in water flow volumes along the lower swale. It is understood that concerns have been raised by residents with respect to the potential impact to downslope properties induced by the increased flows along the swale and possible increased infiltration into the roadway and adjacent slopes.

A number of previous roadway repairs are reported to have been carried out over a period of many years. However, all of the repairs were completed prior to diversion of the culvert. These repairs included the remedial treatment of a broken watermain which resulted in a significant sinkhole in front of Lot 240. The watermain break is reported to be as a result of major corrosion of the piping and not attributed to creep or soil instability. Multiple occurrences of roadway subsidence were also reported for the west edge of the roadway in front Lot 210.

## **3.0 SITE RECONNAISSANCE**

A site inspection of the area of interest was carried out by Golder personnel on March 12, 2008. The residents of 220 Oceanview Drive and a representative of Lion Bay Public Works were met on site.

At the time of our site reconnaissance, no signs of recent distress or instability within the roadway or adjacent slopes were observed. Although extensive alligator cracking of the pavement was noted, no tension cracks or distress associated with slope creep or global instability were observed along the roadway. Similarly, no significant seepage or signs of slope creep or ground instability observed downslope of the swale on Lot 220.

Water was flowing within the swale at the time of the site inspection. It was observed that the volume of the surface water appeared to diminish as it flowed downgradient from south to north along the swale, particularly at the north end, suggesting that infiltration of water into the natural soils or road embankment fills underlying or adjacent to the swale was occurring.

#### **4.0 GEOTECHNICAL ASSESSMENT**

Other than the redirection of the flow from the upper swale system into the lower swale, visual observations and available information indicates that there has been no significant modification of the lower swale geometry or channel bottom conditions. Consequently, it is our opinion that the permeability (infiltration) characteristics of the swale have not changed. No signs of recent distress or instability were observed, either within the roadway or the adjacent slopes and residential properties.

In our opinion, the road embankment fill and subgrade materials as well as the adjacent slopes have been subject to some seepage flows and saturation due to infiltration from the swale, at least periodically, for a period of many years. Since the swale is relatively shallow, such that water levels can not significantly increase without these flows overtopping the swale, it is considered probable that there has been no more than limited or nominal increase in the height of the water (hydraulic head) within the swale due to the redirection of the upper swale flows. It is considered possible that the duration of the flows along the swale may have increased as a result of the added catchment area, which could induce some additional or more sustained infiltration from the swale.

Based on the limited available information and current site conditions, the potential for the increased storm water infiltration to impact the global stability of the downslope properties is considered low. If the redirected upper swale flows result in the lower swale alignment being subject to more sustained flow and infiltration, it is considered possible that there will be some accelerated deterioration of the pavement structure as a result of increased seepage flows into and saturation of the subgrade soils.

#### **5.0 RECOMMENDATIONS**

As previously indicated, the increased seepage is not expected to impact the global stability of the roadway or downslope properties and no immediate action is considered necessary. However, seepage into the roadway pavement structure and adjacent slopes is generally not desirable. It is recommended that consideration be given to reducing the rate of infiltration to limit the potential for long-term impacts.

One of the most practicable means of reducing infiltration rates without redirecting the water flow is considered to be the installation of a relatively impermeable lining or drainage facility along the wetted perimeter of the swale. This could be achieved by installing half-round sections of corrugated steel pipe or an equivalent flume along the bottom of the swale. However, we understand that this method has been used previously in the surrounding area with mixed success. As an alternative, it is recommended that consideration be given to installation of a low permeability geomembrane beneath the swale. In this case, the swale should be subexcavated a depth of some 300 mm below the final swale surface, lined with a suitable geomembrane and covered with 300 mm

Village of Lions Bay

March 25, 2008

Mr. Don Reid

- 4 -

08-1411-046

thickness of clean, erosion resistant material such as well graded 200 mm minus crushed quarry tailings or blast rock to provide both surface protection of the geomembrane and to reduce flow velocities. In either case, it is recommended that suitable trench dams or barriers be installed at intervals of about 30 m to minimize the potential for excessive seepage flows to develop beneath the half round flume or geomembrane.

It is also recommended that periodic inspections of the swale, roadway, and adjacent slopes be carried out. If tension cracks, downslope sloughing, slope creep, concentrated or high volume seepage out of the slope face or other adverse change in conditions are observed, a geotechnical engineer should be notified immediately and additional geotechnical assessment should be carried out.

## 6.0 CLOSURE

We trust this facsimile is sufficient for your immediate requirements. If you have any further questions or comments regarding the above, please do not hesitate to contact us.

Yours very truly,

**GOLDER ASSOCIATES LTD.**

Chris Williams, P.Eng.  
Geotechnical Engineer

Richard C. Butler, P.Eng.  
Principal

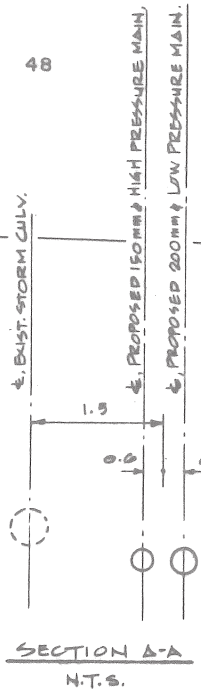
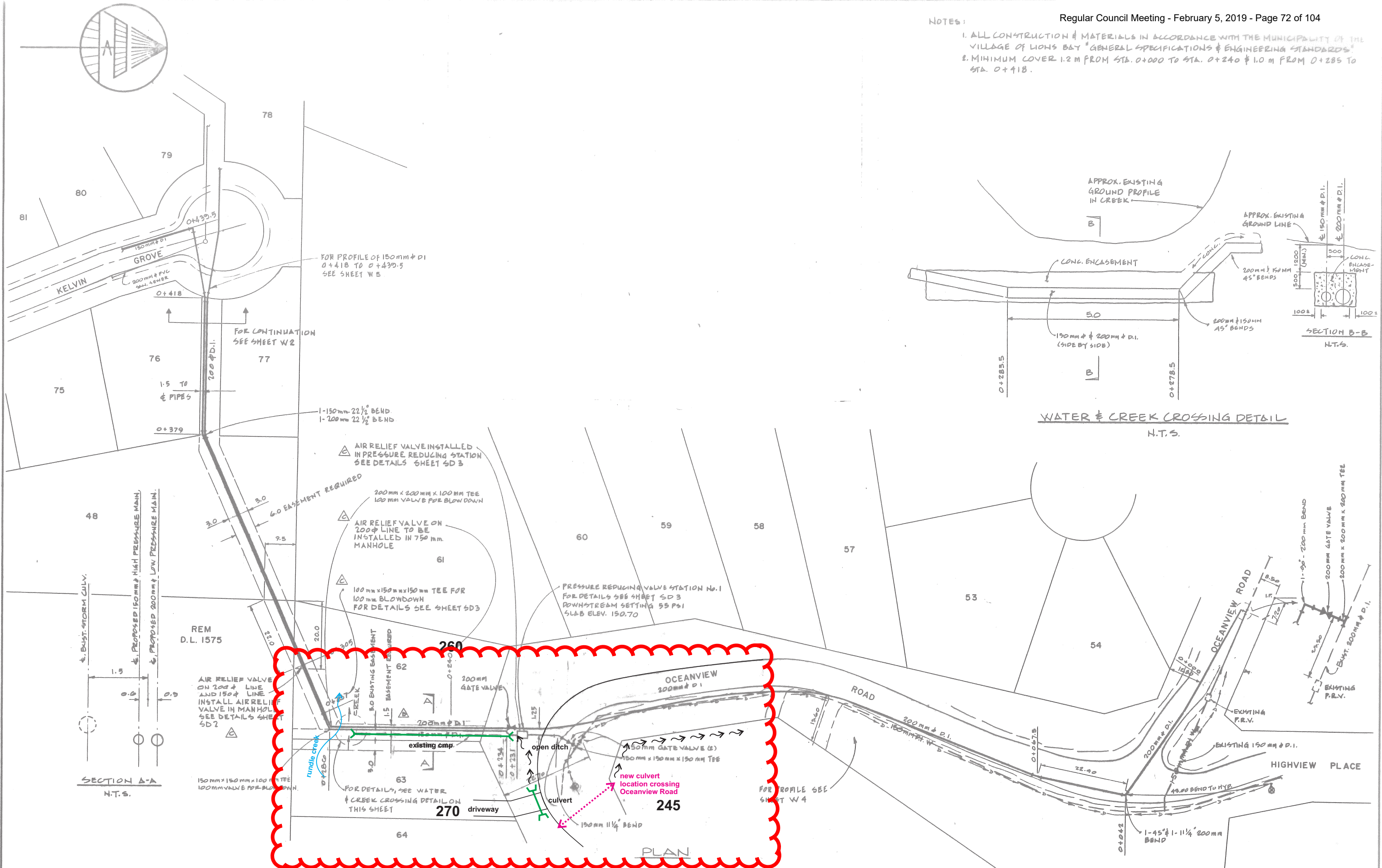
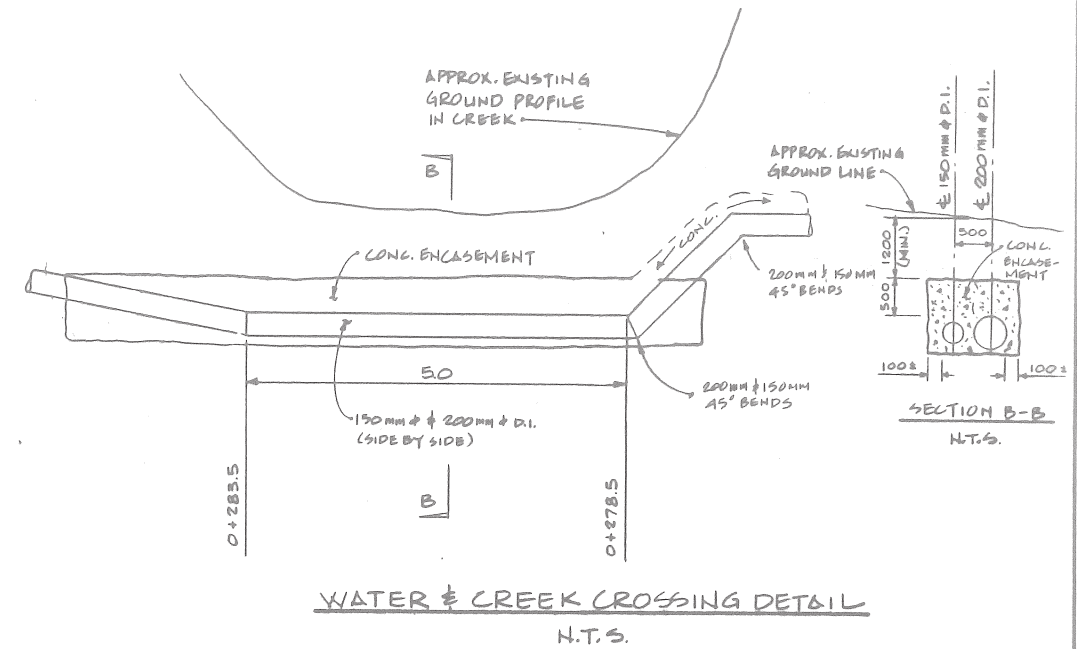
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Hard copy to follow by mail  Yes,  No

NOTES:

1. ALL CONSTRUCTION & MATERIALS IN ACCORDANCE WITH THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY "GENERAL SPECIFICATIONS & ENGINEERING STANDARDS."
2. MINIMUM COVER 1.2 M FROM STA. 0+118 TO STA. 0+240 & 1.0 M FROM 0+285 TO STA. 0+418.



REM D.L. 1575

AIR RELIEF VALVE ON 200mm LINE AND 150mm LINE INSTALL AIR RELIEF VALVE IN MANHOLE SEE DETAILS SHEET SD2

AIR RELIEF VALVE INSTALLED IN PRESSURE REDUCING STATION SEE DETAILS SHEET SD3

AIR RELIEF VALVE ON 200mm LINE TO BE INSTALLED IN 750mm MANHOLE

100mm x 150mm x 150mm TEE FOR 100mm BLOWDOWN FOR DETAILS SEE SHEET SD3

150mm x 150mm x 100mm TEE 100mm VALVE FOR BLOW DOWN

FOR DETAILS, SEE WATER & CREEK CROSSING DETAIL ON THIS SHEET

FOR PROFILE SEE SHEET W4

Nov/21	'AS CONSTRUCTED'
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DESIGNED HGT  
DRAWN PC

M. P. T. ENGINEERING CO. LTD.  
8211 COOK ROAD, RICHMOND B.C.

KELVIN GROVE ESTATES  
LIONS BAY DEVELOPMENT

SCALE  
HORIZ 1:500  
VERT 1:100  
ISSUE DATE  
AUG. 26, 1980

**From:** [Shawna Gilroy](#)  
**To:** [Shawna Gilroy](#)  
**Subject:** FW: For next Council meeting -- might as well add this to the list  
**Date:** Tuesday, January 29, 2019 2:44:26 PM

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**From:** Ron McLaughlin <[councillor.mclaughlin@lionsbay.ca](mailto:councillor.mclaughlin@lionsbay.ca)>  
**Sent:** October 8, 2018 10:11 AM  
**To:** Noelene Searle-Valleau <[REDACTED]>  
**Cc:** Kirsty Pappas <[REDACTED]>; Peter DeJong <[cao@lionsbay.ca](mailto:cao@lionsbay.ca)>;  
[REDACTED]  
**Subject:** Re: Events Committee

Hi Noelene.

Happy Thanksgiving. It was a pleasure to speak with you last week. Thank you very much for the EC's very generous offer to fund raise for the Beach Park renovations. Anything we can do to help please bring forward.

It has taken me a few days to noodle on the Canada Day information. I appreciate your candor, heads up, and offer to assist in adjusting the Villager's expectations if the traditional day light events are not on. I am sharing the email with the CAO for now and will bring this information forward to the new Council the second meeting in November for discussion. I will keep you posted on how this goes and seek your suggestions and input before any decision is made.

Your line of work and expertise is of great interest to me. Even in our brief conversation you gave me food for thought on how we can better interact with the Villagers. I know you are a busy person but would appreciate if called upon in the future if you would opine on communication related items Council will be considering.

Very best regards and thank you and your EC team for your volunteerism.

Ron  
[REDACTED]

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**From:** Noelene Searle-Valleau [REDACTED]

**Sent:** Wednesday, October 3, 2018 10:07 AM

**To:** Ron McLaughlin

**Cc:** Kirsty Pappas

**Subject:** Events Committee

Hi Ron,

I just wanted to drop you a note and introduce myself and Kirsty Pappas, who will be heading up events committee this year.

Thank you for your prompt response regarding the request for signage for the Beach Upgrades. We will get a copy printed to display at our events. I think fundraising for this endeavor, is a great fit for the events we put on, as most are aimed at families with children. On another note, I wanted to let you know that we have planned an exciting lineup of events for the year including Lions Bay's Got Talent, a new Christmas Caroling with Lanterns event along Centennial Trail, and all the other traditional and much loved events like Easter, Halloween, and Trivia Nights.

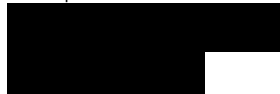
We do however want to change the format of Canada Day, and I wanted to update you on what we are thinking. Most of our committee has done this event, 3-5, or more times over the years, and it is a heck of a lot of work, at the busiest time of the year for mothers' with kids wrapping up the school year, and happening on the first long weekend of the summer. We have struggled to find committee members willing to take it on again, and we feared this event might be the end of the events committee. So we have decided we only want to undertake the evening part of the event, which has been a big hit the last two years. Live Music + Fireworks at the beach with a DIY picnic. We could still include the civic ceremony at this part of the event. Whether you want to see if there is another group who wants to take on the bbq and daytime festivities, or let that part go, it is fine with us. We would have to educate and adjust villagers expectations accordingly.

Please reach out if you have any questions on the above, and otherwise we look forward to working with you as you take on the role of Mayor.

Kindest Regards,

**Noelene Searle-Valleau**

**PR | Communications | Content Strategy**





## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

<b>Type</b>	<b>Report to Council</b>		
<b>Title</b>	Report on the Direction of the Memorial Committee's Project		
<b>Author</b>	Fred Bain	<b>Reviewed By:</b>	
<b>Date</b>	2019-01-28	<b>Version</b>	
<b>Issued for</b>	The Regular Council Meeting of February 5, 2019		

### **RECOMMENDATION**

THAT Council consider the suggestions and the direction of the Memorial Committee (MC) as outlined below.

#### **1. PROJECT DIRECTION**

- a. The Committee, after considerable thought and discussion, believes the best location for a memorial cairn would be in the garden in front of the Village office.
  - i. Consideration was made of suggestions to place the memorial on the bank in Marjorie Meadows
    - Believe tampering and vandalism may be more likely
    - Believe in front of the office would be seen more
- b. Research was done in choosing the material of the cairn
  - i. A supplier was found in Squamish who is knowledgeable of the subject matter and can supply what is needed or wanted for the project
  - ii. The committee compared plaques vs engraving and found the latter more affordable and requiring less maintenance
  - iii. The granite stone Cairn would need to be placed on a concrete pad, built by Lions Bay to the supplier's drawing.
    - The supplier would then place the stone on the pad in the location confirmed and they would "pin" the two parts together
- c. The Memorial Committee's task at this time is to consider wording to be engraved into the cairn, including the engraving of poppies into it.
- d. At this time, although the cairn will be somewhat moveable, the MC has left the Highway Tank lot as not a preferred location.

#### **2. BACKGROUND DETAILS**

- a. The preliminary cost estimates are approximately
  - i. Split granite rock \$803
  - ii. Installation onto a concrete pad \$500
  - iii. Public Works cost for building the concrete pad, not yet determined if even possible \$\_\_\_\_\_
  - iv. The committee is undecided as to the value of seeking grant funding as the total cost including staff costs may be no more than \$2500.

**MINUTES OF THE  
MEMORIAL COMMITTEE MEETING  
OF THE VILLAGE OF LIONS BAY  
HELD ON THURSDAY, January 24<sup>th</sup> 2019 at 4:00 PM  
COUNCIL CHAMBERS, 400 CENTRE ROAD, LIONS BAY**

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**In attendance** alphabetically:

Fred Bain-councillor-Chair	Ingrid Wray–Arts Council-for Ute	Nai Jaffer- Public Works Manager
Tony Cox-resident	<b>Regrets:</b>	Phillip Marsh-resident
Arlene Halstrom-resident	Jaime Cunliffe - Councillor	Ron McLaughlin-Mayor
Trudi Luethy-resident	Tony Greville-IC member	Ute Phillips-Arts Council-Chair

1. Call to Order: 16:03
2. Appointment of Recorder  
Fred Bain
3. Approval of the Agenda ✓
4. Public Questions and Comments: none
5. Approval of the minutes
  - A) Minutes of the meeting of November 29<sup>th</sup>, 2018 ✓
  - B) Business arising from the minutes: none
6. Unfinished Business
  - A) Veterans' Memorial
    - I It was agreed that the Location of a Cairn should best be placed in the garden in front of the Village office near the flags
    - II Next steps reporting
      - a. Trudi lead a team to Squamish (and where ever they deem necessary) to price stone cairns and chose a size and shape
        - i. They found, at Northwest Landscape and Stone Supply, samples of granite stone that they believed to be suitable and reasonably priced
          - A quote of \$803, including engraving, plus transport and instillation of about \$500 was provided

- The stone would be “pinned” to the concrete pad or foundation
  - The committee was advised that larger letters should be used on granite for better visibility
  - A poppy or poppies could also be engraved and painted in the stone
  - The quote requires staff to make a concrete foundation of 6” thick to the supplier's specifications.
- ii. The cost of a bronze plaque was found to be in the range of \$1500-2000, plus mounting and to a suitable surface
  - iii. Consensus was to pursue the granite option and recommend it to Council.
- b. Fred, with Pam Rooke and Phillip Marsh as able, to research grant funding
    - i. May be worthwhile but not sure at this lower cost
  - c. The committee discussed the wording that could be recommended to be engraved
    - i. It was suggested we research other communities for suitable wording
    - ii. It was decided that Arlene would make a considered suggestion and circulate it to the rest of the committee for discussion and recommendation.
    - iii. It was felt that the wording should be inclusive, respectful and timeless
    - iv. It should answer the question, “Who do we want to honour?”

7. New Business : none

8. Public Questions and Comments ; none

9. Next Meeting: to be determined

10. Adjournment:

17:10

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## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

<b>Type</b>	<b>Request for Decision</b>		
<b>Title</b>	<b>Utility User Rate Amendment Bylaws No. 557, 558 and 559</b>		
<b>Author</b>	<b>Pamela Rooke</b>	<b>Reviewed By:</b>	<b>Peter DeJong</b>
<b>Date</b>	<b>January 31, 2019</b>	<b>Version</b>	
<b>Issued for</b>	<b>February 5, 2019 Regular Council Meeting</b>		

### RECOMMENDATION

THAT the following bylaws be read a first, second and third time:

1. Water Rates and Regulations Bylaw No. 2, 1971, Amendment Bylaw No. 557, 2019
2. Sewer User Rates Bylaw No. 122, 1984, Amendment Bylaw No. 558, 2019
3. Garbage and Recycling Collection Bylaw No. 455, 2013, Amendment Bylaw No. 559, 2019

### ATTACHMENTS

1. Bylaws No. 557, 558 and 559 as set out above.

### KEY INFORMATION

At the January 22, 2019 Regular Council Meeting, staff were directed to prepare the water, sewer and solid waste utility user rate bylaws in accordance with the draft budgets presented to Council indicating the revenue required for each service.

### OPTIONS

1. Approve the recommendations above and give the bylaws three readings;
2. Amend the bylaws and then give them three readings;
3. Refer one or more of the bylaws back to staff for revisions.

### FOLLOW UP ACTION



## THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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Assuming three readings are given, the bylaws will be brought back to the February 19, 2019 Council meeting for adoption.



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY



## **Water Rates and Regulations Bylaw No. 2, 1971, Amendment Bylaw No. 557, 2019**

**Adopted: xxx**

PO Box 141, 400 Centre Road, Lions Bay, BC V0N 2E0  
Phone: 604-921-9333 Fax: 604-921-6643  
Email: [office@lionsbay.ca](mailto:office@lionsbay.ca) Web: [www.lionsbay.ca](http://www.lionsbay.ca)

## **Water Rates and Regulations Amendment Bylaw No. 557, 2019**

### **A bylaw to amend Water Rates and Regulations Bylaw No. 2, 1971**

The Council of the Village of Lions Bay, in open meeting assembled, enacts as follows:

1. This bylaw may be cited for all purposes as “Water Rates and Regulations Bylaw No. 2, 1971, Amendment Bylaw No. 557, 2019”.
2. Schedule “A” attached to Bylaw No. 2, 1971, as amended, is hereby deleted and the attached Schedule “A” is substituted therefore.
3. This bylaw shall take effect upon adoption.

<b>READ A FIRST TIME</b>	<b>xxx</b>
<b>READ A SECOND TIME</b>	<b>xxx</b>
<b>READ A THIRD TIME</b>	<b>xxx</b>
<b>ADOPTED</b>	<b>xxx</b>

\_\_\_\_\_  
**Mayor**

\_\_\_\_\_  
**Corporate Officer**

**Certified a true copy of Water  
Rates and Regulations Bylaw No. 2, 1971  
Amendment Bylaw No. 557, 2019  
as adopted.**

\_\_\_\_\_  
**Corporate Officer**

**SCHEDULE "A"****Attached to and forming  
part of Bylaw No. 2, 1971, as amended****WATER USER RATES****Prompt Payment Discount**

1. Single Family Residence	\$1,579.20 per year	2.0%
2. Condominiums, Apartments	\$1,579.20 per year	2.0%
3. Businesses – Store/Café	\$4,137.00 per year	2.0%
4. Businesses – Marina	\$4,137.00 per year	2.0%
5. Businesses – Other	\$1,086.75 per year	2.0%
6. Schools	\$4,137.00 per year	2.0%



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY



## **Sewer User Rates Bylaw No. 122, 1984, Amendment Bylaw No. 558, 2019**

**Adopted: xxx**

PO Box 141, 400 Centre Road, Lions Bay, BC V0N 2E0  
Phone: 604-921-9333 Fax: 604-921-6643  
Email: [office@lionsbay.ca](mailto:office@lionsbay.ca) Web: [www.lionsbay.ca](http://www.lionsbay.ca)

## **Sewer User Rates Amendment Bylaw No. 558, 2019**

### **A bylaw to amend Sewer User Rates By-law No. 122, 1984**

The Council of the Village of Lions Bay, in open meeting assembled, enacts as follows:

1. This Bylaw is cited for all purposes as "Sewer User Rates Bylaw No. 122, 1984, Amendment Bylaw No. 558, 2019".
2. Schedule "A" attached to Bylaw No. 122, 1984, as amended, is hereby deleted and the attached Schedule "A" is substituted therefore.
3. This bylaw shall take effect upon adoption.

<b>READ A FIRST TIME</b>	<b>xxx</b>
<b>READ A SECOND TIME</b>	<b>xxx</b>
<b>READ A THIRD TIME</b>	<b>xxx</b>
<b>ADOPTED</b>	<b>xxx</b>

\_\_\_\_\_  
**Mayor**

\_\_\_\_\_  
**Corporate Officer**

**Certified a true copy of  
Sewer User Rates Bylaw No. 122, 1984,  
Amendment Bylaw No. 558, 2019 as adopted.**

\_\_\_\_\_  
**Corporate Officer**

**SCHEDULE "A"**

**Attached to and forming  
part of Bylaw No. 122, 1984, as amended**

**SEWER USER RATES**

**Prompt Payment Discount**

- |                            |                   |      |
|----------------------------|-------------------|------|
| 1. Single Family Residence | \$840.42 per year | 2.5% |
|----------------------------|-------------------|------|



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY



## **Garbage and Recycling Collection Bylaw No. 455, 2013, Amendment Bylaw No. 559, 2019**

**Adopted: xxx**

PO Box 141, 400 Centre Road, Lions Bay, BC V0N 2E0  
Phone: 604-921-9333 Fax: 604-921-6643  
Email: [office@lionsbay.ca](mailto:office@lionsbay.ca) Web: [www.lionsbay.ca](http://www.lionsbay.ca)

## **Garbage and Recycling Collection Bylaw No. 455, 2013, Amendment Bylaw No. 559, 2019**

### **A bylaw to amend Garbage and Recycling Collection Bylaw No. 455, 2013**

The Council of the Village of Lions Bay, in open meeting assembled, enacts as follows:

1. This Bylaw may be cited for all purposes as “Garbage and Recycling Collection Bylaw No. 455, 2013, Amendment Bylaw No. 559, 2019”.
2. Schedule “A” attached to Garbage and Recycling Collection Bylaw No. 455, 2013, as amended, is hereby deleted and the attached Schedule “A” is substituted therefore.
3. This bylaw shall take effect upon adoption.

<b>READ A FIRST TIME</b>	<b>xxx</b>
<b>READ A SECOND TIME</b>	<b>xxx</b>
<b>READ A THIRD TIME</b>	<b>xxx</b>
<b>ADOPTED</b>	<b>xxx</b>

\_\_\_\_\_  
**Mayor**

\_\_\_\_\_  
**Corporate Officer**

**Certified a true copy of  
Garbage and Recycling Collection  
Bylaw No. 455, 2013, Amendment  
Bylaw No. 559, 2019, as adopted.**

\_\_\_\_\_  
**Corporate Officer**

**SCHEDULE "A"**

**Attached to and forming  
part of Bylaw No. 455, 2013, as amended**

	<b>Garbage, Recycling and Green Waste</b>		<b>Annual Charge</b>	<b>Prompt Payment Discount</b>
1	Single Family Residences	Garbage, Recycling and Organics	\$340.00	3.5%
2	Strata Condominiums (Crosscreek Road)	Garbage, Recycling and Organics	\$340.00	3.5%
3	Strata Apartments (350 Centre Road)	Recycling Only	\$153.00	3.5%
4	Businesses – Store/Café	Recycling Only	\$1,380.00	3.5%
4	Businesses - Other	Recycling Only	\$153.00	3.5%

Intentionally Blank

## VILLAGE OF LIONS BAY

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### Incoming Correspondence - February 5, 2019

*General Correspondence:*

G-1: Recycling Council of BC Annual Zero Waste/Circular Economy Conference 2019 (Page 1)

G-2: Pacific Animal Foundation (Page 2)

G-3: Invitation to North Shore Food Charter Planning Session (Page 3)

*Resident Correspondence:*

R-1: Pat Craig - Beach Park Renewal (Page11)



Suite 10  
119 West Pender St  
Vancouver, BC  
V6B 1S5  
Canada

phone:  
(604) 683-6009

fax:  
(604) 683-7255

email:  
rcbc@rcbc.ca

web:  
www.rcbc.ca

January 11, 2019

Mayor Ron McLaughlin and Council  
Village of Lions Bay  
400 Centre Road  
Lions Bay, BC V0N 2E0  
Canada

Dear Mayor Ron McLaughlin and Council:

Re: Recycling Council of British Columbia 45<sup>th</sup> Annual Zero Waste/Circular Economy Conference 2019

Established in 1974, the Recycling Council of British Columbia (RCBC) is Canada's first non-profit waste prevention organization. Since that time, the Council has worked side-by-side with local governments to eliminate waste in B.C. and develop a sustainable circular economy.

We invite you to attend **RCBC 2019 "Conference on Circular Economy" on May 8, 9, 10 2019 in Whistler, B.C.**, featuring a variety of topics relevant to local governments in B.C. Programming for RCBC 2019 ([www.rcbcconference.ca](http://www.rcbcconference.ca)) will include:

- extended producer responsibility
- illegal dumping
- reuse and repair
- waste prevention
- communications and engagement

As well, we plan to address a variety of waste, recycling, and diversion-related issues your council may be facing now or in the near future. We provide a three-day experience of workshops, presentations, and opportunities to network with professionals and area experts to become better informed. B.C.'s industry stewardship agencies, such as RecycleBC, Regeneration, and Encorp Pacific will be in attendance, as well as the BC Ministry of Environment.

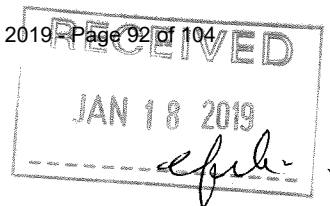
RCBC provides comprehensive public education to support recycling and waste-related programs and services through the BC Recycling Hotline, the online Recyclepedia and the free BC Recyclepedia phone app. Last year alone, we answered more than 280,000 questions from people in communities just like yours.

In our public policy work, we engage a variety of stakeholders to collaboratively develop and recommend progressive waste prevention initiatives and legislation. RCBC also facilitates the sharing of knowledge, good practices, and professional development. All of those elements are included as part of Canada's longest running waste prevention event, the annual RCBC Zero Waste Conference on Circular Economy, now in its 45<sup>th</sup> year.

Thank you for your continued support. Let us keep working together to make a waste-free province through the application of sustainable circular economy principles. If you have any questions, you can reach me at 604-683-6009 ext. 307 or at [brock@rcbc.ca](mailto:brock@rcbc.ca).

Sincerely,

Brock Macdonald  
Chief Executive Officer



VILLAGE OF LIONS BAY  
FILE TO I/C .....  
FILE TO PROPERTY FILE .....  
OTHER .....

**From:** [Ron McLaughlin](#)  
**To:** [Shawna Gilroy](#)  
**Cc:** [Peter DeJong](#)  
**Subject:** Fwd: Message for Mayor and Council from Pacific Animal Foundation  
**Date:** Thursday, January 24, 2019 2:09:30 PM

---

For next correspondence section of the agenda.

From: Lana Simon  
Sent: Thursday, January 24, 1:31 PM  
Subject: Message for Mayor and Council from Pacific Animal Foundation  
To: Council @ Lions Bay

Dear Mayor and Council: (This email is being sent to all BC Mayors and Councils)

Information in the following link will be of significant assistance to your community with respect to your municipal plans for animal welfare, animal control, and budgeting.

Please go to the following link:

<http://pacificanimal.org/Municipal%20info/municipalemail%20-%202019.html>

Sincerely,

Lana Simon, Director  
Pacific Animal Foundation  
735 - 1641 Lonsdale Avenue  
North Vancouver, BC V7M 2J5  
[www.pacificanimal.org](http://www.pacificanimal.org)

**From:** [Shawna Gilroy](#)  
**To:** [Shawna Gilroy](#)  
**Subject:** FW: Invitation to North Shore Food Charter Planning Session  
**Date:** Friday, February 1, 2019 10:20:57 AM  
**Attachments:** [Food charter scan.pdf](#)  
[NSTM Background Information.pdf](#)  
[NSTMN Invitation for Signatories Feb 22 2019.pdf](#)

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----- Forwarded message -----

From: "**Broughton, Margaret [NS]**" <[Margaret.Broughton@vch.ca](mailto:Margaret.Broughton@vch.ca)>  
Date: Mon, Jan 28, 2019 at 1:21 PM -0800  
Subject: Invitation to North Shore Food Charter Planning Session  
To: "Ron McLaughlin" <[mayor.mclaughlin@lionsbay.ca](mailto:mayor.mclaughlin@lionsbay.ca)>, "councillor.abbot@lionsbay.ca" <[councillor.abbot@lionsbay.ca](mailto:councillor.abbot@lionsbay.ca)>, "Fred Bain" <[councillor.bain@lionsbay.ca](mailto:councillor.bain@lionsbay.ca)>, "Norman Barmeier" <[councillor.barmeier@lionsbay.ca](mailto:councillor.barmeier@lionsbay.ca)>, "Jaime Cunliffe" <[councillor.cunliffe@lionsbay.ca](mailto:councillor.cunliffe@lionsbay.ca)>

**Dear Village of Lions Bay Councillors and Staff,**

On behalf of the **North Shore Table Matters Network**, we would like to invite the Village of Lions Bay, as a signatory of the **North Shore Community Food Charter**, to participate in developing a plan to activate the Charter.

5 years ago the following governments and organizations supported the North Shore Community Food Charter:

- Bowen Island Municipality
- City of North Vancouver
- District of North Vancouver
- District of West Vancouver
- School District 44
- School District 45
- Squamish Nation
- The Village of Lions Bay
- Tsleil-Waututh Nation
- Vancouver Coastal Health

We look forward to reconvening our Charter signatories to:

1. Briefly share related work by signatories and by the Table Matters Network over this time.
2. Revisit the Charter's Guiding Principles and develop an action plan to activate the Charter over the next 5 years (over the course of 2 meetings).

Your engagement and input will be critical to the success of this process. We request that you identify two elected officials from your organization to participate in these two meetings. We also welcome any staff that would be interested in contributing to this

process.

Each signatory is invited to give a two-minute update to share highlights of your organization's Food Charter-related work.

Attached you will find a DRAFT agenda for the February 22 meeting, a copy of the signed Charter and a background document providing more information for those that are unfamiliar with the Network and the Charter. The North Shore Table Matters Network website is [www.tablematters.ca](http://www.tablematters.ca).

We will confirm a date shortly for a second meeting in the first half of April which will include community and non-profit partners as well.

## **Details**

### **North Shore Community Food Charter Signatory Meeting**

**February 22, 2019 8:30 to Noon**

**Fir Room, Delbrook Community Centre**

**851 W Queens Rd, North Vancouver**

**Please RSVP at:** <https://goo.gl/forms/71UpbZ7BNHRgtWDR2> or to Margaret at 604-904-6482 by **February 15, 2019**.

If you have any questions, please feel free to contact Betina Wheeler at: [nstablematters@gmail.com](mailto:nstablematters@gmail.com) or Margaret Broughton at [margaret.broughton@vch.ca](mailto:margaret.broughton@vch.ca).

We look forward to seeing you on February 22!

Margaret Broughton MSc, RD  
Public Health Dietitian  
Population Health, North Shore  
Vancouver Coastal Health  
3625 Banff Court  
North Vancouver, BC  
V7H 2Z8  
Ph: 604 904-6482 Cell: 604 813-5238  
email: [margaret.broughton@vch.ca](mailto:margaret.broughton@vch.ca)

I write with gratitude from [unceded Coast Salish Territories](#).

The content of this email, including any files attached, is confidential and may be privileged. Any unauthorized copying or distribution is strictly prohibited. If you receive this email in error, please contact the sender immediately and delete this email.

ENDORSEMENT OF

# North Shore Community Food Charter



**Making food matter**  
On the North Shore

The *North Shore Community Food Charter* outlines a vision and principles for an integrated food system for the North Shore.

As signatories we endorse the *North Shore Community Food Charter* and commit to engaging in ongoing dialogue and actions in support of the 5 principles of the *Charter*.

### North Shore Community Food Charter

**5 Principles** for an integrated food system:

**Mayor Darrell Mussatto**  
City of North Vancouver

**Trustee Cyndi Gerlach, Chair**  
North Vancouver School District

**Mayor Richard Walton**  
District of North Vancouver

**Trustee Carolyn Broady, Chair**  
West Vancouver School District

**Mayor Michael Smith**  
District of West Vancouver

**Mike Nader, Chief Operating Officer**  
Vancouver Coastal Health

**Mayor Murray Skeels**  
Bowen Island

**Council Co-chair**  
Squamish Nation

**Mayor Karl Buhr**  
The Municipality of the Village of Lions Bay

**Chief Maureen Thomas**  
Tsleil-Waututh Nation

1. Health, Access & Equity
2. Government Leadership and Collaboration
3. Environmental Responsibility
4. Economic Vitality
5. Community Culture & Education





The North Shore Table Matters Network is a network of local citizens, organizations, businesses, governments and schools working together to support food policy and food-related community development projects. We are building a sustainable food system and making healthy food accessible for everyone living on the North Shore. Our goal is to create an integrated, vibrant and resilient food system.

We have been active on the North Shore since 2005, and we're most known for our Annual Gatherings and for facilitating the development of the North Shore Community Food Charter and the Food Asset Map. The North Shore Neighbourhood House (NSNH) recently provided an official home for the Network. The Network is co chaired by NSNH ED Lisa Hubbard and Vancouver Coastal Health (VCH) Public Health Dietitian Margaret Broughton and supported by a part time coordinator, Betina Wheeler.

Table Matters has a website that provides a wealth of information on our history and projects. It can be found at: <http://www.tablematters.ca/> Make sure you check out the Food Asset Map and the North Shore Community Food Charter when you visit it. We also have a social media presence on Facebook and Twitter. Please follow us and engage!

We are about to embark on an exciting journey to develop a North Shore Food Action Plan. This process will engage the North Shore community and build upon the foundation we have laid with the Food Charter, an exciting new Collective Impact project relating to Food Culture, and our Strategic Inquiry report that provided us with valuable information from our members.



### **Food on the North Shore: The Issues**

The North Shore is unique in Metro Vancouver when looked at through a food lens. In terms of growing food, we have two urban farms as well as community and home gardens, but the North Shore has no agricultural land. The North Shore also hosts little infrastructure in terms of food processing, distribution, or food recovery and composting. We are connected to Metro Vancouver by bridges and have little connection to the food-growing communities of the Squamish and Pemberton Valleys. This leaves our communities surprisingly food-vulnerable as climate change continues to present multiple challenges to our local, regional and global food growing and distribution network.

The North Shore's high average income hides the reality of poverty and hunger in our communities. Our higher-than-average housing costs combined with low or fixed incomes can lead to people having limited access to healthy food - especially the fresh fruit and vegetables that are essential for basic health and nutrition. Despite our perceived wealth, 1 in 5 children are living in poverty and a high percentage of our seniors are food insecure.

Everyone needs to eat, so keeping food affordable and accessible on the North Shore is extremely important. Doing this presents challenges, but it also presents incredible opportunities for the Network to work together to have a positive impact on everyone’s health and well-being.



**Our Projects:**

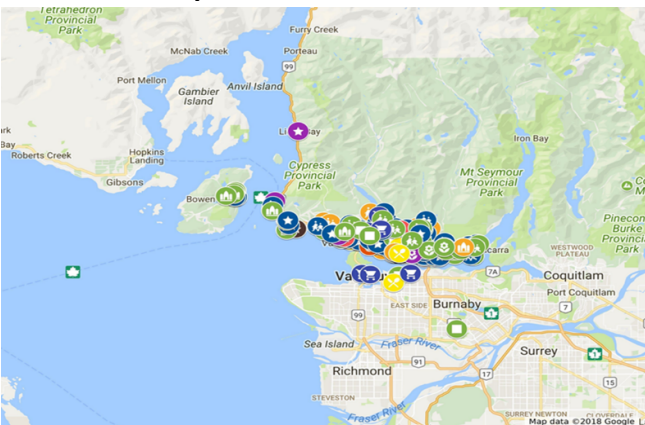
**North Shore Community Food Charter**

Table Matters consulted with the public to create the North Shore Community Food Charter. The North Shore Community Food Charter is a high-level policy tool with broad action principles to guide food policy.



The Charter was endorsed by Bowen Island, the City of North Vancouver, District of North Vancouver, District of West Vancouver, The Village of Lions Bay, Bowen Island Municipality, School Districts 44 and 55, the Squamish Nation, the Tsleil-Waututh Nation, and Vancouver Coastal Health. A strategic plan will activate the Charter. The strategic planning process will start in Feb 2019.

**Food Asset Map**



We worked with UBC Land and Food Systems students to create a Google Map that shows food assets on the North Shore. They are grouped by the following categories:

- Schools
- Community Organizations
- Free or Low-Cost Grocery Items
- Free and Low-Cost Meals
- Retail Stores and Markets
- Growing Food
- Kitchens and Food Programs

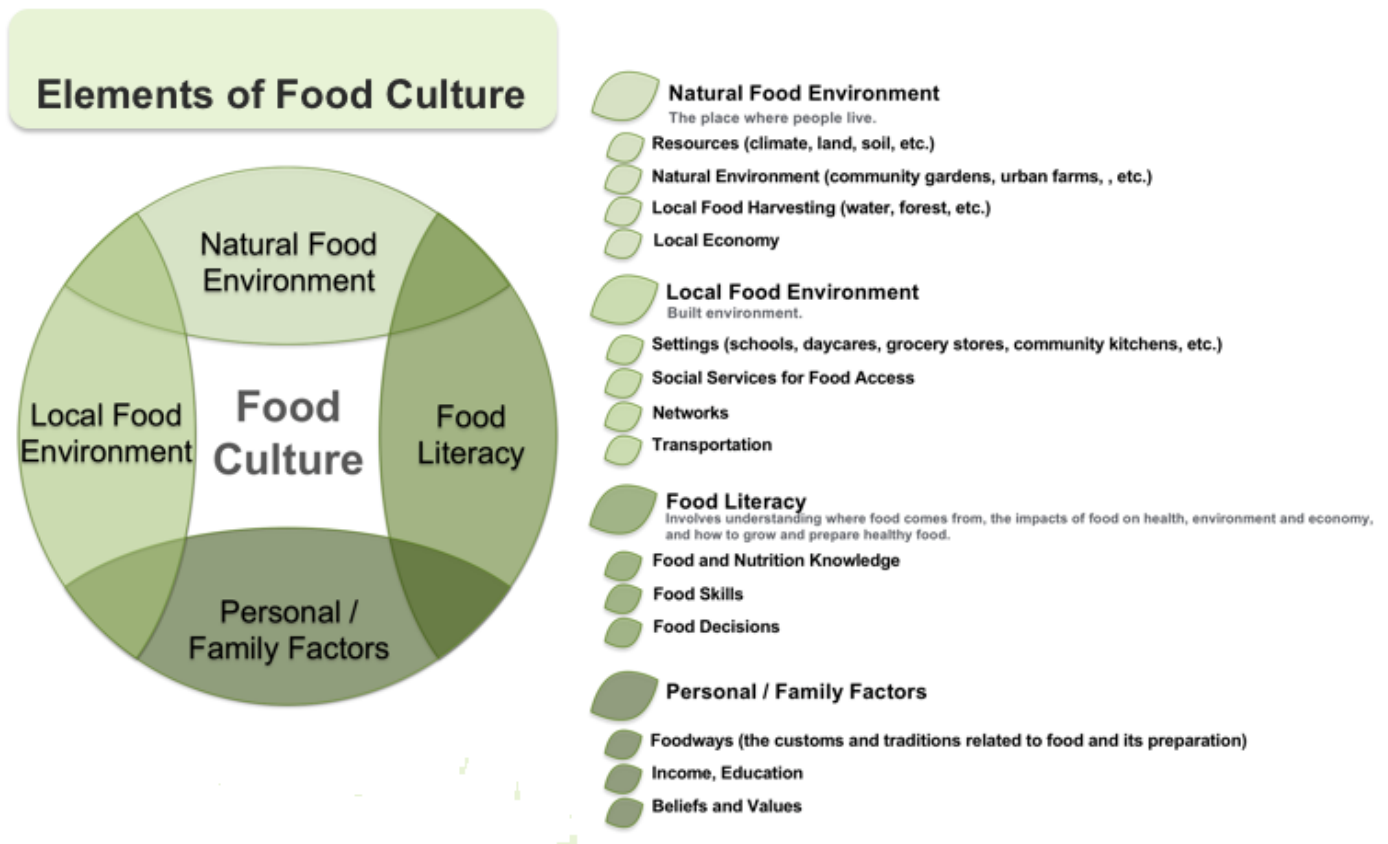
## Food Culture and Children Collective Impact Project (In development)

Key to the collective impact process is collaboration; collaboration around the development of a common agenda, common progress measures, and mutually reinforcing activities that will create a greater impact than if organizations operated on their own.

Table Matters has been working with Innoweave to lay the foundation for a *Food Culture and Children* collective impact project. There has been a lot of foundational work done to date to inform the process. To guide the project, we developed a collective impact statement:

*“To create an integrated, vibrant and resilient Food Culture in Vancouver’s North Shore communities to ensure that all residents have nutritious, safe, and personally and culturally acceptable food, which can be easily accessed in a dignified manner.”*

Here is a visual interpretation of what Food Culture looks like:

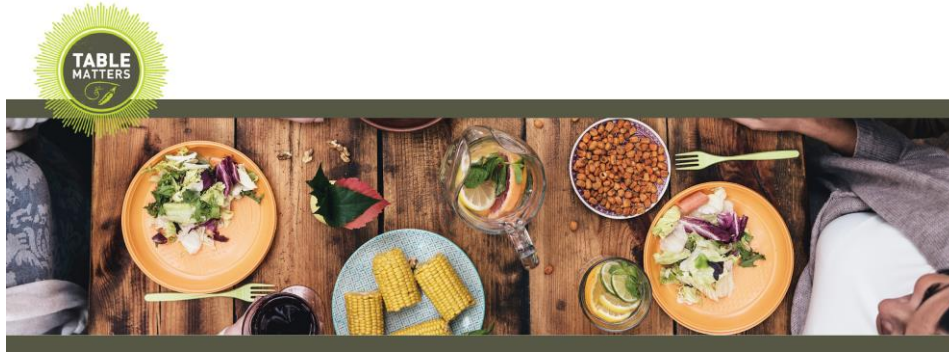


We are excited to see how this collaboration evolves into a pilot project!



*Engaging... Convening... Collaborating... Advocating... Influencing...*

*To build a sustainable food system and make healthy food accessible for everyone living on the North Shore.*



## INVITATION

### North Shore Community Food Charter Signatory Meeting

February 22, 2019 8:30 to Noon

Fir Room, Delbrook Community Centre

851 W Queens Rd, North Vancouver

On behalf of the **North Shore Table Matters Network**, we would like to invite your organization, as a signatory of the **North Shore Community Food Charter**, to participate in a strategic planning process to support the development of a plan to activate the Charter.

It has been 5 years since your organization first supported the North Shore Community Food Charter. We look forward to reconvening our Charter signatories to share the related work that has been done during that time by signatories and by the Table Matters Network.

Over the course of two meetings, we would like to revisit the Charter's Guiding Principles and develop an action plan to activate the Charter over the next 5 years. Your organization's engagement and input will be critical to the success of this process.

We request that you identify two elected officials from your organization to participate in these two meetings. We would also welcome any staff that would be interested in contributing to this process. Each signatory is invited to give a two-minute update to share highlights of your organization's Food Charter-related work.

Attached you will find a DRAFT agenda for the February 22 meeting, a copy of the signed Charter and a background document providing more information for those that are unfamiliar with the Network and the Charter.

We will confirm a date shortly for a second meeting in the first half of April which will include community and non-profit partners as well.

**Please RSVP at:** <https://goo.gl/forms/71UpbZ7BNHRgtWDR2> or 604-904-6482 by **February 15, 2019**.

If you have any questions, please feel free to contact Betina Wheeler at: [nstablematters@gmail.com](mailto:nstablematters@gmail.com) or Margaret Broughton at [margaret.broughton@vch.ca](mailto:margaret.broughton@vch.ca).

We look forward to seeing you on February 22!



## **North Shore Community Food Charter Signatory Meeting**

**February 22, 2019 8:30 to Noon**

**Fir Room, Delbrook Community Centre**

**851 W Queens Rd, North Vancouver**

### **DRAFT Agenda**

**8:00 - 8:30 Light Breakfast Provided**

**8:30 – 8:45 Welcome, Introductions, Agenda Review**

**Context and Proposed Process**

**8:45 – 9:30 Taking Stock – North Shore Community Food Charter after 5 Years**

Mission, Vision, Charter Guiding Principles and Recent Projects

Opportunity for Signatories to share Food Charter-related work

Successes, accomplishments, opportunities and gaps

**9:30 – 10:15 Discussion of Public Sector Levers for Action**

Review of best practices from New Westminster, Kamloops, etc.

Discussion of additional opportunities for action

**10:15 – 10:30 Break**

**10:30 – 11:45 Discussions Re: Opportunities for Collaborative Partnerships and Action**

Small group discussions to identify preliminary partnerships and actions for each signatory to explore before next meeting

**11:45 – 12:00 Summary, Homework and Confirmation of Next Steps**

*We would like to acknowledge the North Shore Neighbourhood House for hosting the North Shore Table Matters Network and Vancouver Coastal Health for providing core funding through the Community Food Action Initiative.*



*Engaging... Convening... Collaborating... Advocating... Influencing...*

*to build a sustainable food system and make healthy food accessible for everyone living on the North Shore.*

**From:** [Peter DeJong](#)  
**To:** [REDACTED]  
**Cc:** [Council @ Lions Bay](#); [Naizam Jaffer](#); [Pam Rooke](#)  
**Subject:** RE: LB beach park renewal  
**Date:** Friday, February 1, 2019 1:04:46 PM

---

Hello Pat:

Exclusion from the Terms of Reference for the AECOM IMP report does not mean that other infrastructure such as parks infrastructure isn't also very important for the Village of Lions Bay. Similar examples of infrastructure excluded from the report would include the Municipal Offices and Broughton Hall, the Dale Klatt Fire Hall and Ambulance Building, and the Frank Smith Public Works Building. Without these other critical assets, the community would be severely handicapped and many residents would've likely decided not to live here without such assets due to a substandard quality of life. Attracting families to live in Lions Bay and support our school and other valued community assets is part of our OCP and Council's Strategic Planning Priorities.

Council also recognizes that 77% grant funding opportunities are not the norm historically and, with one or more senior government elections on the horizon, may not be available again any time soon. These are not monies that would otherwise be spent on water, sewer and roads projects. Those infrastructure projects require at least 50% grant funding to be at all economically feasible and the loan authorization bylaw approved by referendum in 2016 was also clear on that concept. The Municipality has applied for each of the infrastructure grant intakes, with approval on the first and an unknown result on the second. We will be ready with shovel ready plans for the third such intake, expected in Spring 2019, and will continue to apply for grants in respect of infrastructure needs identified in the IMP. One of our objectives with these grants is to combine opportunities to improve water, storm drainage and roads so that we are not faced with digging up the same section of road more than once. It should also be noted that grant programs do not support exclusive improvements to roads – they must be captured within the rebuild after the primary purpose (eg: watermain replacement).

I know you and many others, including Council and staff, are passionate about the need to improve the infrastructure deficit identified in the IMP. We are always looking to advance this goal at every opportunity (see for example, the Oceanview drainage item on the pending February 5<sup>th</sup> Agenda), but will still consider other core infrastructure vital to Villagers' way of life in Lions Bay. Again, thank you for your valued feedback on these matters.

**Peter DeJong**, BA, LLB, CRM  
*Chief Administrative Officer*

**The Municipality of the Village of Lions Bay** [www.lionsbay.ca](http://www.lionsbay.ca)  
PO Box 141, 400 Centre Road, Lions Bay, BC V0N 2E0 , Canada

Village Office (604) 921-9333 | Fax (604) 921-6643

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**From:** Patrick Craig [REDACTED]  
**Sent:** Friday, January 18, 2019 7:13 PM  
**To:** Peter DeJong <cao@lionsbay.ca>  
**Cc:** Council @ Lions Bay <council@lionsbay.ca>  
**Subject:** Re: LB beach park renewal

Thanks Peter

I guess then by the answer to question 1&4 that this is not critical infrastructure, as was addressed by the AECOM infrastructure report. My concern is why this would then take precedence over critical infrastructure. Taxpayer dollars on critical infrastructure should be a priority for this Village. A structured decision making process by a Professional Project Manager would likely afford this conclusion.

I welcome you to walk the LB streets with me in the next storm cycle to observe flows.

How very disappointing.

On Friday, January 18, 2019, Peter DeJong <[cao@lionsbay.ca](mailto:cao@lionsbay.ca)> wrote:

Hello Pat:

Thanks for your email below. Replies are provided inline.

**Peter DeJong**, BA, LLB, CRM  
*Chief Administrative Officer*

**The Municipality of the Village of Lions Bay** [www.lionsbay.ca](http://www.lionsbay.ca)  
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**From:** Patrick Craig [REDACTED]  
**Sent:** Saturday, December 08, 2018 4:23 PM  
**To:** Ron McLaughlin <[mayor.mclaughlin@lionsbay.ca](mailto:mayor.mclaughlin@lionsbay.ca)>; Council @ Lions Bay

<[council@lionsbay.ca](mailto:council@lionsbay.ca)>

**Cc:** Peter DeJong <[cao@lionsbay.ca](mailto:cao@lionsbay.ca)>

**Subject:** LB beach park renewal

Please provide reference to Lions Bay Beach park recommendation for repairs/renewal found within the recent Lions Bay infrastructure report completed under last Council term. As you likely know, the Infrastructure Master Plan prepared by AECOM did not examine or address municipal infrastructure or assets other than those related to the potable water system, the sewer system, drainage, and roads & bridges.

Please provide results of Lions Bay Beach Park renewal survey, citing yes VS no results, to support Lions Bay Beach Park renewal decision by Council.

Please see [https://www.lionsbay.ca/sites/2/files/docs/community/Parks/lbbpac\\_com.pdf](https://www.lionsbay.ca/sites/2/files/docs/community/Parks/lbbpac_com.pdf), which includes a link to the survey questions and results.

Please provide status/results of a structured decision-making process, as applied to Project Management Systems for decision making, to effectively draw such conclusion to advance the Lions Bay Beach Park renewal. If not undertaken, why not?

The linked document above includes a link to the Terms of Reference for the Lions Bay Beach Park Advisory Committee, noting the rationale for its creation and the process that would be used to provide for community consultation and recommendations to Council.

Please outline methods to avoid a similar situation as Lions Bay did so with the Village Hall renewal.

Issues requiring repair, renewal or replacement were identified during the LBBPAC process, consultation with the community took place via survey and then again via requested feedback on draft plans formulated with preliminary pricing and, once a final check back with the committee and those members of the public that were engaged enough to provide feedback, grant funding was identified and cost estimates were updated for the purposes of grant submission, which will be done by January 23, 2019. The Lions Bay Beach Park Revitalization Project is modest in scope and will either be approved for grant funding or not. If not, Council will need to determine options for the community at that point in time.

Will a copy of the Lions Bay Infrastructure report be appended to the grant application being submitted for the Lions Bay Beach Park renewal? If not, why?

The IMP will not be appended to this grant application for the reasons set out in my response to your first question.

Pat

Thank you for your interest in this project.

Peter DeJong