

February 7, 2014

File: 0620-20
CALWMP Amendments to MOE

The Honourable Mary Polak
Minister of Environment
PO Box 9047 Stn Prov Govt
Room 247, Parliament Buildings
Victoria, BC V8W 9E2

Dear Minister Polak:

RE: CAPITAL REGIONAL DISTRICT CORE AREA LIQUID WASTE MANAGEMENT PLAN AMENDMENT NO. 9

On behalf of the Capital Regional District (CRD), it is my pleasure to submit Amendment No. 9 (Attachment A) to the Core Area Liquid Waste Management Plan (CALWMP) for your approval. Amendment No. 9 builds on information submitted to the ministry in Amendment No. 8, which was approved on August 25, 2010.

Over the past three years, since Amendment No. 8 was approved, the Core Area Wastewater Treatment Program (Seatterra Program) has continued to develop and refine, resulting in a requirement to make further changes to the CALWMP. The purpose of Amendment No. 9 is to incorporate these minor changes into the CALWMP by modifying Amendment No. 8, as follows:

1. *The scheduled project completion date moves from the end of 2016 to the end of 2018.*

The additional time is required to make up for time lost when the project was put on hold for an extended period until all senior government funding was secured. The federal and provincial funding agreements are for work to be completed by the end of 2018.

2. *The initial storage volume of the proposed Arbutus Road attenuation tank is reduced from 12,000 cubic metres to 5,000 cubic metres.*

This attenuation tank is required to enable the transmission of all Saanich East flows to the proposed McLoughlin Point treatment plant. The original 12,000 cubic metre capacity tank was based on a 2004 consultant's study that indicated an original 6,000 cubic metre tank in 2010 and an additional 6,000 cubic metre tank in 2025, so a 12,000 cubic metre tank was proposed in Amendment No. 8. The consultant, Kerr Wood Leidal, has now updated the original study using flow data collected since 2004. Based on the current flow data and water reduction trends, the consultant now recommends that a 5,000 cubic metre facility be constructed initially, and that "space should be reserved to double the size of the facility at some time in the future beyond 2030 should inflow and infiltration increase beyond current levels."

3. *New sewage screening facilities are proposed for both Clover Point and Macaulay Point pump stations.*

The commitment in Amendment No. 8 was to provide new grit removal facilities at both pump stations but to retain the existing raw sewage screens. On further consideration, it has been concluded that the existing screening facilities at both pump stations should be replaced at the same time as the grit removal facilities.

4. *Biosolids processing to produce only dry fuel for cement kilns, pulp mills or waste-to-energy facilities is revised to include other beneficial uses that comply with CRD Board policy.*

The commitment in Amendment No. 8 was to dewater and dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste-to-energy facilities. On further consideration, this restricts the ability of proponents for the Biosolids Energy Centre to recommend other innovative, alternative technologies that may result in significantly improved system performance and cost savings while providing products for beneficial use in strict compliance with CRD Board policy.

5. *A number of wording changes are proposed in Amendment No. 9 to clarify ambiguities and to enable proponents to recommend alternative technologies that may result in improved system performance or cost savings.*

Replace the words “thermophilic anaerobic digestion” with the words “solids stabilization” to enable the biosolids processing system to be designed and operated to economically produce a product that is suitable for its proposed use or disposal method.

Amend biosolids processing to include other solids stabilization processes that produce biosolids for beneficial use in a manner consistent with CRD Board policy.

Amend phosphorous recovery via struvite crystallization to allow other options that will recover phosphorous fertilizer from the solids stabilization process for beneficial use.

As committed to under Amendment No. 8, the CRD continues to conduct a comprehensive public involvement and engagement program, including meetings with communities, community associations and open houses in the Core Area municipalities, to keep the public and stakeholders fully informed on all aspects of the Seaterra Program. The CRD has also disseminated information throughout the region regarding the three major projects at McLoughlin Point, Clover Point and Hartland Landfill, including mailers to all residents in the surrounding areas (Prospect Lake, Willis Point, Highlands, Fairfield, James Bay and Esquimalt) and provided numerous opportunities for the interested public to comment.

The CRD continues to inform the First Nations that are engaged and interested in the Seaterra Program to ensure they are fully informed of all aspects of the program. The Songhees, Esquimalt, Beecher Bay and Tsawout First Nations have participated, or been invited to participate, in the implementation of the Seaterra Program. They have been kept informed of the marine monitoring investigations, which culminated in the completion of the McLoughlin Point Stage 2 Environmental Impact Study for the marine components of the program being

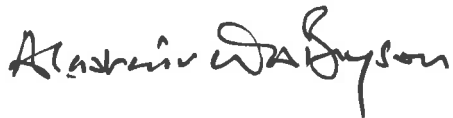
presented to them in July 2013. Further engagement with the First Nations will continue as the various Seaterra Program facilities are implemented.

Public consultation for Amendment No. 9 has included full discussion and review at the public meetings of the Technical and Community Advisory Committee (TCAC) and the Core Area Liquid Waste Management Committee (CALWMC) with both the Songhees First Nation and Esquimalt First Nation having membership on the TCAC. The TCAC meeting agendas and minutes regarding Amendment No. 9 are provided in Attachment B.

The CRD Board approved the submission of Amendment No. 9 to the ministry for final approval at its meeting of January 8, 2014, based on the recommendations from both the TCAC and the CALWMC.

Should you or your ministry staff have any questions about the attached documents, please contact Larisa Hutcheson, General Manager, Parks & Environmental Services at 250.360.3085 or lhutcheson@crd.bc.ca.

Yours sincerely,



Alastair Bryson
Chair
Capital Regional District Board

Attachments: 2

cc: CRD Board of Directors
Honourable Coralee Oakes, Minister of Community, Sport and Cultural Development
Hubert Bunce, A/Director, Environmental Protection Division, Ministry of Environment
Robert Lapham, Chief Administrative Officer, CRD
Larisa Hutcheson, General Manager, Parks & Environmental Services, CRD

ATTACHMENT A

Core Area Liquid Waste Management Plan

Amendment No. 9

CAPITAL REGIONAL DISTRICT
CORE AREA LIQUID WASTE MANAGEMENT PLAN
AMENDMENT NO. 9

As Approved by the Ministry of Environment on _____

SUBJECT: CORE AREA WASTEWATER TREATMENT PROGRAM

TYPE OF AMENDMENT: CRD INITIATED - MINOR

PURPOSE

The BC Ministry of Environment approved Amendment No. 8 of the Core Area Wastewater Treatment Plan (CALWMP) on August 25, 2010. Since that time, the CRD has further refined and developed the Core Area Wastewater Treatment Program (Seatterra Program), which is the major component of the plan. As a result, the CRD seeks regulatory approval from the Ministry with the submission of Amendment No. 9 to the CALWMP. The purpose of Amendment No. 9 is to incorporate these changes into the CALWMP by modifying the applicable clauses in Amendment No. 8, without impacting any other commitments already included in the CALWMP.

BACKGROUND

The changes to the CALWMP, as proposed in Amendment No. 9, are as follows:

1. The scheduled project completion date moves from the end of 2016 to the end of 2018. The additional time is required to make up for time lost when the project was put on hold for an extended period until all senior government funding was secured. The Federal and Provincial funding agreements are for work to be completed by the end of 2018.

Amendment to Program Schedule:

Amend page 1.2 of Section 1, and Commitments 1 and 2 on page 6.1 of Section 6, by deleting the phrase "by the end of 2016" and replacing it with "by the end of 2018", and also, in Section 13, by deleting the Preliminary Program Schedule, dated 09 June 2010 and replacing it with the Program Schedule, dated 30 September 2013, which is attached as Appendix 1.

2. The initial storage volume of the proposed Arbutus Road attenuation tank is reduced from 12,000 cubic metres to 5,000 cubic metres.

This attenuation tank is required to enable the transmission of all Saanich East flows to the proposed McLoughlin Point treatment plant. The original 12,000 cubic metre capacity tank was based on a 2004 consultant's study and was the ultimate size that would be required if inflow and infiltration (I&I) continued to increase beyond 2025. The consultant, Kerr Wood Leidal, has now updated the original study using flow data that has been collected since 2004. The consultant now recommends that a 5,000 cubic metre facility be constructed initially, and that space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase beyond current levels. The consultant's report is attached to this Amendment as Appendix 2.

Amendment to the Proposed Capacity of Arbutus Road Attenuation Tank:

Amend page 1.2 of Section 1 by deleting “As indicated in figure 6.1A, a 12,000 m³ wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich.” and replacing it with “As indicated in figure 6.1A, a 5,000 m³ wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich.” The revised figure 6.1A is attached as Appendix 3.

3. New sewage screening facilities are proposed for both Clover Point and Macaulay Point pump stations.

The commitment in Amendment No. 8 was to provide new grit removal facilities at both pump stations, but to retain the existing raw sewage screens. On further consideration, it has been concluded that the existing screening facilities at both pump stations should be replaced when the grit removal facilities are replaced.

Amendment to Add New Screening Facilities to Clover Point and Macaulay Point Pump Stations:

Amend Commitment 2.f) on page 6.1 of Section 6 by deleting “New grit removal facilities at the existing Clover Point and Macaulay Point pump stations. The raw sewage screening facilities at both locations will be retained.” and replacing it with “New grit and screening facilities at the Clover Point and Macaulay Point pump stations.”

4. Biosolids processing to produce only dry fuel for cement kilns, pulp mills or waste-to-energy facilities is revised to include other beneficial uses that comply with CRD Board Policy (Appendix 4).

The commitment in Amendment No. 8 was to dewater and dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste-to-energy facilities. On further consideration, it has been concluded that this restricts the ability of proponents for the Biosolids Energy Centre to recommend other innovative alternative technologies that may result in significantly improved system performance and cost savings while providing products for beneficial use that are in strict compliance with CRD Board.

Amendment to Biosolids Processing:

Amend Commitment 3.a) on page 6.2 of Section 6 by deleting “Using thermophilic anaerobic digestion to stabilize and reduce solids, kill pathogens and generate methane gas (biogas) for use onsite or offsite in the natural gas distribution system.” and replacing it with “Using a solids stabilization process to stabilize and reduce solids, kill pathogens and generate biogas for use onsite or offsite.”

Amend Commitment 3.b) on page 6.2 of Section 6 by deleting “Dewatering and drying some or all of the digested biosolids and selling it as a fuel for cement kilns, paper mills or other energy facilities.” and replacing it with “Preparing the biosolids for beneficial use in a manner consistent with CRD policy.”

5. In addition to the above, there are a number of proposed wording changes in Amendment No. 9 intended to clarify ambiguities or to enable proponents to recommend innovative alternative technologies that may result in improved system performance or cost savings. These changes include the replacement of the words “thermophilic anaerobic digestion” with the words “solids stabilization” to enable the biosolids processing system to be designed and operated to economically produce a product that is suitable for its proposed use or disposal method.

Amendments Regarding the Recovery of Energy from Biosolids:

Amend Commitment 2.a) on page 7.1 of Section 7 by deleting “Provide thermophilic anaerobic digesters to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction.” and replacing it with “Provide solids stabilization to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction.”

Amend Commitment 2.b) on page 7.1 of Section 7 by deleting “Provide some additional capacity in the digesters to accept source separated food waste and/or fats, oils and greases (FOG) to enhance the production of biomethane.” and replacing it with “Provide additional capacity in the stabilization process to accept source separated food waste and/or fats, oils or greases (FOG) to enhance the production of biogas.”

Amend Commitment 2.c) on page 7.1 of Section 7 by deleting “Upgrade biogas to high quality biomethane and inject it into the natural gas pipeline system and/or use it in vehicles or at the biosolids processing facility.” and replacing it with “Use the biogas generated by the solids stabilization process onsite or offsite.”

Amend Commitment 2.d) on page 7.1 of Section 7 by deleting “Recover waste heat from the digesters to warm the raw sludge being fed to them, thereby reducing digester heating costs.” and replacing it with “Recover waste heat, where practical, from the solids stabilization process to reduce energy consumption.”

Amend Commitment 2.e) on page 7.1 of Section 7 by deleting “Dewater and thermally dry the digested biosolids to be used as a fuel for cement kilns, paper mills or waste to energy facilities.” and replacing it with “Prepare the biosolids for beneficial use in a manner consistent with CRD policy.”

Amendment Regarding Phosphorous Recovery:

Amend Commitment 4 on page 7.2 of Section 7 by deleting “The Capital Regional District and the participating municipalities will recover phosphorous fertilizer (via struvite crystallization) from anaerobic digester return streams for sale as a fertilizer.” and replacing it with “The Capital Regional District and the participating municipalities will recover phosphorous fertilizer from the solids stabilization process.”

AMENDMENT APPROVALS

Capital Regional District Board Approval

January 8, 2014

Ministry of Environment Approval

_____, 2014

Attachments: 4

ID	Task Name	Duration	Start	Finish	2012		2013				2014				2015				2016				2017				2018				2019				2020	
					Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2		
0	CAWTP	100.3 mons	Mon 04/30/12	Fri 03/27/20																																
1	KEY MILESTONES	74.65 mons	Mon 04/30/12	Tue 04/03/18																																
14																																				
15	ENVIRONMENTAL	3.15 mons	Tue 12/18/12	Fri 03/15/13																																
16	ENVIRONMENTAL REVIEW AND APPROVAL (McLoughlin, Clover, Macaulay & Conveyance)	3.15 mons	Tue 12/18/12	Fri 03/15/13																																
21																																				
22	PROGRAM PLANS	9.2 mons	Fri 03/01/13	Fri 11/22/13																																
23	Project Implementation Plan	9.2 mons	Fri 03/01/13	Fri 11/22/13																																
31	Project Management Plan	9.2 mons	Fri 03/01/13	Fri 11/22/13																																
39	Program Budget	8.25 mons	Fri 03/01/13	Fri 10/25/13																																
50	Program Schedule	8.25 mons	Fri 03/01/13	Fri 10/25/13																																
57																																				
58	COMMISSION BRIEFING MATERIAL	4.6 mons	Fri 03/15/13	Fri 07/26/13																																
64																																				
65	ENVIRONMENTAL REMEDIATION	24.15 mons	Thu 11/15/12	Tue 10/14/14																																
70																																				
71	DESIGN	2.4 mons	Mon 11/19/12	Fri 01/25/13																																
72	CADD and Design Standard	1.9 mons	Mon 12/03/12	Fri 01/25/13																																
75	Design Criteria	2.38 mons	Mon 11/19/12	Fri 01/25/13																																
78																																				
79	LAND ISSUES	10.85 mons	Mon 04/29/13	Fri 03/07/14																																
80	McLoughlin Point Site Purchase	0 days	Mon 04/29/13	Mon 04/29/13																																
81	Biosolids Site	10.1 mons	Tue 05/21/13	Fri 03/07/14																																
86	DND	4.15 mons	Mon 06/03/13	Mon 09/30/13																																
89	Transport Canada	4.15 mons	Mon 06/03/13	Mon 09/30/13																																
92	Victoria Harbour Authority	3.15 mons	Tue 07/02/13	Mon 09/30/13																																
95																																				
96	REZONING / STAKEHOLDER MANAGEMENT	18 mons	Wed 01/02/13	Tue 06/03/14																																
97	Program Wide Open Houses	18 mons	Wed 01/02/13	Tue 06/03/14																																
98	Program Wide Public Meetings	18 mons	Wed 01/02/13	Tue 06/03/14																																
99	Haro Woods	0.15 mons	Wed 02/20/13	Sat 02/23/13																																
102	McLoughlin	5.95 mons	Thu 04/11/13	Mon 09/30/13																																
110	Craigflower Pump Station	0 mons	Tue 02/26/13	Tue 02/26/13																																
112																																				
113	DEVELOPMENT PERMIT APPLICATION PROCESS	11.5 mons	Tue 02/26/13	Fri 01/24/14																																
114	McLoughlin Wastewater Treatment Plant	4 mons	Tue 10/01/13	Fri 01/24/14																																
115	Biosolids / Energy Recovery Facility (Rezoning & DP)	4 mons	Tue 10/01/13	Fri 01/24/14																																
116	Craigflower Pump Station	45 days	Tue 02/26/13	Tue 04/30/13																																
117																																				
118	INFRASTRUCTURE WORK	12.3 mons	Fri 03/15/13	Thu 03/06/14																																
119	McLoughlin Wastewater Treatment Plant	0 mons	Fri 03/15/13	Fri 03/15/13																																
121	Biosolids / Energy Recovery Facility	6 mons	Mon 09/16/13	Thu 03/06/14																																
123																																				
124	PROGRAM WIDE PROCUREMENT	6.3 mons	Fri 11/23/12	Wed 05/22/13																																
125	SCADA	4.85 mons	Mon 01/07/13	Wed 05/22/13																																
134	Legal Services Advisor	2.15 mons	Fri 11/23/12	Thu 01/24/13																																

Project: CAWTP
Date: Fri 09/27/13

Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
Split		External Tasks		Inactive Summary		Manual Summary		Critical	
Milestone		External Milestone		Manual Task		Start-only		Critical Split	
Summary		Inactive Task		Duration-only		Finish-only		Progress	



Greater Vancouver
200 - 4185A Still Creek Drive
Burnaby, BC V5C 6G9
T 604 294 2088
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Technical Memorandum

DATE: September 4th, 2013

TO: Malcolm Cowley, P.Eng., Capital Regional District

FROM: Chris Johnston, P.Eng.

RE: CORE AREA WASTEWATER MANAGEMENT PROGRAM
Updated Memorandum Summarizing the Determination of Storage Volumes Along the
East Coast Interceptor
Our File 283.365-300

Introduction

Kerr Wood Leidal Associates Ltd. (KWL), as part of the *Northeast Trunk Sewer and East Coast Interceptor Sewer Upgrade Options Study, CRD, September 2004* previously assessed flows in the Capital Regional District's (CRD's) East Coast Interceptor (ECI) and developed a number of options to eliminate overflows from storms up to the 5-year return period. The preferred option included a peak flow attenuation tank in the Arbutus area, an upgrade to the existing Currie Road Pumping Station, a new peak flow pumping station at Trent Street, and conveyance system improvements between Currie Road and Clover Point pumping stations. The study developed preliminary sizing for the Arbutus tank and determined that a 6,000 cubic metre tank would be needed immediately and expanded to a 12,000 cubic metre facility in 2025 based on an estimated growth in inflow and infiltration.

Since 2004, considerable data has been collected on the performance of the ECI/NET system, and the impact of water efficiency programs such as low-flow fixtures. As well, the Core Area Wastewater Treatment Program (CAWTP) was initiated leading to the creation of a new design criteria and the sizing of new treatment facilities. A memorandum was prepared in October 21, 2010 that utilizes this new data set and criteria change to refine the previous 2004 analysis and confirm the sizing of the proposed storage facility. The purpose of this memorandum is to summarize the updated 2010 analysis.

Regulatory Requirements

The current Core Area Liquid Waste Management Plan (CALWMP) submitted to the Province by the CRD commits the CRD to intercept and convey all flows up to the 5-year storm through to the Clover Point Pumping Facility for marine locations along the East Coast of Greater Victoria. A commitment for Oak Bay to separate the combined sewer areas of the Uplands is additionally mandated by the Ministry of Environment. All flows in excess of the 5-year storm will be permitted to discharge through approved overflow facilities at Finnerty Cove and McMicking Point.



Approach to Analysis

The approach adopted for this updated analysis is the following:

- Use nearly 400,000 flow monitoring data records in the simulation of historical flow. Calibration of the model was achieved by directly comparing measured level of flow over the overflow weir at Arbutus to the model output. The level at the weir was identified as a critical calibration parameter, and sensitivity analyses were performed to identify the level of confidence in this reading (discussed below).
- The NET/ECI system is controlled through a set of logic controls administered through the operations centre at Macaulay Point. For example, during rain events, downstream level measurements can implement controls upstream to throttle pump station flows to protect downstream residents from sewer backups. This same functionality has been modeled to identify the impact of controls on overflow frequency and volume.
- Validation of the model was confirmed by comparing modeled overflows with recorded overflow events (discussed below).
- Create several data sets of information based on the 11 years of continuous data, namely: a base case scenario using the raw data, a 2030 data set based on the latest population projections and water fixture replacement programs, and an additional 2030 data set using predicted inflow and infiltration escalation rates based on previous CRD research.
- Run the data sets through the upgraded hydraulic model to determine the size of storage facility required to prevent overflows from occurring in storms less than the 5-year return period.
- Develop design scenarios to investigate the sensitivities of various design parameters, proposed operational controls, and measuring sensor accuracies.
- Select the preferred tank size.

Of interest, the 2004 study was limited to a flow monitoring period of three winter seasons (1999 to 2002).

Existing Overflows Along the NET/ECI and Model Calibration

Table 1 shows a summary of the current number of overflows along the NET/ECI for the period of 2000 to 2007 upstream of the Clover pump station (reference: *Sanitary Sewer Overflow Management Plan*, CRD, June 2008).

Table 1: Recorded Overflows Upstream of Clover Point: 2000 - 2007

Overflow Name	2000	2001	2002	2003	2004	2005	2006	2007	Total
Finnerty Cove	1	3	3	6	2	3	4	7	29
Currie PS/McMicking Point	1	6	2	7	3	7	8	9	43
Humber PS	4	3	1	5	3	6	8	5	34
Rutland PS	4	6	2	8	8	10	8	7	53

Under the existing condition, baseline data set (existing operational control conditions with the current facilities in place), the model predicted a similar number of overflow events as shown in Table 1.



TECHNICAL MEMORANDUM
 Updated Memo. Summarizing Determination of Storage Volumes Along East Coast Interceptor
 September 4th, 2013

Decreasing Unit Wastewater Rates

Design flows were calculated as part of the *Wastewater Flow Management Strategy Discussion Paper*¹. This document summarizes that for the "Fixture Reduction Rates Scenario", the sanitary flow will be equal to 196 L/cap/day for the year 2030. A review of the 2010 data indicates that the sanitary flow is approximately 195 L/cap/day. Of interest, the adjusted unit rate measured in 2001 was 223 L/c/d indicating that there has been a decline in unit rates over the past decade. This is similar to trends throughout the CRD and North America both in terms of water consumption and sewage generation. This unit rate is below the 225 L/cap/d value used in the 2004 analysis indicating that this component of the previous storage tank sizing was conservative. Further, since the existing rate of 195 L/c/d already matches the projected rate in the "Fixture Reduction Rates Scenario", it can be concluded that toilet and appliance replacements are happening faster in the Arbutus/Finnerty area.

Continuous Model Simulation of Future Improvements

Under the future condition with the proposed upgrades in the CAWTP, several storm events came close to triggering an overflow event, but only the December 15, 1999 event produced a 2,000 cu.m. overflow upstream of the Clover Point Pump Station (excluding the combined sewer areas tributary to the Humber and Rutland pump stations). However, it should be noted that the major storm event on October 20, 2003 would have likely produced an overflow, had it not been preceded by an extended dry period (the soil was able to absorb a significant portion of the event).

The return period of the December 15, 1999 event is estimated to be close to five years at the critical 12 to 24 hour duration based on a comparison of rainfall recorded at the Penryhn rain Gauge to the historical Intensity-Duration-Frequency curves for the area. Therefore, the storage facility should be sized large enough to capture this event.

Selection of Preferred Storage Volume

The results of this analysis were then run for twelve sensitivity scenarios based on varying the domestic flow, I&I and Oak Bay combined sewer separation rate. Although significant care has been taken in confirming the accuracy of the flow data used in this analysis, it is important to note that there are some significant data resolution factors associated with predicting future overflow volumes from storm events using the 4 metre long sharp crested weir at the Arbutus flow monitoring station. For this reason, a sensitivity analysis was performed to derive appropriate factors of safety to add to any particular scenario. The sensitivity analysis includes analyzing the historical storm events using a 1 to 2 cm drift in the measurement equipment over an average storm duration. The appropriate factor of safety is calculated to be 2,000 cu.m.

The preferred tank size based on the sensitivity analysis is 5,000 cubic metres as summarized in Table 2.

Table 2: Preferred Tank Sizing

Option	Description	Storage Volume (cu.m)
Base Case	2,000 cu.m raw storage volume, plus 2,000 cu.m. factor of safety based on above, and 25% provision for operational control.	5,000

¹ CH2M Hill, Associated Engineering and Kerr Wood Leidal Associates, Capital Regional District Core Area Wastewater management Program, Wastewater Flow management Strategy Discussion Paper – Design Flow Tables, 033-Dp-2, January 2009



Updated Memo. Summarizing Determination of Storage Volumes Along East Coast Interceptor
September 4th, 2013

TECHNICAL MEMORANDUM

The provision for operational control is based on the fact that storage facilities will not operate exactly as the theoretical model used in this study. This is due to the fact that the SCADA system will have inherent issues such as time lags, hydraulic constraints, sensor resolution, or other equipment limitations. Depending where the tank is actually situated, the operational control could be up to 25% of the total storage volume.

This sizing is confirmed by the 'I&I increase' sensitivity analysis, which identifies an ultimate tank size of 10,000 cu.m., of which 5,000 cu.m. is recommended for a future expansion beyond 2030.

The analyses assume that Uplands combined sewers will be separated by Oak Bay as stipulated by the Ministry of Environment when they approved the Core Area LWMP. Never-the-less, Oak Bay and the Core Area Liquid Waste Management Committee inquired whether a larger tank could help solve Oak Bay's combined sewer overflows in addition to meeting MOE's requirements. Therefore, options for reducing overflows to a 5-year event without Uplands sewer separation were identified in KWL's October 20, 2010 memo "ECI Storage and Flows – Uplands Sewers Not Separated". Using findings from this analysis, CRD report #EWW 10-96 identified that a larger tank plus significant downstream conveyance upgrades would be required, at an estimated additional cost of \$25M would be required to address overflows resulting from Uplands combined sewers if Oak Bay does not separate.

Summary

Based on the Table 2 analysis, the recommendation is to construct a 5,000 cubic metre storage facility along the Penryhn siphon preferably at the top end of the siphon next to the existing Arbutus Flume and Finnerty Cove Overflow facility. It is also recommended that based on the sensitivity analysis, space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase above current levels.

The revision in sizing from the previous 6,000 cu.m in the 2004 study to the current 5,000 cu.m. sizing is predominately due to a measured reduction in sewage generation rates (i.e. from 223 in 2001 to 195 L/c/day in 2010) as well as an analysis method using a significantly longer data set. The provision to increase the tank volume from 5,000 cu.m. to 10,000 cu.m (12,000 cu.m in the 2004 study), is still valid based on predicted I&I research. However, the estimated year in which this increase in storage is required has moved from 2025 to outside the CAWTP 2030 time frame, and is therefore not included in the proposed capital plan expenditures.

KERR WOOD LEIDAL ASSOCIATES LTD.

Prepared by:

Chris Johnston, P.Eng.
Project Manager

CJ/am
Encl.

KERR WOOD LEIDAL ASSOCIATES LTD.
consulting engineers



Updated Memo: Summarizing Determination of Storage Volumes Along East Coast Interceptor
September 4th, 2013

TECHNICAL MEMORANDUM

Statement of Limitations

This document has been prepared by Kerr Wood Leidal Associates Ltd. (KWL) for the exclusive use and benefit of the intended recipient. No other party is entitled to rely on any of the conclusions, data, opinions, or any other information contained in this document.

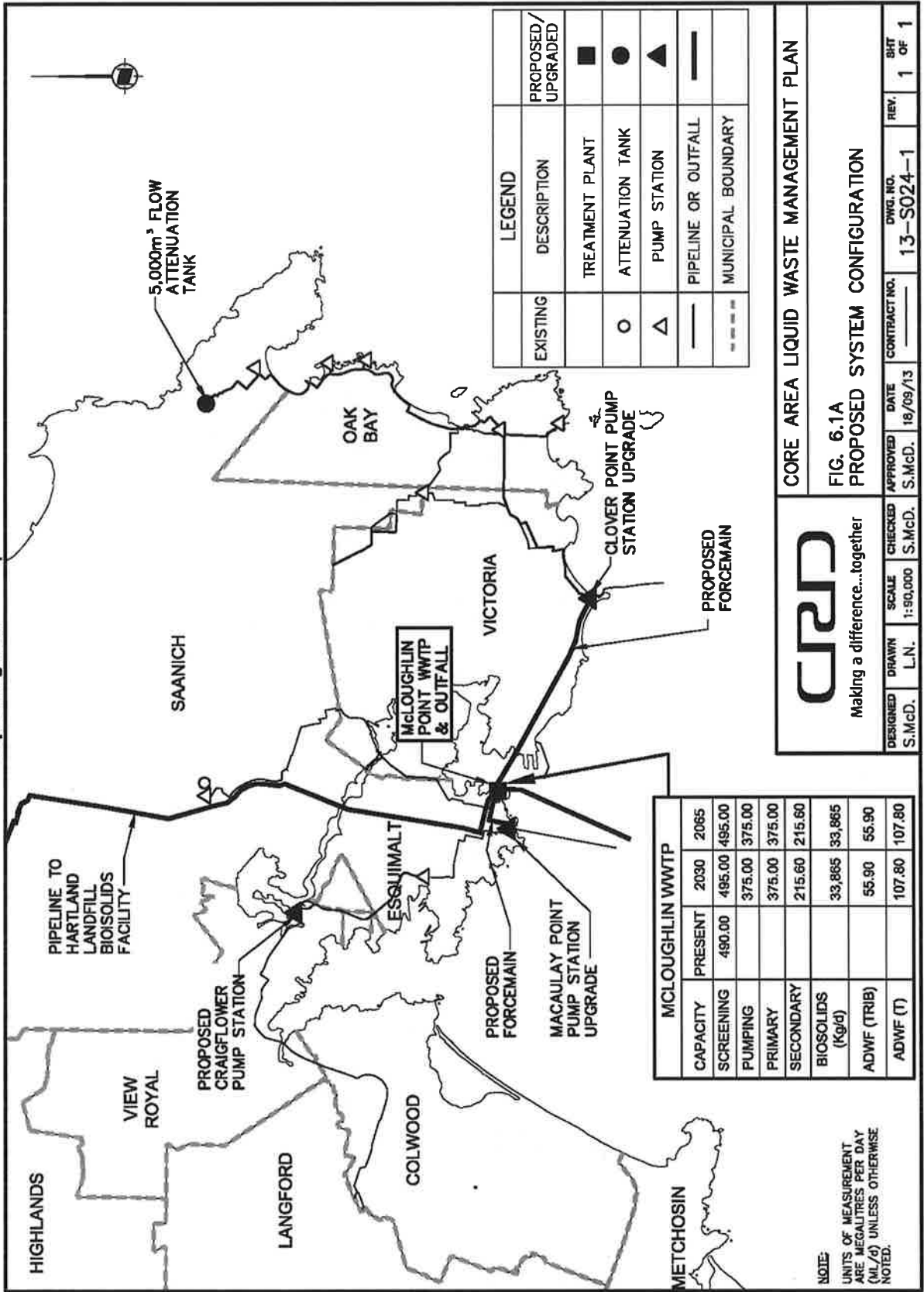
This document represents KWL's best professional judgement based on the information available at the time of its completion and as appropriate for the project scope of work. Services performed in developing the content of this document have been conducted in a manner consistent with that level and skill ordinarily exercised by members of the engineering profession currently practising under similar conditions. No warranty, express or implied, is made.

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Revision History

Revision #	Date	Status	Revision	Author
0	Sept 4, 2013	For Review		CJ



EXISTING	LEGEND	PROPOSED/UPGRADED
○	TREATMENT PLANT	■
△	ATTENUATION TANK	●
—	PUMP STATION	▲
---	PIPELINE OR OUTFALL	—
- - - - -	MUNICIPAL BOUNDARY	

MCLOUGHLIN WWTP	
CAPACITY	2030
SCREENING	495.00
PUMPING	375.00
PRIMARY	375.00
SECONDARY	215.60
BIO-SOLIDS (Kg/d)	33,865
ADWF (TRIB)	55.90
ADWF (T)	107.80

CRPD
Making a difference...together

**FIG. 6.1A
PROPOSED SYSTEM CONFIGURATION**

CORE AREA LIQUID WASTE MANAGEMENT PLAN

DESIGNED	DRAWN	SCALE	CHECKED	APPROVED	DATE	CONTRACT NO.	DWG. NO.	REV.	SHT
S.McD.	L.N.	1:50,000	S.McD.	S.McD.	18/09/13		13-S024-1		1 OF 1

NOTE:
UNITS OF MEASUREMENT
ARE MEGALITRES PER DAY
(ML/d) UNLESS OTHERWISE
NOTED.

Capital Regional District Board
Regional Biosolids Management Policy

The following motions were passed by the CRD Board on July 13, 2011 and reconfirmed on January 8, 2014:

- a. *That the CRD will harmonize current and long-term practices at all CRD owned regional facilities and parks with the approved policies of the regional treatment strategy, including ending the production, storage and distribution of biosolids for land application at all facilities and parks.*
- b. *That the CRD does not support the application of biosolids on farmland in the CRD under any circumstances and let this policy be reflected in the upcoming Regional Sustainability Strategy.*

ATTACHMENT B

Technical and Community Advisory Committee

Agendas and Minutes



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**CORE AREA AND WEST SHORE SEWAGE TREATMENT
TECHNICAL AND COMMUNITY ADVISORY COMMITTEE MEETING**

Notice of a Meeting on **Tuesday, September 24, 2013 at 12 noon**
Board Room, 6th floor, 625 Fisgard Street, Victoria, BC

Chair: D. Blackwell	R. Barnhart	M. Baxter	M. Coburn
K. Cossey	T. Davies	G. Gillespie	D. Halldorson
E. Ishiguro	D. Kalynchuk	M. Mahovlich	D. Marshall
J. Mclsaac	J. Miller	B. Oldham	D. Purewall
L. Resnick	J. Rosenberg	D. Spinner	T. Tiedje
D. White	C. Witter		

AGENDA

1. Introductions
2. Approval of Agenda
3. Election of Vice-Chair
4. Chair's Remarks
5. Overview of Core Area Liquid Waste Management Plan
6. Overview of Core Area Sewage Treatment System Configuration
7. Updated Membership List
8. New Business
9. Adjournment
10. Next Meeting: To be determined

Distribution:

Committee Members:

R. Barnhart	D. Marshall
M. Baxter	J. Mclsaac
D. Blackwell	J. Miller
M. Coburn	B. Oldham
K. Cossey	D. Purewall
T. Davies	L. Resnick
G. Gillespie	J. Rosenberg
D. Halldorson	D. Spinner
E. Ishiguro	T. Tiedje
D. Kalynchuk	D. White
M. Mahovlich	C. Witter

External Resources:

E. Dyck
B. Mann
J. Wilson

CRD Staff:

T. Brcic
J. Hull
L. Hutcheson
T. Robbins
A. Sweetnam
D. Telford
J. Tradewell

File:

0360-20 TCAC

LUNCH WILL BE PROVIDED.

To ensure a quorum, please advise June Tradewell at 250.360.3046 if you cannot attend.

**CAPITAL REGIONAL DISTRICT
CORE AREA SEWAGE TREATMENT
TECHNICAL AND COMMUNITY ADVISORY COMMITTEE
MEMBERSHIP LIST**

MEMBER	REPRESENTING
Denise Blackwell (Chair)	CRD Core Area Liquid Waste Management Committee
Ron Barnhart	Department of National Defence
Michael Baxter	Municipal Engineering or Other Technical Representatives
Michelle Coburn	Environmental Groups
Ken Cossey	Songhees First Nation
Trevor Davies	Victoria Labour Council
Greg Gillespie	Members at Large
Dwayne Halldorson	Municipal Engineering or Other Technical Representatives
Ed Ishiguro	Members at Large
Dwayne Kalynchuk	Municipal Engineering or Other Technical Representatives
Michelle Mahovich	Municipal Engineering or Other Technical Representatives
Dave Marshall	Municipal Engineering or Other Technical Representatives
Jim McIsaac	Environmental Groups
Jeff Miller	Municipal Engineering or Other Technical Representatives
Bradley Oldham	Members at Large
Dar Purewall	Members at Large
Larry Resnick	CRD Solid Waste Advisory Committee
John Rosenberg	Municipal Engineering or Other Technical Representatives
Dan Spinner	West Shore Chamber of Commerce
Tom Tiedje	Post Secondary Institute
Diane White	Members at Large
Carole Witter	Esquimalt Chamber of Commerce
To be nominated	Esquimalt First Nation
Declined	Tourism Victoria
Declined – may send observer	CRD Roundtable on the Environment
Declined	Greater Victoria Chamber of Commerce



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**CORE AREA AND WEST SHORE SEWAGE TREATMENT
TECHNICAL AND COMMUNITY ADVISORY COMMITTEE MEETING**

Notice of Meeting on **Tuesday, October 15, 2013 at 12 noon**

Board Room, 6th floor, 625 Fisgard Street, Victoria, BC

D. Blackwell (Chair)	R. Barnhart	M. Baxter	M. Coburn
K. Cossey	T. Davies	G. Gillespie	D. Halldorson
E. Ishiguro	D. Kalynchuk	M. Mahovlich	D. Marshall
J. McIsaac	J. Miller	B. Oldham	D. Purewall
L. Resnick	J. Rosenberg	D. Spinner	T. Tiedje
D. White	C. Witter		

AGENDA

1. Approval of Agenda
2. Adoption of Minutes of September 24, 2013
3. Chair's Remarks
4. Capital Regional District Board Procedures Bylaw
5. Technical and Community Advisory Committee Terms of Reference
6. Election of Vice-Chair
7. Proposed Amendment No. 9
8. New Business
9. Adjournment

Next Meeting: To be determined

LUNCH WILL BE PROVIDED.

To ensure a quorum, please advise June Tradewell at 250.360.3046 or jtradewell@crd.bc.ca if you cannot attend.



Making a difference...together

**Minutes of a Meeting of the Core Area and West Shore Sewage Treatment Technical and Community Advisory Committee (TCAC)
Held September 24, 2013, in the Board Room, 625 Fisgard St., Victoria, BC**

Present: **Committee Members:** D. Blackwell (Chair), R. Barnhart, M. Baxter, M. Coburn, K. Cossey, T. Davies, G. Gillespie, D. Halldorson, E. Ishiguro, D. Kalynchuk, M. Mahovlich, J. Miller, B. Oldham, D. Purewall, L. Resnick, J. Rosenberg, D. Spinner, T. Tiedje, D. White, C. Witter
 Staff: J. Hull, Interim Program Director, Core Area Wastewater Treatment Program; L. Hutcheson, General Manager, Parks and Environmental Services; A. Sweetnam, Program Director, Core Area Wastewater Treatment Program; D. Telford, Senior Manager, Environmental Engineering; J. Tradewell (recorder)
 External Resources: E. Dyck, Island Health; B. Medlar, Ministry of Environment; J. Wilson, Ministry of Environment; J. Yehia, Island Health

Absent: D. Marshall, J. McIsaac

The meeting was called to order at 12:03 pm.

The TCAC meetings will follow the rules of order of the CRD Board Procedures Bylaw. Staff will follow-up and provide copies of the bylaw for members.

1. Introductions

The Chair invited staff and Committee members to introduce themselves.

2. Approval of Agenda

MOVED by L. Resnick, **SECONDED** by M. Baxter,
That the agenda be approved with the addition of *Terms of Reference – TCAC* as item 3 followed by the remainder of the agenda.

CARRIED

3. Terms of Reference – Technical and Community Advisory Committee

L. Hutcheson gave an overview of the TCAC Terms of Reference. The floor was opened for questions and discussion.

In reference to the Ministry of Environment's *Interim Guidelines for Preparing Liquid Waste Management Plans – July 2011*, concern was expressed that Amendment No. 9 to the Core Area Liquid Waste Management Plan (CALWMP) is being developed in the absence of all stakeholders.

MOVED by C. Witter, **SECONDED** by D. Spinner,
That the Technical and Community Advisory Committee make no decisions until the CRD clarifies the description and/or amends the Terms of Reference around representation on the Technical and Community Advisory Committee.

CARRIED

4. Election of Vice-Chair

This agenda item was deferred to the next meeting.

5. Chair's Remarks

The TCAC was established in 2006 by the Core Area Liquid Waste Management Committee (CALWMC) to assist in making recommendations to the CRD Board regarding upcoming amendments to the CALWMP as required by the Ministry of Environment. Since the completion of Amendment No. 8 in June 2010, a number of modifications have been identified that have led to reconstituting the TCAC.

The CALWMC is interested in TCAC members' opinions and recommendations. The TCAC is a working group therefore there will be no public participation at the meetings. All presentations by individuals or delegations will be heard at the CALWMC or Board level.

6. Overview of Core Area Liquid Waste Management Plan

L. Hutcheson provided an overview of the CALWMP and outlined the diversity of programs included in the Plan.

7. Overview of Core Area Sewage Treatment System Configuration

J. Hull gave a PowerPoint presentation on the Core Area sewage treatment system configuration, and provided a high-level overview of the Core Area wastewater treatment program and how the program has progressed to the present.

The floor was opened for questions and discussion, which included the following topics:

- role of TCAC – to review and comment on the contemplated amendments referred to TCAC by the CALWMC
- contemplated future amendments to the CALWMP
- Environmental and Social Reviews (Amendment No. 8)
- draft operational certificate for McLoughlin Point treatment plant and outfall
- district energy systems using heat recovered from sewage
- inflow and infiltration
- emerging chemicals of concern in waste stream and treatment options
- biosolids and cement kilns

Staff to provide a copy of the presentation to members.

External Resources staff were introduced at this time.

8. Updated Membership List

Included in agenda package.

9. New Business

There was no new business.

10. Adjournment

MOVED by D. Kalynchuk, **SECONDED** by M. Baxter,
That the meeting be adjourned at 1:15 pm.

CARRIED

11. Next Meeting: At the call of the Chair.



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BYLAW NO. 3828

**CAPITAL REGIONAL DISTRICT BOARD
PROCEDURES BYLAW, 2012**

**A bylaw to regulate the proceedings
of the Capital Regional District Board**

For further details, please contact the Capital Regional District,
Legislative Services Department, 625 Fisgard St., PO Box 1000, Victoria BC V8W 2S6
T 250-360-3129, F 250-360-3130, www.crd.bc.ca

**CAPITAL REGIONAL DISTRICT
BYLAW NO. 3828
REGIONAL DISTRICT PROCEDURES BYLAW**

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CAPITAL REGIONAL DISTRICT

BYLAW NO. 3828

**A BYLAW TO REGULATE THE PROCEEDINGS
OF THE CAPITAL REGIONAL DISTRICT BOARD**

The Board of the Capital Regional District enacts as follows:

PART 1 – INTRODUCTION

Definitions

1. In this Bylaw:

“Board” means the governing and executive body of the CRD;

“Chair” means the Chair or Vice Chair of the CRD elected pursuant to section 792 of the *Local Government Act* or other person presiding at a meeting of the Board or committee, as the context requires;

“Committee” means a standing, advisory, select, or other committee of the Board, but does not include Committee of the Whole or a local service committee or a service committee;

“Commission” means a commission established by the Board under section 176(1)(g) of the *Local Government Act* and a local service committee and a service committee established by the Board.

“Corporate Officer” means the officer of the CRD assigned the corporate administration responsibilities of section 198 of the *Local Government Act*, and includes that officer's designate;

“COW” means the Committee of the Whole Board;

“CRD” means the Capital Regional District;

“CRD Offices” means the CRD located at 625 Fisgard Street, Victoria, BC;

“CRD Website” means the information resource found at an internet address provided by the CRD;

“Delegation” means an individual or an organization addressing the Board, a committee or commission about a specific item on the agenda of a meeting;

“Member” means a Member of the Board, whether a municipal director or an electoral area director, and includes their alternates if acting in the place of a Member;

“Public Notice Posting Place” means the notice board, whether electronic or not, located in the front foyer of the CRD offices and the CRD Website; and, in the case of a Commission, means a consistent local public location designated by the Commission;

“Vice Chair” means the Member elected as Vice pursuant to section 792 of the *Local Government Act*.

Application of Rules of Procedure

2. (1) The provisions of this Bylaw govern the proceedings of the Board, COW, all standing and select committees of the Board and all commissions, as applicable.
- (2) In cases not provided for under this Bylaw, The Newly Revised Robert's Rules of Order, 11th edition, 2011, apply to the proceedings of the Board, COW, committees and commissions to the extent that those rules are:
 - (a) applicable in the circumstances; and
 - (b) not inconsistent with provisions of this Bylaw, the *Local Government Act* or the *Community Charter*.
- (3) No provision of this bylaw relating to the procedure of the Board shall be altered unless notice of the proposed amendment is given in accordance with section 794 of the *Local Government Act*.

Suspension of Rules of Procedure

3. Except for those provisions of this Bylaw that are statutorily mandated, the rules of procedure contained in this Bylaw may be suspended for a temporary time period specified by the Board with a 2/3 vote of those Members present.

PART 2 – BOARD MEETINGS

Inaugural Meeting

4. (1) The Board shall meet in an inaugural meeting during the month of December at such time as shall be advised by the Corporate Officer in writing.
- (2) The presiding officer of the inaugural meeting shall be the Chief Administrative Officer until such time as the Chair has been elected.
- (3) The Chief Administrative Officer shall announce results of elections and confirm that new Members have completed the Oath of Office set out in the *Local Government Act*, following which the Chair shall be elected from among the Members of the Board.

Election of Chair and Vice Chair

5. (1) The Chief Administrative Officer shall call for nominations for Chair and conduct a vote by secret ballot in which the person receiving a majority vote of those Members present shall be elected Chair. Each Member shall have only one vote. If only one candidate is nominated for an office, that candidate shall be declared elected by acclamation. The call for nominations for the office of Vice Chair shall be called by the Chair.
- (2) In the event that there are more than two candidates for the election of Chair or Vice Chair and if no person receives a majority of the votes of those Members present, the candidate receiving the least number of votes shall be eliminated and subsequent ballots shall be taken until one candidate receives the majority of votes of those Members present; unless there is a tie between the two candidates with the least votes of those Members present, in which case, subsequent ballots shall be taken until one candidate receives the least number of votes of those Members present and is eliminated. If the tie for the least number of votes of those Members present continues after three elections have been held, the candidate who shall be eliminated will be decided by a lot between the candidates as outlined in section 5(3). The voting on subsequent ballots will then proceed without the eliminated candidate until one candidate receives the majority of votes of those Members present.
- (3) In the event of a tie vote for the most votes of two (2) or more candidates, the candidates who are tied remain in the election. If a definitive election result cannot be declared after three (3) elections have been held, then the majority vote shall be deemed to be determined by a lot between the candidates as follows:
 - (a) the names of the candidates shall be written on separate pieces of paper and placed in a container;
 - (b) the Corporate Officer shall be asked to withdraw one paper; and
 - (c) the candidate whose name is on the withdrawn paper shall be declared elected.
- (4) Following the election of the Chair, the CRD Board shall elect one of its Members to be Vice Chair. The procedure for determining the Member to be elected Vice Chair shall be as set out in sections 5(1)(2) and (3) for electing the Chair of the Board.

Meetings

6. Regular meetings shall be held at the CRD Board Room, 625 Fisgard Street, Victoria, BC on the second Wednesday of the month commencing at 1:30 pm unless otherwise determined by resolution of the Board.

Quorum

7. (1) The quorum for a meeting of the Board shall be a majority of all the Members.
- (2) At the appointed time for commencement of the meeting, the Chair or, in his/her absence, the Vice Chair, shall ascertain that a quorum is present before proceeding to the business of the meeting. If neither the Chair nor the Vice Chair is present within fifteen (15) minutes after the time appointed for a meeting, the Corporate Officer shall call the Members to order, ascertain that a quorum is present and, if so, the Board shall appoint an Acting Chair who shall preside during the meeting or until the arrival of the Chair or Vice Chair. Such person appointed as Acting Chair shall have all the powers and be subject to the same rules as the Chair.
- (3) If a quorum has not been made within sixteen (16) minutes after the appointed time, the Corporate Officer shall record the names of the Members then present and the Board shall stand adjourned until the next meeting date or until another meeting shall have been called in accordance with this bylaw or to such time as the Chair shall appoint.

Notice of Regular Meetings

8. At least seventy-two (72) hours before a regular meeting of the Board, the Corporate Officer must give public notice of the time, place and date of the meeting by way of a notice and agenda posted at the Public Notice Posting Place.

Notice of Special Meetings

9. (1) Except where notice of a special meeting is waived by a unanimous vote of all Members under section 793(4) of the *Local Government Act*, before a special meeting of the Board, the Corporate Officer shall:
 - (a) at least twenty-four (24) hours in advance, give notice of the general purpose, time, place and date of the meeting by way of a notice posted at the Public Notice Posting Place; and
 - (b) at least five (5) days before the date of the meeting, mail to each Member the notice of the general purpose, time, place and date of the meeting.
- (2) Despite section 9(1), in the case of an emergency, notice of a special meeting may be given in accordance with section 793(5) of the *Local Government Act*.

Notice of Committee Meetings

10. (1) At least seventy-two (72) hours before a regular meeting of a committee or COW, excluding a commission, public notice must be given of the time, place and date of the meeting by way of a notice posted at the Public Notice Posting Place.
- (2) At least twenty-four (24) hours before a special meeting of a committee or COW, excluding a commission, public notice must be given of the time, place and date of the meeting by way of a notice posted at the Public Notice Posting Place.

Notice of Commission Meetings

11. (1) At least seventy-two (72) hours before a regular meeting of a commission, public notice must be given of the time, place and date of the meeting by way of a notice posted in a consistent public location in the area served by the commission.
- (2) At least twenty-four (24) hours before a special meeting of a commission, public notice must be given of the time, place and date of the meeting by way of a notice posted in a consistent public location in the area served by the commission.

Agenda

12. (1) The Corporate Officer, under the direction of the Chair, shall prepare an agenda and, if necessary, a supplementary agenda for each meeting of the Board and shall circulate a copy of the agenda of every regular meeting to each Member at least four (4) days before the meeting. At any meeting other than a special meeting, the Chair may add items of an emergent or time sensitive nature to the agenda with the consent of the Members.
- (2) At a meeting, a Member may, at the time adoption of the agenda is being considered, propose to place an additional item of an emergent or time sensitive nature on the agenda. The item must be added to the agenda only if the resolution is adopted by at least two thirds of the votes cast.

PART 3 – BOARD PROCEEDINGS

Delegations

13. (1) The Board may, by resolution, allow a delegation to address the meeting in person on the subject of an agenda item, provided written application on a prescribed form has been received by the Corporate Officer no later than 4:30 pm two (2) calendar days prior to the meeting. Each address shall be limited to five (5) minutes unless a longer period is agreed to by 2/3 vote of those Members present. The order of speakers will be based on the order in which the request was received. The Corporate Officer may determine the number of copies of any written submissions to be provided by each delegation to the Board. Each delegation shall provide the number of copies as determined by the Corporate Officer, for distribution at the time of the delegation's appearance
 - (a) if more than six (6) delegations have registered to address the Board on a specific agenda item, the Chair has the authority to limit each address to a maximum of three (3) minutes.
- (2) Where written application has not been received as prescribed in section 13(1), an individual or delegation may address the meeting if approved by a unanimous vote of the Members present.
- (3) Any video presentations used as part of a delegation's address to the Board will count toward the time limit permitted for the delegation.

- (4) If a delegation has registered to address a meeting but is no longer able to attend the meeting, a different delegation will not be permitted to address the meeting in substitution.
- (5) The Board shall not permit a delegation to address a meeting of the Board regarding a bylaw in respect of which a public hearing has been held, where the public hearing is required under an enactment as a prerequisite to the adoption of the bylaw.
- (6) The Board shall not permit a delegation to address a meeting of the Board regarding a matter to be dealt with as a grievance under a collective agreement, or that is within the exclusive mandate of the Greater Victoria Labour Relations Association Board.
- (7) The subject matter upon which a delegation wishes to speak must:
 - (a) be within the jurisdiction of the Board; and
 - (b) be within the terms of reference of the Committee or Commission for which the delegation wishes to appear.
- (8) The Chair may deny any delegation the right to address a meeting if, in the Chair's opinion, the spokesperson or any Member of the delegation:
 - (a) immoderately raises his or her voice, or uses profane, vulgar or offensive language, gestures or signs; or
 - (b) addresses issues not contained within the written application of the individual or delegation.

Invited Presentations

14. The CRD may, with the Chair's approval, invite a person, persons, or organization(s) to make a presentation to the Board. Time permitting, the Corporate Officer shall include the subject of the presentation and the designated speaker on the meeting agenda.

Order of Proceedings and Business

15. (1) The order of business at all regular meetings shall be as follows:
 1. Approval of Agenda
 2. Adoption of Minutes of Previous Meeting
 3. Report of the Chair
 4. Presentations/Delegations
 5. Reports of Committees
 6. Correspondence
 7. Administration Reports
 8. Bylaws and Resolutions
 9. Motions for Which Notice Has Been Given
 10. New Business
 11. Motion to close the meeting in accordance with the applicable provisions of the *Community Charter*
 12. Adjournment

- (2) The order of business at all special meetings shall be as follows:
1. Approval of Agenda
 2. Presentations/Delegations
 3. Special Meeting Matters
 4. Motion to close meeting in accordance with the applicable provisions of the *Community Charter*
 5. Adjournment
- (3) The order of business at all closed meetings whether regular or special shall be as follows:
1. Approval of Agenda
 2. Approval of Minutes of Previous Closed Meeting
 3. Closed Meeting Matters
 4. Rise and Report
 5. Adjournment
- (4) A change to the prescribed order of business of other than a special meeting may be ordered by the Chair or by the Board, with unanimous consent.

Minutes

16. (1) Minutes of all proceedings of the Board shall be kept by the Corporate Officer; such minutes to be concise and to detail proceedings of the Board. The minutes shall be legibly recorded, certified as correct by the Corporate Officer, and signed by the Chair, Vice Chair, or the person presiding at such meeting or at the next meeting at which they are adopted.
- (2) Minutes of proceedings of standing and select committees, and commissions shall be legibly recorded and signed by the Chair, or Member presiding.
- (3) Subject to section 16(4), and in accordance with sections 97(1)(b) and (c) of the *Community Charter*, minutes of the proceedings of the Board or of a body referred to in section 17(2) must be open for public inspection at the CRD Offices, Legislative Services, during their regular office hours and may be posted to the CRD website.
- (4) Section 16(3) does not apply to minutes of a Board meeting or a meeting of a body referred to in section 17(2) for that part of the meeting from which persons were excluded under section 90 of the *Community Charter*.

Attendance of Public at Meetings

17. (1) Except where the provisions of section 90 of the *Community Charter* apply, all Board meetings must be open to the public. Before a meeting or part of a meeting is closed to the public, the Board must pass a resolution in the public meeting in accordance with section 92 of the *Community Charter*.

- (2) The requirement in section 17(1) applies to meetings of bodies referred to in section 93 of the *Community Charter* including, without limitation:
- (a) Advisory Commissions
 - (b) Advisory Committees
 - (c) a Commission established under s. 176(1)(g) of the *Local Government Act*
 - (d) Board of Variance
 - (e) Parcel Tax Review Panel
 - (f) Select Committees
 - (g) Standing Committees
 - (h) Committee of the Whole
 - (i) a body that under the *Local Government Act* or another Act may exercise the powers of the CRD or its Board
- (3) Despite section 17(1), the Chair may expel or exclude a person from a Board meeting or meeting of a body listed in section 17(2) of this Bylaw in accordance with section 133 of the *Community Charter*.

Closed Meetings

- 18 (1) No Member shall disclose to the public the proceedings of a closed meeting, unless a resolution has been passed at the closed meeting to allow disclosure.
- (2) As soon as practicable, the Corporate Officer shall review and determine whether to seek a resolution of the Board for the release of closed minutes and related information that would no longer undermine the reason for discussing it in a closed meeting.
- (3) Minutes of a closed meeting shall be kept in the same manner as a regular meeting but shall not be filed with the minutes of regular meetings.
- (4) The Board must not vote on the reading or adoption of a bylaw when its meeting is closed to the public.

Use of Video Recording Devices

19. (1) The Chair shall preserve order and decorum at a meeting and at his/her discretion may require that any video recording devices be placed in a designated location while being used and remain in that location during the course of the meeting. This applies to the Chairs of Board, Committee, Commission and COW meetings.

Chair and Presiding Officers

20. (1) The Chair, if present, shall preside at meetings of the Board. Any Member of the Board may preside at a COW.
- (2) The Vice Chair shall preside in the absence of the Chair or when the Chair vacates the chair.

- (3) In the event that neither the Chair nor the Vice Chair is able to take the chair, the presiding officer shall be such person, as the Board may choose.
- (4) The Chair shall preserve order and decorum and shall rule on all points of order, stating his/her reasons and the authority for ruling when making a ruling. The ruling of the Chair shall be subject to an appeal to the Board without debate.
- (5)
 - (a) If an appeal be taken from the decision of the Chair, the question "Shall the Chair be sustained?" shall be put forthwith and decided without debate by a simple majority of the Members present (exclusive of the Chair) and in the event of the votes being equal, the question shall pass in the affirmative. The names of the Members of the Board voting for or against the question shall be recorded in the minutes.
 - (b) If the Chair refuses to put the question "Shall the Chair be sustained?", the Board shall forthwith appoint the Vice Chair or, in his/her absence, one of the Members, to preside temporarily in lieu of the Chair. The Vice Chair, or Member so appointed, shall proceed in accordance with paragraph 20(5)(a).
- (6) The Chair shall vote at the same time as the other Members of the Board.

Rules of Order

21.
 - (1) The Chair's ruling on a point of order shall be based on rules of order as stated in section 2 herein.
 - (2) All questions shall be decided by a vote on motion.
 - (3) The Chair shall have the discretion to call the question on completion of debate and the Chair shall then advise that the debate is closed. Following closure of debate no Member shall speak further to the question.

Motions

22.
 - (1) Motions shall be phrased in a clear and concise manner so as to express an opinion or achieve a result.
 - (2) The Chair may divide a motion containing more than one subject if the Chair feels this would produce a fairer or clearer result and the same shall be voted on in the form in which it is divided.
 - (3) A motion to adjourn the meeting or to adjourn the debate shall always be in order.
 - (4) An amendment to a motion does not require notice. Only one amendment to an amendment shall be allowed at one time and the same shall be dealt with before the amendment is decided. Amendments must be strictly relevant to the main motion and not alter in a material way or be contrary to the principle embodied in the main motion.

- (5) Any Member desiring to bring before the Board any new matter, other than a point of order or privilege, shall do so by way of motion; provided, however, that any new matter of major import, which may require further information than could or would normally be available to the Board at such meeting, may be referred to a Board Standing Committee agenda by the Chair, or may be ruled by the Chair as a notice of motion and shall be dealt with as provided by section 22(6).
- (6) Any Member may give notice of a motion to the Board by either of the following methods:
 - (a) providing the Corporate Officer with a written copy of such motion during a meeting of the Board, and the Corporate Officer shall, upon the Member being acknowledged by the Chair and the notice of motion being read to the meeting, include it in the minutes of that meeting as notice of motion and shall add the motion to the agenda of the next regular Board meeting, or to the agenda of a special Board meeting scheduled for that purpose; or
 - (b) providing the Corporate Officer with a written copy of such motion, no later than seven working days prior to the scheduled meeting, and the Corporate Officer shall add the motion to the agenda for said meeting.
- (7) Despite section 22(6), the notice of motion shall be added to the agenda in accordance with section 12(2).

Reconsideration of an Adopted Bylaw, Resolution or Proceeding

23. (1) The Chair may require a matter to be reconsidered in accordance with Section 219 of the *Local Government Act* and if it has not been acted on by an officer, servant or agent of the Board.
- (2) The Chair may state his/her reasons to the Board. The Corporate Officer shall record in the Minute Book the reasons, suggestions or amendments of the Chair.
- (3) The Board shall, as soon as convenient, consider the reasons and either reaffirm or reject the bylaw, resolution or proceeding, and if rejected, it is deemed repealed and is of no force or effect.
- (4) The rejected bylaw, resolution or proceeding shall not be reintroduced to the Board for six (6) months, except with the unanimous consent of the Board.
- (5) The conditions which apply to the passage of the original bylaw, resolution or proceeding apply to its rejection.

Debate and Conduct

24. (1) Debate shall be strictly relevant to the question before the meeting and the Chair shall warn speakers who violate this rule.
- (2) No Member shall speak until recognized by the Chair.

- (3) Every Member desiring to speak shall address himself to the Chair. No Member shall interrupt a person speaking except to raise a point of order.
- (4) A matter of privilege (a matter dealing with the rights or interests of the Board as a whole or of a Member personally) may be raised at any time and shall be dealt with forthwith before resumption of business.
- (5) Members speaking at a Board meeting:
 - (a) must use respectful language;
 - (b) must not use offensive gestures or signs;
 - (c) must speak only in connection with the matter being debated; and
 - (d) must adhere to the rules of procedure established under this Bylaw and to the decisions of the Chair and the Board in connection with the rules and points of order.
- (6) If a Member does not adhere to section 24(5) or the Chair considers the Member to be acting improperly, the Chair may order the Member to leave the Member's seat.
- (7) A Member may speak to a question, or speak in reply, for no longer than fifteen (15) minutes unless the majority of the votes of the Board support a time extension.
- (8) A Member may speak more than once in connection with the same question only if:
 - (a) every other Member has spoken, or has had the opportunity to speak; and
 - (b) if the Member has already spoken for fifteen (15) minutes, the Member who wishes to speak a second time may request to do so by making a motion that must be approved by at least two-thirds of the votes cast by the Board.
- (9)
 - (a) a Member may not speak for longer than a total time of fifteen (15) minutes unless the Member has done so in accordance with sections 24(7) and (8); and
 - (b) a Member speaking for a second time under section 24(8) shall speak for a maximum of five (5) minutes only.
- (10) The conflict of interest guidelines (*disclosure of conflict and restrictions on participation*) shall be in accordance with section 100 of the *Community Charter*.

Voting

25. (1) Voting rules will be in accordance with the *Local Government Act*.
- (2) On any question where the numbers of votes, including the vote of the person presiding, are equal, the question is defeated.

- (3) Where a Member who is present when a vote is taken abstains from voting, that Member shall be deemed to have voted in the affirmative.
- (4) Whenever a vote of the Board is taken, after the vote is taken the Chair must then state the names of those Members voting in the negative, and the Corporate Officer must enter those names in the minutes.

PART 4 – COMMITTEES AND COMMISSIONS

Board Standing Committees

26. (1) The Chair may establish a Board Standing Committee as a regular permanent committee whose mandate will be in relation to a CRD service or potential service.
- (2) The Chair shall appoint only Board Members to a Board Standing Committee unless the authorizing legislation or Letters Patent for the Board Standing Committee defines its membership.
- (3) The general duties of Board Standing Committees shall be as follows:
 - (a) To consider and report to the Board from time to time or whenever desired by the Board and as often as the interest of the CRD may require, on all matters referred to them by the Chair of the Board, or coming within their purview, and to recommend such action by the Board in relation thereto as they, the Committee, deem necessary or expedient.
 - (b) To carry out the instructions of the Board expressed by resolution in regard to any matter referred by the Board to any Committee for immediate action thereon, but in such cases the instruction of the Board shall be specific and the Committee shall report its action in detail at the next regular or other meeting of the Board thereafter as specified in the instructions of the Board.

Advisory Committees

27. (1) The Board, or Board Standing Committees, may establish an Advisory Committee to provide advice and recommendations to the Board, or to a Board Standing Committee, on matters determined to be within approved terms of reference or within a specific resolution of the Board.
- (2) Members of an Advisory Committee shall be appointed by the Board, a Board Standing Committee, or the appointments may be delegated by the Board to the Chair.
- (3) Persons who are not Members may be appointed to an Advisory Committee but each Advisory Committee should include at least one (1) Member of the Board.
- (4) The term of any person who is appointed to an Advisory Committee who is not a Member of the Board shall not exceed three (3) years.

Select Committees

28. (1) The Board may establish a Select Committee to consider or inquire into any matter dealing with a specific subject or issue referred to it by the Board and report its findings, opinions and recommendations to the Board, following its consideration and inquiry. Select Committees must have terms of reference approved by the Board.
- (2) The Select Committee will cease to exist once it has reported its findings, opinions and recommendations to the Board.
- (3) The Board may delegate to the Chair the establishment of a Select Committee and the appointment of its Members.

Commissions

29. (1) The Board may establish a Commission regarding a CRD service within the authorities delegated to it and as mandated by the Board by bylaw.

Attendance at Committee Meetings

30. Members of the Board who are not Members of a Committee may attend meetings of that Committee and may take part in any discussion or debate by permission of a majority of the Committee Members present but may not vote.

Committee Reports

31. A Standing or Select Committee of the Board may report to the Board at any regular meeting or shall report as required by the Board.

Quorum

32. The quorum in a Standing or Select Committee shall be a majority of the persons appointed to the Committee.

Voting at Meetings

33. (1) On a vote in a Committee each person shall have only one (1) vote.
 - (2) (a) The Chair shall be a Member of all Committees and entitled to vote on all matters.
 - (b) Despite section 33(2)(a) the Chair, when in attendance, may be counted as one Member for the purpose of constituting a quorum.

Operation

34. No Committee or Commission will operate outside of its expressed mandate or terms of reference without prior approval of the Board.

PART 5 – COMMITTEE OF THE WHOLE

Procedures for COW Meetings

35. (1) The Board may resolve to sit as a COW at any time.
- (2) The Chair may appoint another Member to preside over the COW who shall maintain order therein and report the proceedings thereof to the Board.
- (3) The rules of the Board shall be observed in COW as far as may be applicable. Motions shall be seconded and the names of Members shall not be recorded in case of a division. Divisions in COW shall be decided by a show of hands. A motion in COW to rise without reporting, or that the Chair of the Committee do leave the Chair, shall always be in order and shall take precedence over any other motion. A motion to rise without reporting, if affirmed shall be considered as disposing of the matter before the Committee in the negative.
- (4) When all matters referred to the COW have been considered, a motion to rise and report shall be adopted. The Committee may report progress and ask leave to sit again if the matter before it has not been disposed of. On the Committee rising, the Chair shall report to the Board and an adoption of the report shall be moved.
- (5) Discussion in COW shall be strictly relevant to the item or clause under consideration.

PART 6 – BYLAWS

36. (1) Bylaws shall be passed by the following stages:
 - (a) Introduction and first reading shall be decided by the motion "that Bylaw No. ____ be introduced and read a first time". The question shall be decided without amendment or debate.
 - (b) Second Reading - Debate on second reading shall be limited to the general principle of the bylaw.
 - (c) Despite sections 36(1)(a) and (b), every proposed bylaw may be introduced and given first and second readings at the same meeting by one motion for all two readings.
 - (d) Third Reading - A bylaw may be amended at third reading and passed upon the motion "that Bylaw No. ____ (as amended or as presented) be read a third time".
 - (e) Adoption - Not less than one clear day after third reading, the bylaw shall be adopted upon the motion "that Bylaw No. ____ be adopted", unless the Board adopts the bylaw in accordance with subsection (2) and section 794(3) of the *Local Government Act*.

- (2) A bylaw that does not require approval, consent or assent under the *Local Government Act* or any other Act before it is adopted may be adopted at the same meeting at which it passes third reading, so long as the motion for adoption receives at least two thirds of the votes cast.
- (3) A copy of every bylaw shall be endorsed by the Corporate Officer with a record of the stages through which it has proceeded and shall be kept among the records of the Board. A copy of every adopted bylaw signed, sealed and where necessary bearing evidence of registration by the Inspector of Municipalities shall be kept with the records of the Board.

PART 7 – RESOLUTIONS

- 37. A resolution may be introduced at a Board meeting only if a written copy is given to each Member before consideration unless the Board waives this requirement.

PART 8 – GENERAL

- 38. The rules of the Board shall be observed in proceedings of the Capital Regional Hospital District Board and Standing and Select Committees of the Board as far as may be applicable.
- 39. The following bylaw is repealed: Bylaw No. 3708, "Capital Regional District Board Procedures Bylaw, 2010", and any amendments thereto.
- 40. This Bylaw may be cited as "Capital Regional District Board Procedures Bylaw, 2012".

READ A FIRST TIME THIS	14 th	day of	November,	2012
READ A SECOND TIME THIS	14 th	day of	November,	2012
READ A THIRD TIME THIS	14 th	day of	November,	2012
ADOPTED THIS	14 th	day of	November,	2012

Original signed by Geoff Young
CHAIR

Original signed by Sonia Santarossa
CORPORATE OFFICER

**TECHNICAL AND COMMUNITY ADVISORY COMMITTEE
CORE AREA AND WEST SHORE SEWAGE TREATMENT**

TERMS OF REFERENCE

INTRODUCTION

On July 21, 2006, the Minister of Environment, Barry Penner, directed the Capital Regional District (CRD) to "submit to me for approval no later than June 30, 2007, an amendment to the CRD Core Area Liquid Waste Management Plan detailing a fixed schedule for the provision of sewage treatment". A copy of the Minister's letter is attached in Appendix 1.

The CRD has a mission to be local government leaders in providing cost effective, innovative and environmentally responsible sewage treatment to the residents in the core communities (Esquimalt, Colwood, Langford, Oak Bay, View Royal, Saanich, Victoria).

To enable the CRD to move forward on this matter, decisions will be needed in a number of areas, including the following:

- Plant design criteria and treatment technology, including:
 - opportunities for resource recovery
 - sludge management
 - odour control
 - general plant design criteria
- Number and location of treatment plants
- Timing/scheduling of treatment

A Technical and Community Advisory committee (TCAC) is required to assist the Core Area Liquid Waste Management committee (the steering committee) in making appropriate recommendations to the CRD Board in the areas outlined above.

ROLE AND RESPONSIBILITIES

The TCAC will respond to requests from the steering committee for technical and community consultation advice and input in order to facilitate informed decision-making in a variety of areas, including those outlined above.

MEMBERSHIP, SELECTION AND APPOINTMENT

Including the chair, there will be 26 members:

- 1 - member of the Core Area Liquid Waste Management committee – TCAC Chair
- 7 - municipal engineering or other technical representatives
- 5 - members at large via public advertisement
- 2 - members nominated by environmental groups
- 2 - members nominated by the Esquimalt and Songhees First Nations
- 1 - member nominated by the Department of National Defence
- 1 - member nominated by the Greater Victoria Chamber of Commerce
- 1 - member nominated by the West Shore Chamber of Commerce
- 1 - member from post secondary institute
- 1 - member from CRD Roundtable on the Environment
- 1 - member from the Victoria Labour Council
- 1 - member from Tourism Victoria
- 1 - member from CRD Solid Waste Advisory committee
- 1 - member nominated by the Esquimalt Chamber of Commerce

Core Area and West Shore Sewage Treatment – TCAC Terms of Reference

2

Members will be appointed by the CRD Board on the recommendation of the Core Area Liquid Waste Management committee. Members will serve without remuneration.

ADVISORY COMMITTEE RESOURCES

Staff representatives from the following organizations will be invited to attend TCAC meetings to provide information as required:

- Ministry of Environment
- Environment Canada
- Vancouver Island Health Authority

A consulting engineering expert in sewage treatment and related matters will also attend TCAC meetings to provide advice and information.

CRD staff will provide administrative and technical support to the advisory committee as required.

RULES OF ORDER

CRD Board rules of order will apply.

TERM

The term of the TCAC will be for the duration of the planning stage of the Core Area and West Shore sewage treatment project or as determined by the CALWMC.

Approved by CRD Core Area Liquid Waste Management Committee 11 October 2006
Revised by CRD Core Area Liquid Waste Management Committee 06 December 2006
Revised by CRD Core Area Liquid Waste Management Committee 28 November 2007
Revised by CRD Core Area Liquid Waste Management Committee 12 June 2013
Revised by CRD Board 14 August 2013

SBM:DT:cl:jt
Attachment: 1



Reference: 88918

JUL 21 2006

Mayor Alan Lowe, Chair,
and Directors
Capital Regional District
PO Box 1000
Victoria BC V8W 2S6

Dear Chair Lowe and Directors:

On March 26, 2003, former Minister, Honourable Joyce Murray approved the Capital Regional District Core Area Liquid Waste Management Plan (LWMP), which included a trigger process in lieu of a fixed schedule for treatment. The approved plan requires the implementation of two triggers, one for the seafloor ("seafloor trigger") and one for the water column ("seawater trigger").

On July 12, 2006, the Capital Regional District (CRD) Board received a report from an independent scientific panel, known as the Society of Environmental Toxicology and Chemistry (SETAC), detailing the results of the panel's review of the CRD's sewage practices. As you know, the panel reported that the risk factors, public values, and the regulatory climate argue for the CRD to improve the quality of its effluent.

In addition, I recently received and reviewed a report from an independent consultant, MacDonald Environmental Services Ltd. (MESL), retained by the Ministry of Environment to evaluate the CRD sediment quality data associated with the outfalls. This study found that, based on the available CRD monitoring data, contamination at the two outfalls is sufficient to warrant preliminary designation as contaminated sites under the Contaminated Sites Regulation. The study also showed that water quality guidelines are not being met outside of the initial dilution zone at Macaulay Point.

.../2

Direct negotiations between Ministry and CRD staff regarding a seawater trigger have been ongoing for over 18 months, during which time the CRD requested and was granted two deadline extensions. I understand these negotiations have not resolved several key issues. This fact, when considered along with the findings of the SETAC report and the report obtained by the Ministry, leads me to the conclusion that agreement on an acceptable trigger process (one that is protective of the environment) is not achievable.

Therefore, in accordance with section 24 (3) (a) of the *Environmental Management Act*, I hereby direct the Capital Regional District Board to submit to me for approval no later than June 30, 2007, an amendment to the CRD Core Area Liquid Waste Management Plan detailing a fixed schedule for the provision of sewage treatment. Further, in accordance with section 24 (3) (b), I am requiring the CRD to provide to me no later than December 31, 2006 an interim progress report on this amendment. This report should outline options relating to the type, number and location of facilities, preliminary costs of treatment, as well as a proposed implementation schedule. To ensure value for taxpayers, I encourage the CRD to consider new technologies and alternative financing and delivery options, including the potential for private sector involvement. It is my understanding that some of this work may already be underway. It is also my expectation that the CRD will continue the current monitoring program.

I want to thank you for your continued efforts to implement the CRD plan and look forward to receiving your December 2006 report and plan amendment. Any questions with respect to developing the amendment should be directed to Randy Alexander, Regional Environmental Protection Manager, 2080-A Labieux Rd, Nanaimo, BC, V9T 6J9.

Sincerely,



Barry Penner
Minister

pc: Honourable Ida Chong, MLA (Oak Bay-Gordon Head)
Honourable Murray Coell, MLA (Saanich North and the Islands)
Kelly Daniels, Chief Administrative Officer, Capital Regional District
Dwayne Kalnychuck, General Manager, Environmental Services, Capital Regional District
Randy Alexander, Regional Environmental Protection Manager, Ministry of Environment

**CAPITAL REGIONAL DISTRICT
CORE AREA SEWAGE TREATMENT
TECHNICAL AND COMMUNITY ADVISORY COMMITTEE**

MEMBERSHIP LIST

MEMBER	REPRESENTING
Denise Blackwell (Chair)	CRD Core Area Liquid Waste Management Committee
Ron Barnhart	Department of National Defence
Michael Baxter	Municipal Engineering or Other Technical Representatives
Michelle Coburn	Environmental Groups
Ken Cossey	Songhees First Nation
Trevor Davies	Victoria Labour Council
Greg Gillespie	Members at Large
Dwayne Halldorson	Municipal Engineering or Other Technical Representatives
Ed Ishiguro	Members at Large
Dwayne Kalynchuk	Municipal Engineering or Other Technical Representatives
Michelle Mahovlich	Municipal Engineering or Other Technical Representatives
Dave Marshall	Municipal Engineering or Other Technical Representatives
Jim McIsaac	Environmental Groups
Jeff Miller	Municipal Engineering or Other Technical Representatives
Bradley Oldham	Members at Large
Dar Purewall	Members at Large
Larry Resnick	CRD Solid Waste Advisory Committee
John Rosenberg	Municipal Engineering or Other Technical Representatives
Dan Spinner	West Shore Chamber of Commerce
Tom Tiedje	Post Secondary Institute
Diane White	Members at Large
Carole Witter	Esquimalt Chamber of Commerce
To be nominated	Esquimalt First Nation
Declined	Tourism Victoria
Declined – may send observer	CRD Roundtable on the Environment
Declined	Greater Victoria Chamber of Commerce



**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, OCTOBER 9, 2013**

**SUBJECT DRAFT AMENDMENT NO. 9 TO THE CORE AREA LIQUID WASTE
MANAGEMENT PLAN – CORE AREA WASTEWATER TREATMENT
PROGRAM**

ISSUE

Over the past three years, since Amendment No. 8 was submitted to the Minister of Environment in June 2010, the Core Area Wastewater Treatment Program has been further developed and refined. This has resulted in a requirement to make a number of changes to the Core Area Liquid Waste Management Plan (CALWMP).

BACKGROUND

A summary of the proposed changes to the CALWMP, as proposed in Amendment No. 9, is attached as Appendix A. Applicable excerpts of the CALWMP Amendment No. 8 are attached as Appendix B. The most significant changes are as follows:

1. *The scheduled project completion date moves from the end of 2016 to the end of 2018.*

The additional time is required to make up for time lost when the project was put on hold for an extended period until all senior government funding was secured. The Federal and Provincial funding agreements are for work to be completed by the end of 2018.

2. *The initial storage volume of the proposed Arbutus Road Attenuation Tank is reduced from 12,000 cubic metres to 5,000 cubic metres.*

This attenuation tank is required to enable the transmission of all Saanich East flows to the proposed McLoughlin Point treatment plant. The original 12,000 cubic metre capacity tank was based on a 2004 consultant's study that indicated an original 6,000 cubic metre tank in 2010 and an additional 6,000 cubic metre tank in 2005, so a 12,000 cubic metre tank was proposed in Amendment No. 8. The consultant, Kerr Wood Leidal, has now updated the original study using flow data collected since 2004. Based on the current flow data and water reduction trends, the consultant now recommends that a 5,000 cubic metre facility be constructed initially, and that "space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase beyond current levels."

3. *New sewage screening facilities are proposed for both Clover Point and Macaulay Point pump stations.*

The commitment in Amendment No. 8 was to provide new grit removal facilities at both pump stations but to retain the existing raw sewage screens. On further consideration, it has been concluded that the existing screening facilities at both pump stations should be replaced at the same time as the grit removal facilities.

4. *Biosolids processing to produce only dry fuel for cement kilns, pulp mills or waste to energy facilities is revised to include other beneficial uses that comply with CRD Board Policy.*

The commitment in Amendment No. 8 was to dewater and dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste to energy facilities. On further consideration, this restricts the ability of proponents for the Biosolids Energy Centre to recommend other innovative, alternative technologies that may result in significantly improved system performance and cost savings while providing products for beneficial use in strict compliance with CRD Board policy. This policy will be discussed at the Committee of the Whole on October 30, 2013.

In addition to the above, there are a number of proposed wording changes in Amendment No. 9 intended to clarify ambiguities or to enable proponents to recommend alternative technologies that may result in improved system performance or cost savings.

ALTERNATIVES

1. That the Core Area Liquid Waste Management Committee (CALWMC) refer the proposed Amendment No. 9 to the Technical and Community Advisory Committee (TCAC) for consideration and that its recommendations on the proposed amendment be brought back to the next CALWMC meeting.
2. That the CALWMC request changes to the proposed Amendment No. 9 to the Core Area Liquid Waste Management Plan, as attached in Appendix A, prior to forwarding it to the TCAC for consideration and its recommendations.

ENVIRONMENTAL IMPLICATIONS

The proposed changes to the CALWMP, as outlined above, support the CRD goals and objectives of pursuing resource recovery opportunities and completing the wastewater treatment system to operate in a carbon neutral or better manner.

A 5,000 cubic metre attenuation tank will ensure that the Municipal Wastewater Regulations are met regarding overflows from the east coast interceptor, with the exception of those caused by the combined sewer system in the Uplands area of Oak Bay. An update on this item is anticipated to come before Committee in early 2014. The new screening facilities at both Clover Point and Macaulay Point outfalls are expected to provide more reliable and effective screening and reduce wear and tear on the pumps at those facilities.

The changes proposed in regards to biosolids stabilization, allowing technologies other than thermophilic anaerobic digestion, will maintain commitments to recover biogas and phosphorous from the process. The biosolids products will be produced for beneficial use in strict compliance with CRD Board policy, to be discussed in depth at the Committee of the Whole meeting on October 30, 2013.

ECONOMIC IMPLICATIONS

Most of the changes in draft Amendment No. 9 are expected to have little or no impact on project costs, with the exception of items 2, 3 and 4 described under "Background" above. As Item 2 will result in a reduction of project costs, while item 3 will result in an approximately similar increase in costs, the overall estimated cost of the project remains substantially unchanged. However, item 4 could potentially generate significant cost savings, depending on the alternative technologies brought forward by the proponents.

INTERGOVERNMENTAL IMPLICATIONS

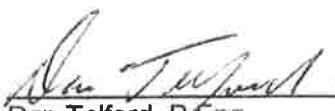
Staff have reviewed the series of proposed changes with ministry of environment staff. The amendments are considered minor and have been requested to be received in the form of a letter to the minister. The proposed amendments are to be forwarded to the TCAC for consideration as the next step.

CONCLUSION


Amendment No. 9 is required to incorporate changes into the Core Area Liquid Waste Management Plan that have been made to the Core Area Wastewater Treatment Program since June 2010. The changes include a smaller initial Arbutus Road attenuation tank, the addition of new raw sewage screening facilities at both Clover Point and Macaulay Point pump stations and the potential for innovative, alternative biosolids processing technologies.

RECOMMENDATION


That the Core Area Liquid Waste Management Committee refer the proposed Amendment No. 9 to the Technical and Community Advisory Committee for consideration and that its recommendations on the proposed amendment be brought back to the next Core Area Liquid Waste Management Committee meeting.



Dan Telford, P.Eng.
Senior Manager
Environmental Engineering



Larisa Hutcheson, P.Eng.
General Manager
Parks and Environmental Services
Concurrence



Robert Lapham, MCIP, RPP
Chief Administrative Officer
Concurrence

DT:jt
Attachment: 2

CORE AREA LIQUID WASTE MANAGEMENT PLAN

DRAFT AMENDMENT NO. 9 – SUMMARY

PURPOSE

Over the past three years, since Amendment No. 8 was submitted to the Minister of Environment in June 2010, the Core Area Wastewater Treatment Program has been further developed and refined. This has resulted in a requirement to make a number of changes to the Core Area Liquid Waste Management Plan (CALWMP), as revised by Amendment No. 8. The purpose of Amendment No. 9 is to incorporate these changes into the CALWMP by modifying the applicable clauses in Amendment No. 8.

BACKGROUND

The changes to the CALWMP, as proposed in Amendment No. 9, are as follows:

1. The scheduled project completion date moves from the end of 2016 to the end of 2018. The additional time is required to make up for time lost when the project was put on hold for an extended period until all senior government funding was secured. The Federal and Provincial funding agreements are for work to be completed by the end of 2018.

Amendment to Program Schedule:

Amend page 1.2 of Section 1, and Commitments 1 and 2 on page 6.1 of Section 6, by deleting the phrase *“by the end of 2016”* and replacing it with *“by the end of 2018”*, and also, in Section 13, by deleting the Preliminary Program Schedule, dated 09 June 2010 and replacing it with the Program Schedule, dated 30 September 2013, which is attached as Appendix 2.

2. The initial storage volume of the proposed Arbutus Road attenuation tank is reduced from 12,000 cubic metres to 5,000 cubic metres.

This attenuation tank is required to enable the transmission of all Saanich East flows to the proposed McLoughlin Point treatment plant. The original 12,000 cubic metre capacity tank was based on a 2004 consultant's study and was the ultimate size that would be required if inflow and infiltration (I&I) continued to increase beyond 2025. The consultant, Kerr Wood Leidal, has now updated the original study using flow data that has been collected since 2004. The consultant now recommends that a 5,000 cubic metre facility be constructed initially, and that “space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase beyond current levels.” The consultant's report is attached to this Amendment as Appendix 1.

Amendment to the Proposed Capacity of Arbutus Road Attenuation Tank:

Amend page 1.2 of Section 1 by deleting *“As indicated in figure 6.1A, a 12,000 m³ wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich.”* and replacing it with *“As indicated in figure 6.1A, a 5,000 m³ wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich.”* The revised figure 6.1A is attached as Appendix 3.

3. New sewage screening facilities are proposed for both Clover Point and Macaulay Point pump stations.

The commitment in Amendment No. 8 was to provide new grit removal facilities at both pump stations, but to retain the existing raw sewage screens. On further consideration, it has been concluded that the existing screening facilities at both pump stations should be replaced when the grit removal facilities are replaced.

Amendment to Add New Screening Facilities to Clover Point and Macaulay Point Pump Stations:

Amend Commitment 2.f) on page 6.1 of Section 6 by deleting *“New grit removal facilities at the existing Clover Point and Macaulay Point pump stations. The raw sewage screening facilities at both locations will be retained.”* and replacing it with *“New grit and screening facilities at the Clover Point and Macaulay Point pump stations.”*

4. Biosolids processing to produce only dry fuel for cement kilns, pulp mills or waste to energy facilities is revised to include other beneficial uses that comply with CRD Board Policy.

The commitment in Amendment No. 8 was to dewater and dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste to energy facilities. On further consideration, it has been concluded that this restricts the ability of proponents for the Biosolids Energy Centre to recommend other innovative alternative technologies that may result in significantly improved system performance and cost savings while providing products for beneficial use that are in strict compliance with CRD Board.

Amendment to Biosolids Processing:

Amend Commitment 3.a) on page 6.2 of Section 6 by deleting *“Using thermophilic anaerobic digestion to stabilize and reduce solids, kill pathogens and generate methane gas (biogas) for use onsite or offsite in the natural gas distribution system.”* and replacing it with *“Using a solids stabilization process to stabilize and reduce solids, kill pathogens and generate biogas for use onsite or offsite.”*

Amend Commitment 3.b) on page 6.2 of Section 6 by deleting *“Dewatering and drying some or all of the digested biosolids and selling it as a fuel for cement kilns, paper mills or other energy facilities.”* and replacing it with *“Preparing the biosolids for beneficial use.”*

5. In addition to the above, there are a number of proposed wording changes in Amendment No. 9 intended to clarify ambiguities or to enable proponents to recommend innovative alternative technologies that may result in improved system performance or cost savings. These changes include the replacement of the words “*thermophilic anaerobic digestion*” with the words “*solids stabilization*” to enable the biosolids processing system to be designed and operated to economically produce a product that is suitable for its proposed use or disposal method.

Amendments Regarding the Recovery of Energy from Biosolids:

Amend Commitment 2.a) on page 7.1 of Section 7 by deleting “*Provide thermophilic anaerobic digesters to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction.*” and replacing it with “*Provide solids stabilization to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction.*”

Amend Commitment 2.b) on page 7.1 of Section 7 by deleting “*Provide some additional capacity in the digesters to accept source separated food waste and/or fats, oils and greases (FOG) to enhance the production of biomethane.*” and replacing it with “*Provide additional capacity in the stabilization process to accept source separated food waste and/or fats, oils or greases (FOG) to enhance the production of biogas.*”

Amend Commitment 2.c) on page 7.1 of Section 7 by deleting “*Upgrade biogas to high quality biomethane and inject it into the natural gas pipeline system and/or use it in vehicles or at the biosolids processing facility.*” and replacing it with “*Use the biogas generated by the solids stabilization process onsite or offsite.*”

Amend Commitment 2.d) on page 7.1 of Section 7 by deleting “*Recover waste heat from the digesters to warm the raw sludge being fed to them, thereby reducing digester heating costs.*” and replacing it with “*Recover waste heat, where practical, from the solids stabilization process to reduce energy consumption.*”

Amend Commitment 2.e) on page 7.1 of Section 7 by deleting “*Dewater and thermally dry the digested biosolids to be used as a fuel for cement kilns, paper mills or waste to energy facilities.*” and replacing it with “*Prepare the biosolids for beneficial use.*”

Amendment Regarding Phosphorous Recovery:

Amend Commitment 4 on page 7.2 of Section 7 by deleting “*The Capital Regional District and the participating municipalities will recover phosphorous fertilizer (via struvite crystallization) from anaerobic digester return streams for sale as a fertilizer.*” and replacing it with “*The Capital Regional District and the participating municipalities will recover phosphorous fertilizer from the solids stabilization process.*”

Amendment Regarding Greenhouse Gas Reduction and Carbon Footprint:

Amend Commitment 5 on page 7.2 of Section 7 by deleting *“The Capital Regional District and the participating municipalities will complete the wastewater treatment system in a manner that will result in its operation being carbon neutral, or better, due largely to the extensive utilization of wastewater resources to replace anthropogenic fossil fuels.”* by replacing it with *“The Capital Regional District and the participating municipalities will complete the wastewater treatment system in a manner that will result in operations being carbon neutral, or better.”*

Attachments: 3



Greater Vancouver
200 - 4185A Still Creek Drive
Burnaby BC V5C 6G9
T 604 294 2088
F 604 294 2090

Technical Memorandum

DATE: September 4th, 2013

TO: Malcolm Cowley, P.Eng., Capital Regional District

FROM: Chris Johnston, P.Eng.

**RE: CORE AREA WASTEWATER MANAGEMENT PROGRAM
Updated Memorandum Summarizing the Determination of Storage Volumes Along the
East Coast Interceptor
Our File 283.365-300**

Introduction

Kerr Wood Leidal Associates Ltd. (KWL), as part of the *Northeast Trunk Sewer and East Coast Interceptor Sewer Upgrade Options Study, CRD, September 2004* previously assessed flows in the Capital Regional District's (CRD's) East Coast Interceptor (ECI) and developed a number of options to eliminate overflows from storms up to the 5-year return period. The preferred option included a peak flow attenuation tank in the Arbutus area, an upgrade to the existing Currie Road Pumping Station, a new peak flow pumping station at Trent Street, and conveyance system improvements between Currie Road and Clover Point pumping stations. The study developed preliminary sizing for the Arbutus tank and determined that a 6,000 cubic metre tank would be needed immediately and expanded to a 12,000 cubic metre facility in 2025 based on an estimated growth in inflow and infiltration.

Since 2004, considerable data has been collected on the performance of the ECI/NET system, and the impact of water efficiency programs such as low-flow fixtures. As well, the Core Area Wastewater Treatment Program (CAWTP) was initiated leading to the creation of a new design criteria and the sizing of new treatment facilities. A memorandum was prepared in October 21, 2010 that utilizes this new data set and criteria change to refine the previous 2004 analysis and confirm the sizing of the proposed storage facility. The purpose of this memorandum is to summarize the updated 2010 analysis.

Regulatory Requirements

The current Core Area Liquid Waste Management Plan (CALWMP) submitted to the Province by the CRD commits the CRD to intercept and convey all flows up to the 5-year storm through to the Clover Point Pumping Facility for marine locations along the East Coast of Greater Victoria. A commitment for Oak Bay to separate the combined sewer areas of the Uplands is additionally mandated by the Ministry of Environment. All flows in excess of the 5-year storm will be permitted to discharge through approved overflow facilities at Finnerty Cove and McMicking Point.



Approach to Analysis

The approach adopted for this updated analysis is the following:

- Use nearly 400,000 flow monitoring data records in the simulation of historical flow. Calibration of the model was achieved by directly comparing measured level of flow over the overflow weir at Arbutus to the model output. The level at the weir was identified as a critical calibration parameter, and sensitivity analyses were performed to identify the level of confidence in this reading (discussed below).
- The NET/ECI system is controlled through a set of logic controls administered through the operations centre at Macaulay Point. For example, during rain events, downstream level measurements can implement controls upstream to throttle pump station flows to protect downstream residents from sewer backups. This same functionality has been modeled to identify the impact of controls on overflow frequency and volume.
- Validation of the model was confirmed by comparing modeled overflows with recorded overflow events (discussed below).
- Create several data sets of information based on the 11 years of continuous data, namely: a base case scenario using the raw data, a 2030 data set based on the latest population projections and water fixture replacement programs, and an additional 2030 data set using predicted inflow and infiltration escalation rates based on previous CRD research.
- Run the data sets through the upgraded hydraulic model to determine the size of storage facility required to prevent overflows from occurring in storms less than the 5-year return period.
- Develop design scenarios to investigate the sensitivities of various design parameters, proposed operational controls, and measuring sensor accuracies.
- Select the preferred tank size.

Of interest, the 2004 study was limited to a flow monitoring period of three winter seasons (1999 to 2002).

Existing Overflows Along the NET/ECI and Model Calibration

Table 1 shows a summary of the current number of overflows along the NET/ECI for the period of 2000 to 2007 upstream of the Clover pump station (reference: *Sanitary Sewer Overflow Management Plan*, CRD, June 2008).

Table 1: Recorded Overflows Upstream of Clover Point: 2000 - 2007

Overflow Name	2000	2001	2002	2003	2004	2005	2006	2007	Total
Finnerty Cove	1	3	3	6	2	3	4	7	29
Currie PS/McMicking Point	1	6	2	7	3	7	8	9	43
Humber PS	4	3	1	5	3	6	8	5	34
Rutland PS	4	6	2	8	8	10	8	7	53

Under the existing condition, baseline data set (existing operational control conditions with the current facilities in place), the model predicted a similar number of overflow events as shown in Table 1.



Decreasing Unit Wastewater Rates

Design flows were calculated as part of the *Wastewater Flow Management Strategy Discussion Paper*¹. This document summarizes that for the "Fixture Reduction Rates Scenario", the sanitary flow will be equal to 196 L/cap/day for the year 2030. A review of the 2010 data indicates that the sanitary flow is approximately 195 L/cap/day. Of interest, the adjusted unit rate measured in 2001 was 223 L/c/d indicating that there has been a decline in unit rates over the past decade. This is similar to trends throughout the CRD and North America both in terms of water consumption and sewage generation. This unit rate is below the 225 L/cap/d value used in the 2004 analysis indicating that this component of the previous storage tank sizing was conservative. Further, since the existing rate of 195 L/c/d already matches the projected rate in the "Fixture Reduction Rates Scenario", it can be concluded that toilet and appliance replacements are happening faster in the Arbutus/Finnerty area.

Continuous Model Simulation of Future Improvements

Under the future condition with the proposed upgrades in the CAWTP, several storm events came close to triggering an overflow event, but only the December 15, 1999 event produced a 2,000 cu.m. overflow upstream of the Clover Point Pump Station (excluding the combined sewer areas tributary to the Humber and Rutland pump stations). However, it should be noted that the major storm event on October 20, 2003 would have likely produced an overflow, had it not been preceded by an extended dry period (the soil was able to absorb a significant portion of the event).

The return period of the December 15, 1999 event is estimated to be close to five years at the critical 12 to 24 hour duration based on a comparison of rainfall recorded at the Penryhn rain Gauge to the historical Intensity-Duration-Frequency curves for the area. Therefore, the storage facility should be sized large enough to capture this event.

Selection of Preferred Storage Volume

The results of this analysis were then run for twelve sensitivity scenarios based on varying the domestic flow, I&I and Oak Bay combined sewer separation rate. Although significant care has been taken in confirming the accuracy of the flow data used in this analysis, it is important to note that there are some significant data resolution factors associated with predicting future overflow volumes from storm events using the 4 metre long sharp crested weir at the Arbutus flow monitoring station. For this reason, a sensitivity analysis was performed to derive appropriate factors of safety to add to any particular scenario. The sensitivity analysis includes analyzing the historical storm events using a 1 to 2 cm drift in the measurement equipment over an average storm duration. The appropriate factor of safety is calculated to be 2,000 cu.m.

The preferred tank size based on the sensitivity analysis is 5,000 cubic metres as summarized in Table 2.

Table 2: Preferred Tank Sizing

Option	Description	Storage Volume (cu.m)
Base Case	2,000 cu.m raw storage volume, plus 2,000 cu.m. factor of safety based on above, and 25% provision for operational control.	5,000

¹ CH2M Hill, Associated Engineering and Kerr Wood Leidal Associates, Capital Regional District Core Area Wastewater management Program, Wastewater Flow management Strategy Discussion Paper – Design Flow Tables, 033-Dp-2, January 2009.



Updated Memo Summarizing Determination of Storage Volumes Along East Coast Interceptor
September 4th, 2013

TECHNICAL MEMORANDUM

The provision for operational control is based on the fact that storage facilities will not operate exactly as the theoretical model used in this study. This is due to the fact that the SCADA system will have inherent issues such as time lags, hydraulic constraints, sensor resolution, or other equipment limitations. Depending where the tank is actually situated, the operational control could be up to 25% of the total storage volume.

This sizing is confirmed by the 'I&I increase' sensitivity analysis, which identifies an ultimate tank size of 10,000 cu.m., of which 5,000 cu.m. is recommended for a future expansion beyond 2030.

The analyses assume that Uplands combined sewers will be separated by Oak Bay as stipulated by the Ministry of Environment when they approved the Core Area LWMP. Never-the-less, Oak Bay and the Core Area Liquid Waste Management Committee inquired whether a larger tank could help solve Oak Bay's combined sewer overflows in addition to meeting MOE's requirements. Therefore, options for reducing overflows to a 5-year event without Uplands sewer separation were identified in KWL's October 20, 2010 memo "ECI Storage and Flows – Uplands Sewers Not Separated". Using findings from this analysis, CRD report #EWW 10-96 identified that a larger tank plus significant downstream conveyance upgrades would be required, at an estimated additional cost of \$25M would be required to address overflows resulting from Uplands combined sewers if Oak Bay does not separate.

Summary

Based on the Table 2 analysis, the recommendation is to construct a 5,000 cubic metre storage facility along the Penryhn siphon preferably at the top end of the siphon next to the existing Arbutus Flume and Finnerly Cove Overflow facility. It is also recommended that based on the sensitivity analysis, space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase above current levels.

The revision in sizing from the previous 6,000 cu.m in the 2004 study to the current 5,000 cu.m. sizing is predominately due to a measured reduction in sewage generation rates (i.e. from 223 in 2001 to 195 L/c/day in 2010) as well as an analysis method using a significantly longer data set. The provision to increase the tank volume from 5,000 cu.m. to 10,000 cu.m (12,000 cu.m in the 2004 study), is still valid based on predicted I&I research. However, the estimated year in which this increase in storage is required has moved from 2025 to outside the CAWTP 2030 time frame, and is therefore not included in the proposed capital plan expenditures.

KERR WOOD LEIDAL ASSOCIATES LTD.

Prepared by:

Chris Johnston, P.Eng.
Project Manager

CJ/am
Encl.

KERR WOOD LEIDAL ASSOCIATES LTD.

CONSULTING ENGINEERS



TECHNICAL MEMORANDUM
Updated Memo Summarizing Determination of Storage Volumes Along East Coast Interceptor
September 4th, 2013

Statement of Limitations

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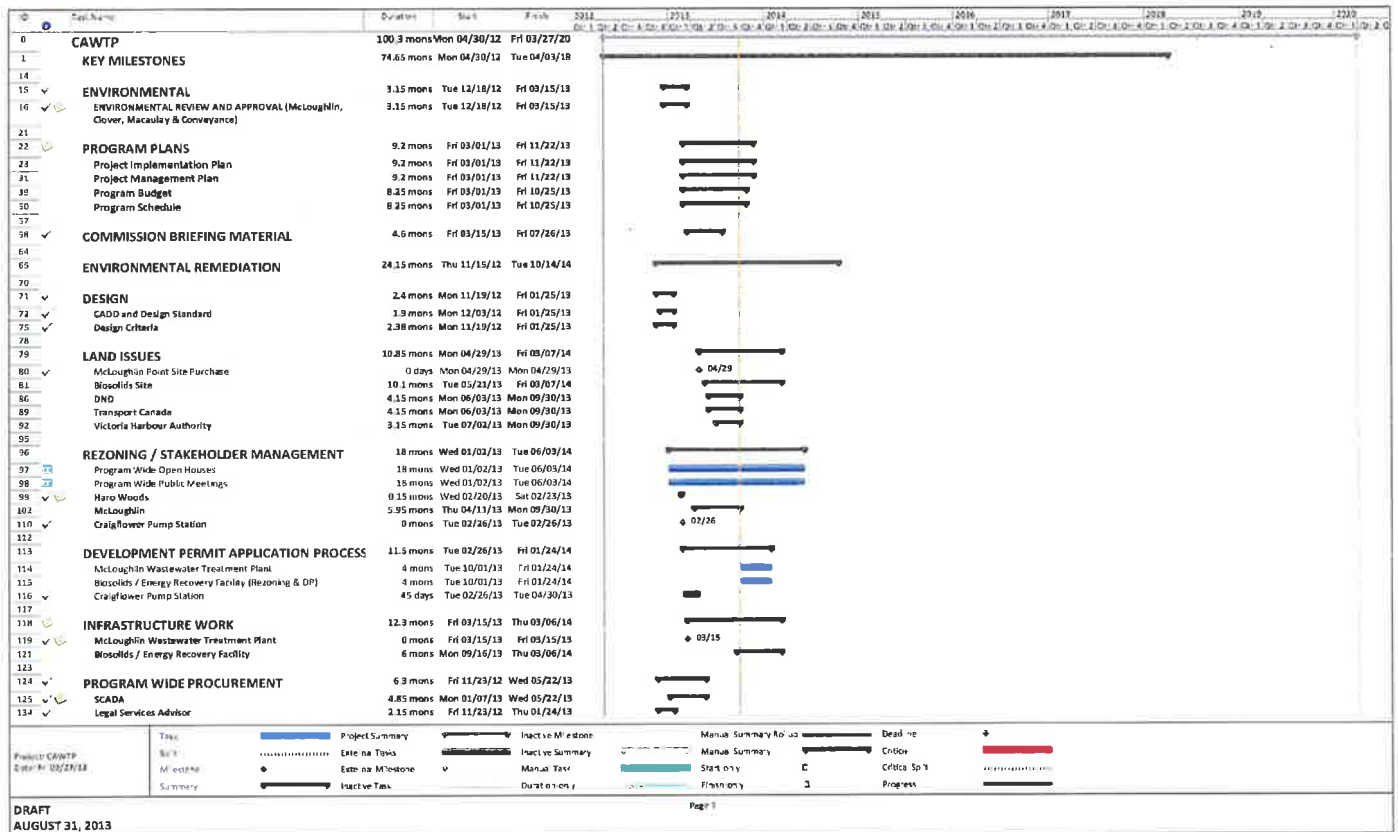
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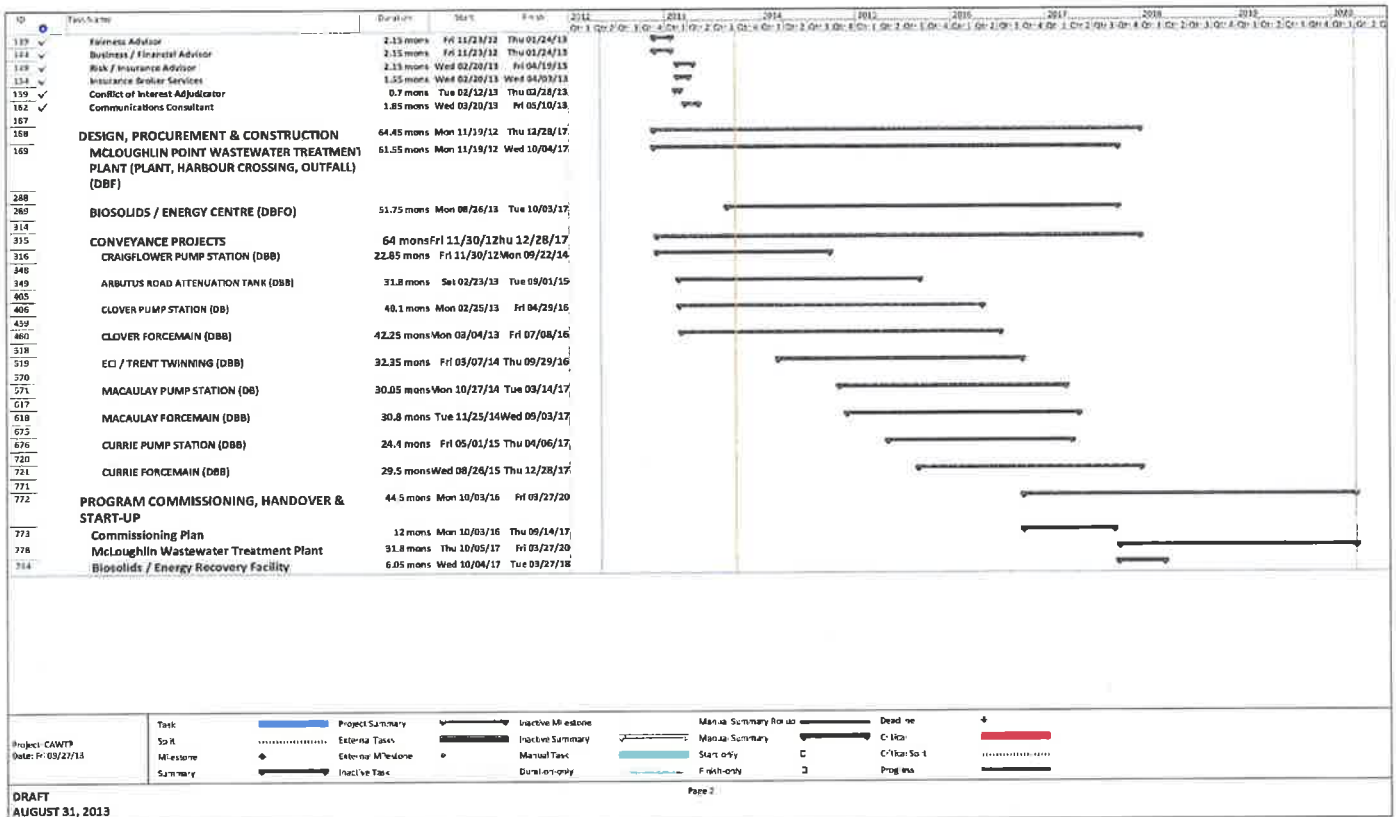
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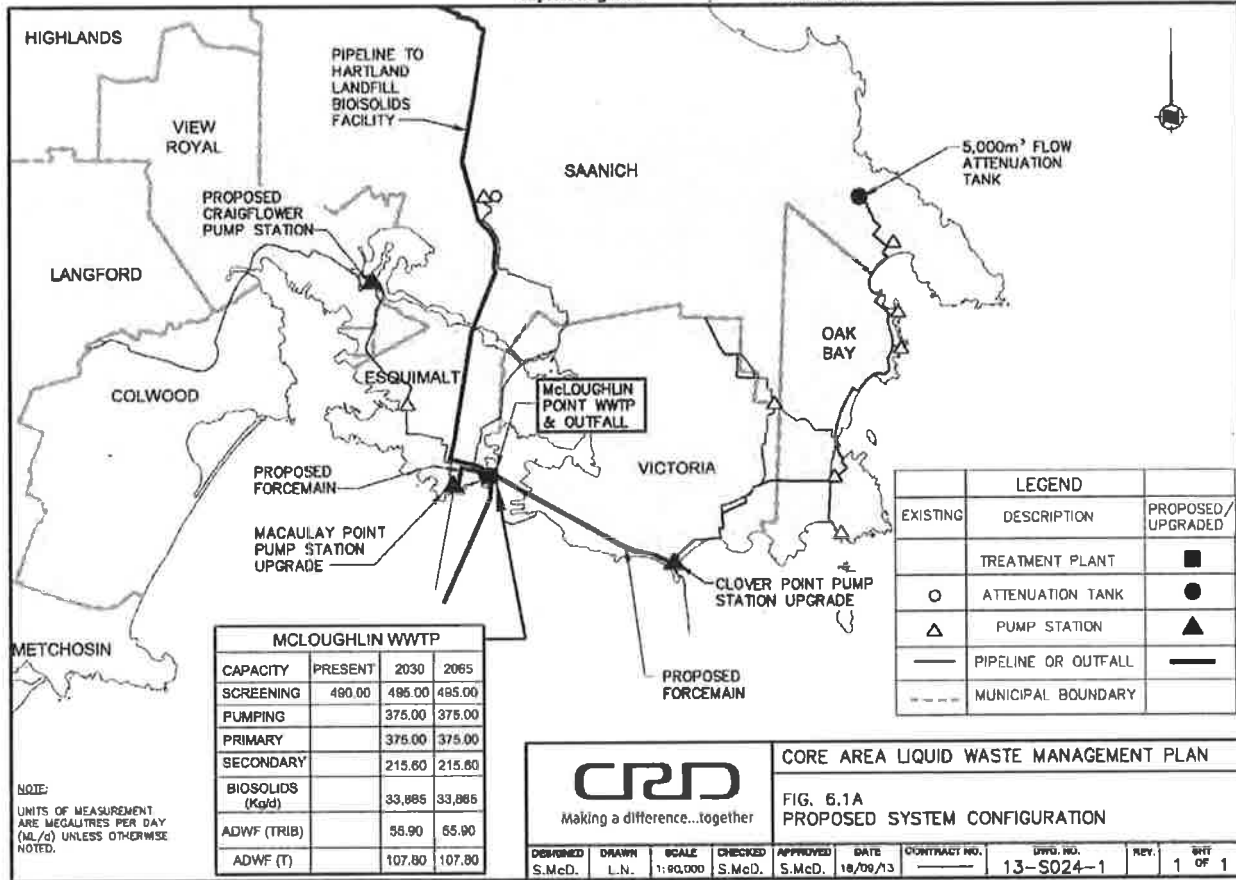
Revision History

Revision #	Date	Status	Revision	Author
0	Sept. 4, 2013	For Review		CJ

KERR WOOD LEIDAL ASSOCIATES LTD.
consulting engineers







**CAPITAL REGIONAL DISTRICT
CORE AREA LIQUID WASTE MANAGEMENT PLAN**

AMENDMENT NO. 8

SECTION 1

(Modifies Section 1 in Amendment No. 7)

INTRODUCTION AND BACKGROUND

(REPLACES CHAPTERS 1, 2 AND 3 IN THE EXISTING PLAN)

INTRODUCTION

The Capital Regional District (CRD) provides wastewater management to residential, commercial, industrial and institutional customers, equivalent to a population of approximately 330,000 persons distributed throughout the Core Area and Westshore communities. These communities include the cities of Victoria, Langford and Colwood, the districts of Oak Bay and Saanich, the Township of Esquimalt and the Town of View Royal.

In 2006, the CRD commenced the planning for the expansion and upgrading of the wastewater management system with the principal goal of moving from the existing preliminary level of treatment to secondary treatment. A consulting engineering team, composed of Associated Engineering, CH2M HILL and Kerr Wood Leidal Associates, was engaged to assist the CRD in the planning and initial decision-making. Following the original phase of planning (termed the decision process), completed in June 2007, the CRD adopted a direction that would see the Core Area and Westshore communities move towards a distributed wastewater management strategy.

In February 2008, the CRD extended the consultant team's scope of work to undertake the conceptual planning under the program development phase for the distributed wastewater management strategy. The consultant team prepared a series of discussion papers on various technical aspects of the planning and developed a series of options that covered a range of wastewater management strategies. The options were discussed and debated by the Core Area Liquid Management Committee (CALWMC), culminating in a decision on 2 June 2009 on a preferred wastewater management strategy.

The Wastewater Treatment Program (the Program) then moved into the second part of the development phase. The CRD engaged Stantec Consulting Ltd. with Brown and Caldwell to assist with this phase of the work, which included tasks such as the following:

- Analysis of three options for system configuration (Options 1A, 1B and 1C). The resulting report was titled *Core Area Wastewater Treatment, Assessment of Wastewater Treatment Options 1A, 1B and 1C*.
- Development of a biosolids management plan. The resulting plan was titled *Core Area Wastewater Program, Biosolids Management Plan*.

Other specialized consultants were engaged to assist with various aspects of the project, including the following:

- Kerr Wood Leidal and Associates carried out extensive flow modelling and analysis work to develop preliminary design flows for the proposed works.
- Westland Resource Group carried out siting studies, terrestrial environmental impact studies, and environmental and social reviews of proposed treatment plant sites and ancillary facilities.
- Golder Associates Ltd. was retained to carry out the Stage 1 environmental impact study and

pre-discharge monitoring work at the anticipated marine outfall locations (Finnerty Cove, servicing the Saanich East-North Oak Bay and Albert Head, servicing the Westshore). The resulting reports were provided to the Ministry of Environment in 2009. Further information on this work is provided in Section 9.

- WorleyParsons was retained to complete the pre-discharge monitoring work for the outfalls referred to above. This work provides the basis for the Stage 2 environmental impact study. Further information is provided in Section 9.
- Ernst & Young Orenda Corporate Finance Inc. was retained in 2007 to assist with reviewing procurement options, governance issues, funding options, risk analysis and market sounding. Some of this work (market sounding and procurement analysis) was submitted to the Ministry of Environment in 2009. Ernst & Young's final report was submitted to the Ministry of Environment and the Ministry of Community and Rural Development in April 2010.

Starting early in this wastewater treatment program, the CRD carried out an extensive community engagement process with the public, First Nations and stakeholder groups. Much of this has been documented and submitted to the Ministry of Environment with previous progress reports and amendments. Substantial additional documentation, particularly in relation to treatment plant siting, is provided in Appendix H in support of Section 10 of this Amendment.

THE PROPOSED SYSTEM CONFIGURATION

The proposed system configuration is outlined in the commitments contained in sections 6 and 7 of this amendment and illustrated in figure 6.1A of section 6 (page 6.3).

All flows up to two times the average dry weather flow (ADWF) will receive secondary treatment as required by the Municipal Sewage Regulation and all systems will be in operation by the end of 2016.

Wet weather flows up to four times ADWF from the Macaulay Point tributary area will receive the equivalent of primary treatment and any flows over this level will be screened prior to discharge. The infiltration and inflow program, as described in section 5, is designed to reduce wet weather flows to less than four times ADWF by 2030, thereby ensuring that after 2030, all flows from this system will receive at least primary treatment.

As indicated in figure 6.1A, a 12,000m³ wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich.

At Clover Point, a pump station will divert up to three times ADWF via a forcemain to McLoughlin Point in Esquimalt for secondary treatment. This will reduce the total suspended solids load being discharged at Clover Point by about 99%. Any remaining wet weather flows at Clover Point will receive fine screening prior to discharging through the Clover Point outfall. By 2030, flows above four times ADWF are expected to be eliminated.

At McLoughlin Point, the flows diverted from Clover point will be added to flows from the north west trunk and given secondary treatment for flows up to two times ADWF. The flows treated at this location will have originated in Oak Bay, Saanich, Victoria, Esquimalt, Colwood, Langford, and View Royal. Wet weather flows up to four times ADWF will be given primary treatment and any flows above this level will be screened until 2030, by which time such excess flows are expected to be eliminated.

Existing raw sewage screening will be retained at Clover Point and Macaulay Point pump stations and grit removal facilities will be added at both locations.

A new outfall will also be provided adjacent to the existing Macaulay Point outfall to discharge treated effluent at least 1.6 kilometres offshore from the McLoughlin treatment plant. Biosolids from the McLoughlin plant will be pumped to Hartland landfill for processing. Processing will include thermophilic

anaerobic digestion, dewatering, drying and transport to markets. Markets are expected to include fuel for cement kilns, paper mills and other energy-using facilities.

CURRENT PLAN AND AMENDMENTS

The Minister of Environment (the Minister) approved the original Core Area Liquid Waste Management Plan (the Plan) on 26 March 2003. Since that time, the Plan has had the following amendments:

Amendment No. 1	Macaulay Point Outfalls Seafloor Trigger (approved 15 August 2003)
Amendment No. 2	Amendment Process (submitted June 2004, not approved)
Amendment No. 3	Reporting and Compliance Dates (approved 18 October 2005)
Amendment No. 4	Chapters 16 and 17 (approved 18 October 2005)
Amendment No. 5	Provision for Dockside Green development (approved 11 April 2007)
Amendment No. 6	Wastewater Treatment Strategy, Cost and Schedule (submitted June 2007. The Minister in his letter dated 14 December 2007 approved the proposed treatment schedule).
Amendment No. 7	Core Area Wastewater Treatment Program (Approved 09 February 2010)

Amendment No. 8 modifies and supplements the contents of Amendment No. 7 regarding the proposed system configuration.

MINISTER OF ENVIRONMENT REQUIREMENTS

The Minister, in his letter dated 21 July 2006, directed the Capital Regional District (CRD) to amend its Liquid Waste Management Plan to include a fixed schedule for the provision of sewage treatment and provide information on the proposed type, number and location of treatment facilities along with a cost estimate for completing the required works. Much of this information has already been provided in Amendments No. 6 and 7.

In his letter dated 09 February 2010, the Minister directed that a further Plan amendment be submitted by 30 June 2010 and that it include the following:

1. Identify site(s) for treatment of Westshore wastewater;
2. Identify site(s) for biosolids processing;
3. The environmental impact studies for the selected sewage treatment facility sites;
4. A progress report on marine environmental impact assessment work carried out on the selected new outfall locations;
5. The final draft operational certificates for selected sewage treatment facilities;
6. An updated public and First nations consultation summary report; and
7. A copy of the business case, submitted by the CRD to the Ministry of Community and Rural Development including the results of the assessment of public/private partnerships and procurement details.

The primary purpose of Amendment No. 8 is to address these seven requirements as listed in the Minister's letter dated 09 February 2010 and to incorporate any proposed changes to the system configuration.

PORTIONS OF PLAN EXCLUDED FROM AMENDMENT NO. 8

Amendment No. 8 does not amend the following plan chapters and operating certificate:

Chapter 6	Program Overview
Chapter 7	Source Control
Chapter 10	Stormwater Quality Management
Chapter 11	Harbours Environmental Action
Chapter 12	Management of Trucked Liquid Waste

Some or all of the above chapters will be the subject of a subsequent amendment.

PLAN AREA

The Plan area, shown on Figure 1.1 (page 1.5), includes the municipalities of Colwood, Esquimalt, Langford, Oak Bay, Saanich, Victoria and View Royal.

AREAS SERVED BY MUNICIPAL COLLECTION SYSTEMS AND SPECIFIC PRIVATE COLLECTION SYSTEMS

The municipalities of Esquimalt, Oak Bay and Victoria are fully served by sewers. The majority of properties in View Royal have sewers but a few still remain outside of the service area.

A large, predominantly rural area of Saanich is outside of the sewerage service area.

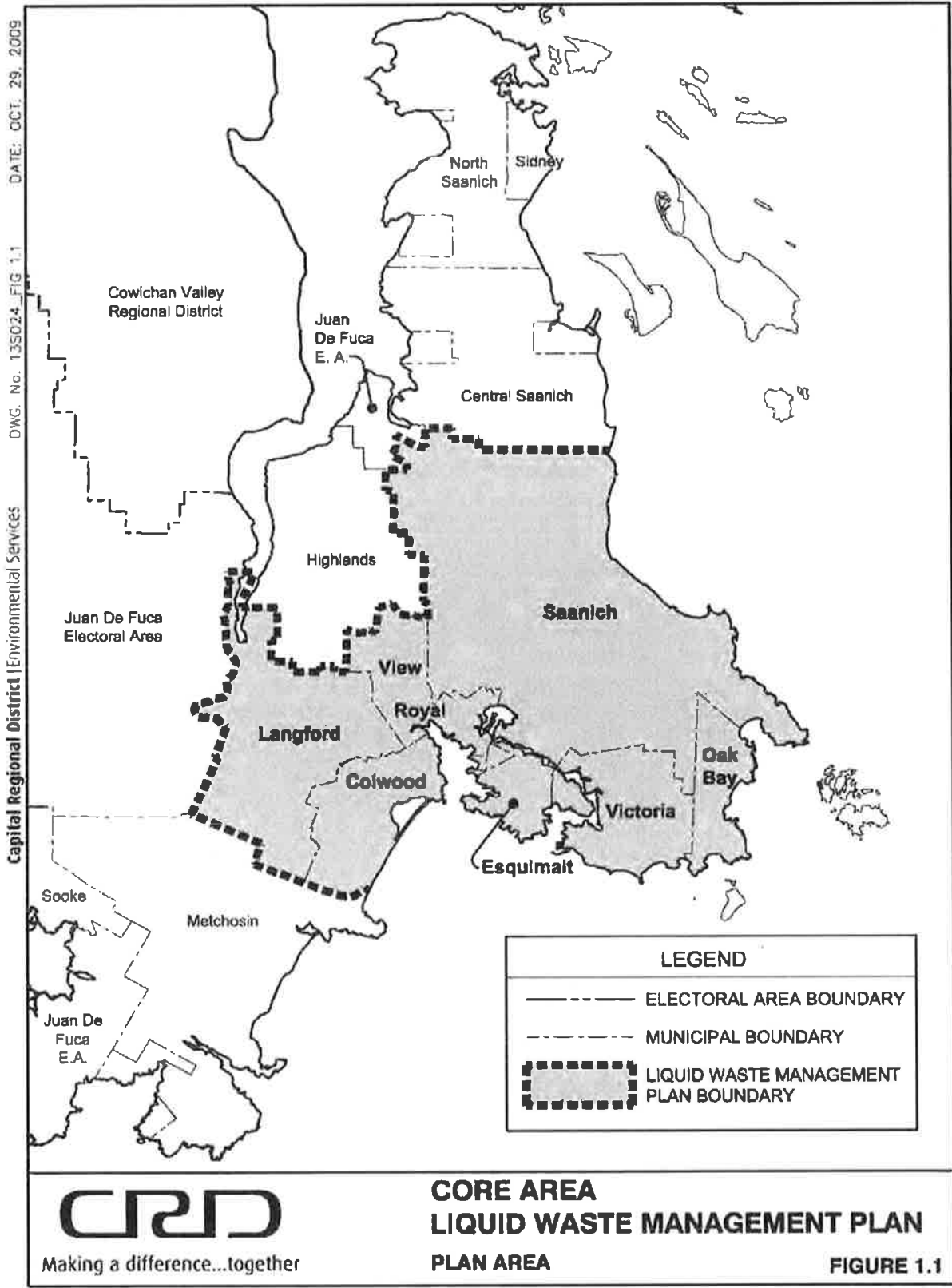
Increasing areas of Colwood and Langford are served by sewers, with plans for further expansion. In the long term, both municipalities are expected to be fully served by sewers.

The Dockside Green sewerage area, between the Johnson St. and Point Ellice bridges in Victoria, has its own collection system, sewage treatment plant and point of discharge to the harbour near Point Ellice Bridge.

It is a requirement of the Dockside Green operational certificate that the sewage treatment facility has "provision to be by-passed manually or overflow automatically to the City of Victoria sanitary sewer system."

AREAS NOT SERVED BY MUNICIPAL COLLECTION SYSTEMS

Properties not served by sewers rely on septic tanks or small treatments plants to provide wastewater treatment. These onsite systems primarily rely on tile fields or other distribution methods for ground disposal of treated effluent.



**CAPITAL REGIONAL DISTRICT
CORE AREA LIQUID WASTE MANAGEMENT PLAN**

AMENDMENT NO. 8

SECTION 6
(Modifies Section 6 in Amendment No. 7)

PROPOSED SYSTEM CONFIGURATION AND BIOSOLIDS MANAGEMENT PLAN
(REPLACES CHAPTER 14 IN THE EXISTING PLAN)

GOAL

The goal of the proposed wastewater management system is to protect public health and the environment and comply with provincial and federal regulations in a sustainable and cost effective manner.

COMMITMENTS

1. GENERAL

The Capital Regional District (CRD) and the participating municipalities commit to completing the required wastewater management program by the end of 2016 in a manner that will:

- a) Protect public health and the environment.
- b) Have a net negative carbon footprint.
- c) Be sustainable and optimize the recovery and beneficial use of resources.
- d) Avail of opportunities to integrate the solid and liquid waste functions wherever a mutual benefit can be achieved.
- e) Provide appropriate wastewater treatment for the participating municipalities that will minimize the cost to taxpayers.
- f) Provide facilities that are compatible with neighbouring communities.
- g) Comply with the draft operational certificates, which will be amended as required.

2. WASTE WATER TREATMENT

The CRD and the participating municipalities commit to providing, by the end of 2016, a wastewater management system as indicated in Figure 6.1A (page 6.3) that will include the following major components:

- a) Wet weather flow attenuation tanks and pump station at Arbutus Road in Saanich.
- b) A pump station at Clover Point that will pump up to three times the average dry weather flow (ADWF) to McLoughlin Point for secondary treatment.
- c) A treatment plant at McLoughlin Point that will provide primary treatment for flows up to four times ADWF and secondary treatment for flows up to two times ADWF from the northwest trunk and from Clover Point.
- d) A biosolids processing and resource recovery facility at Hartland Landfill and a biosolids transmission system to convey the biosolids from McLoughlin Point to this location for treatment.
- e) Primary treatment of any discharges over four-times ADWF after 2030.
- f) New grit removal facilities at the existing Clover Point and Macaulay Point pump stations. The raw sewage screening facilities at both locations will be retained.

3. BIOSOLIDS PROCESSING

The CRD and the participating municipalities commit to processing the biosolids generated by primary and secondary treatment in a manner that will optimize opportunities for beneficial use by:

- a) Using thermophilic anaerobic digestion to stabilize and reduce solids, kill pathogens and generate methane gas (biogas) for use onsite or offsite in the natural gas distribution system.
- b) Dewatering and drying some or all of the digested biosolids and selling it as a fuel for cement kilns, paper mills or other energy facilities.

4. PROPOSED TREATMENT PLANT LOCATION

As indicated in the attached draft operational certificate, the proposed treatment plant will be located at the following lot legal description:

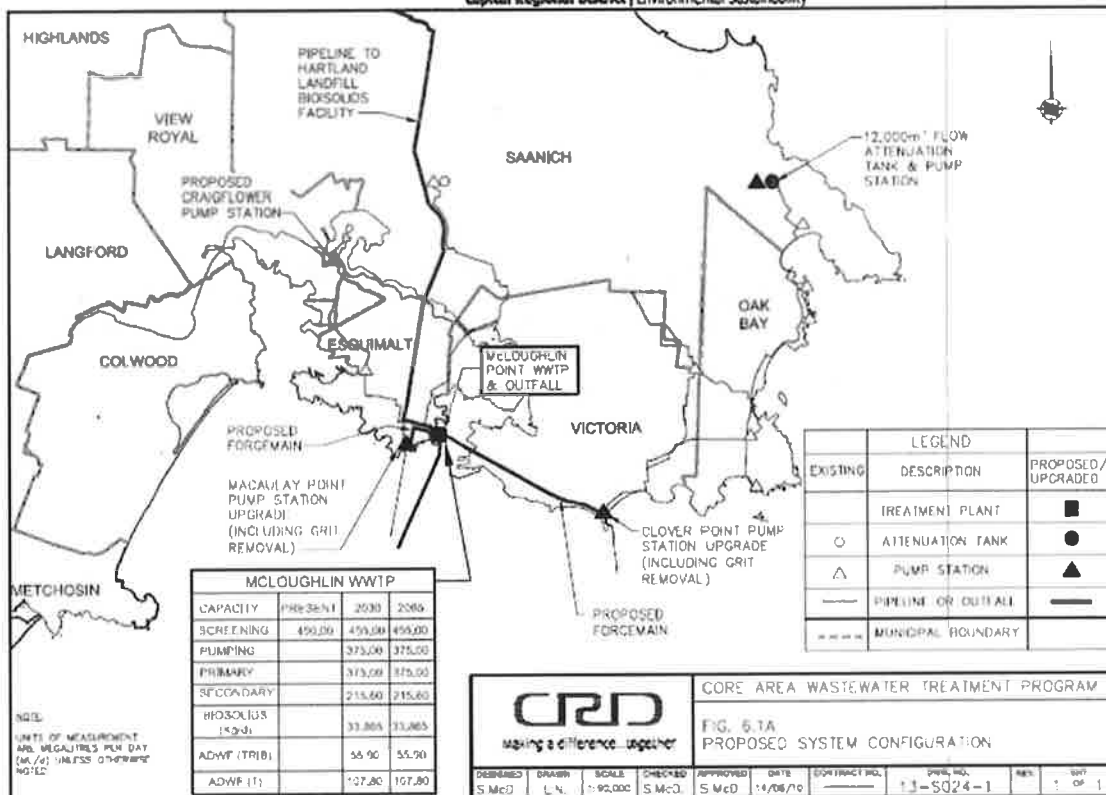
McLoughlin Point
Lots A-E, Plan 35322 (337 Victoria View Road)

APPENDIX D

Stantec Consulting Ltd., *Core Area Liquid Waste Management Program – Management of Wet Weather Flow at Clover Point*, May 2010

SUPPORTING DOCUMENTATION PREVIOUSLY SUBMITTED

Discussion papers and reports previously provided to the Ministry of Environment with progress reports or LWMP amendments are available at www.wastewatermadeclear.ca



Item Description	DAYS	START	FINISH	2010												2011												2012												2013												2014												2015											
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PROJECT WIDE																																																																											
MILESTONES																																																																											
Funding approved	0		20-Jun-10																																																																								
Start Detailed Planning work	0	20-Jun-10																																																																									
Submit LWMP Amendment #1	0		20-Jun-10																																																																								
Final site selection - McLoughlin & Macaulay	0		20-Jun-10																																																																								
Final site selection - SENOB Attenuation Tanks	0		01-Oct-10																																																																								
McLoughlin, Macaulay & Tunnel Construction start - permits received	6		24-Jul-12																																																																								
SENOB Attenuation Tanks Operational	0		16-Aug-11																																																																								
Core Area facilities operational	0		16-Dec-16																																																																								
Hartland Biosolids and Resource Recovery Facilities operational	0		16-Dec-16																																																																								
Environmental Impact Study (Provincial) - EIS																																																																											
EIS McLoughlin, Clover, Macaulay & Conveyancing	6	20-Jun-10	11-Jan-11																																																																								
CEAA Assessment (Federal)																																																																											
CEAA McLoughlin, Clover, Macaulay & Conveyancing	24	20-Jun-10	24-Jul-12																																																																								
DESIGN, PROCUREMENT & CONSTRUCTION STRATEGY																																																																											
DESIGN																																																																											
Conveyance / Pumping - DBB																																																																											
Conveyance / Pumping Design 100%	18	20-Jun-10	20-Jan-12																																																																								
Outfall Macaulay - DB																																																																											
Outfall Macaulay twinning Design for RFP	3	14-Oct-11	20-Jan-12																																																																								
Outfall Macaulay twinning DB Contractor design to 100%	3	23-Aug-12	28-Nov-12																																																																								
Tunnel - DB																																																																											
Tunnel across Victoria Harbour design for RFP	8	20-Jun-10	11-Mar-11																																																																								
Tunnel across Victoria Harbour DB Contractor design to 100%	5	14-Oct-11	21-Jun-12																																																																								
Hartland Biosolids Facility - DB																																																																											
Hartland Biosolids Facility design for RFP	7	20-Jun-10	09-Feb-11																																																																								
Hartland Biosolids Facility DB Contractor design to 100%	12	21-Mar-12	03-Apr-13																																																																								
Liquid Waste																																																																											
SENOB Attenuation Tanks - DBB																																																																											
SENOB Attenuation Tanks - Design to 100%	10	03-Nov-10	15-Sep-11																																																																								



CRD - Core Area Wastewater Treatment Program
 Preliminary Program Schedule - Option 1A Prime 2
 09 June 2010



Item Description	Duration	Start	Finish	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
McLoughlin Plant & Clover Point Pump Station - DB	- DB																		
McLoughlin Plant & CP Pump Station Design for RFP	10	30-Jun-10	13-May-11																
McLoughlin Plant & CP Pump Station DB Contractor Design to 100%	18	24-Jul-12	23-Jan-14																
Hartland Resource Recovery - DBO / DBFO																			
Hartland Resource Recovery Design for RFP	11	13-May-11	20-Apr-12																
Hartland Resource Recovery DBO/DBFO Contractor design to 100%	10	04-Mar-10	30-Dec-13																
CONTRACTOR PROCUREMENT																			
Conveyance / Pumping - DBB (Several Contracts)																			
Conveyance / Pumping CBB bid period	6	20-Jan-12	24-Jul-12																
Conveyance / Pumping CBB bid review / award	10	30-Apr-12	04-Mar-13																
Outfall Macaulay - DB																			
Outfall Macaulay twinning D9 bid period	3	20-Jan-12	20-Apr-12																
Outfall Macaulay twinning D9 bid review / award	4	20-Apr-12	23-Aug-12																
Tunnel - DB																			
Tunnel across Victoria Harbour DB bid period	3	15-Mar-11	15-Jun-11																
Tunnel across Victoria Harbour DB bid review / award	4	15-Jun-11	12-Oct-11																
Hartland Biosolids Facility - DB																			
Hartland Biosolids Facility DB Bid period	3	04-Feb-11	15-Nov-11																
Hartland Biosolids Facility DB Bid review / award	4	15-Nov-11	21-Mar-12																
SENOB Attenuation Tanks - DBB																			
SENOB Attenuation Tanks tender period, evaluation & award	4	27-Oct-14	24-Feb-15																
McLoughlin Plant & Clover Point Pump Station - DB																			
McLoughlin Plant & Clover Point Pump Station DB bid period	10	13-May-11	21-Mar-12																
McLoughlin Plant & Clover Point Pump Station DB Review / award	4	21-Mar-12	24-Jul-12																
Hartland Resource Recovery - DBO / DBFO																			
Hartland Resource Recovery DBO/DBFO bid period	6	20-Apr-12	25-Oct-12																
Hartland Resource recovery DBO/DBFO review / award	4	25-Oct-12	04-Mar-13																
CONSTRUCTION																			
Conveyance / Pumping - DBB																			
Conveyances Macaulay to McLoughlin Phase 1 - winter work only	6	23-Aug-12	04-Mar-13																
Pumpstation Rebuild McLoughlin / Macaulay	12	23-Aug-12	30-Aug-13																
Pumpstations & Conveyances to Hartland Landfill	18	23-Aug-12	27-Feb-14																



CRD - Core Area Wastewater Treatment Program
Preliminary Program Schedule - Option 1A Prime-2
09 June 2010



Task Description	Start	End	Finish	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Conveyance Macaulay to McLoughlin Phase 2 - winter work only	6	30-Aug-12	27-Feb-14												
Outfall Macaulay - DB															
Outfall Macaulay training	5	26-Nov-12	03-Jun-13												
Tunnel - DB															
Tunnel across Victoria Harbour construction	24	24-Jul-12	29-Jul-14												
Hartland Biosolids Facility - DB															
Hartland Biosolids Facility construction	26	25-Sep-12	23-Sep-10												
Liquid Waste															
SEN05 Attenuation Tanks - DBS															
SEN05 Attenuation Tanks construction	18	24-Feb-15	16-Aug-16												
McLoughlin Plant & Clover Point Pump Station - DB															
McLoughlin site remediation overburden	15	01-Sep-09	23-Dec-10												
McLoughlin site remediation balance	23	23-Dec-10	17-Dec-12												
McLoughlin Plant construction	42	02-Jan-13	25-Jun-16												
Clover Point Pumpstation retrofit construction	12	31-Mar-14	26-Mar-15												
Hartland Resource Recovery - DBO / DBFO															
Hartland Resource Recovery Construction	18	01-Aug-13	26-Jan-15												
COMMISSIONING															
Overall system commissioning	6	26-Jun-16	16-Dec-16												



CRD - Core Area Wastewater Treatment Program
 Preliminary Program Schedule - Option 1A Prime-2
 09 June 2010



**CAPITAL REGIONAL DISTRICT
CORE AREA LIQUID WASTE MANAGEMENT PLAN**

AMENDMENT NO. 8

SECTION 7

(Modifies Section 7 in Amendment No. 7)

**SUSTAINABILITY, RESOURCE RECOVERY, CARBON FOOTPRINT AND
GREENHOUSE GAS REDUCTION**

GOAL

Manage wastewater in a sustainable and regulatory compliant manner by establishing resource recovery opportunities, including partnerships for heat recovery and the beneficial use of biosolids, and by aggressively pursuing opportunities to minimize greenhouse gas emissions.

COMMITMENTS

1. GENERAL

The Capital Regional District and the participating municipalities will:

- a) Complete and submit to the Ministry of Environment, by end of 2010, a comprehensive and detailed Resource Recovery and Use Plan for optimizing the management and processing of resources from wastewater, taking into account the approved system configuration, facility locations and currently available or probable markets for resources.
- b) Complete, by the end of 2011, a business case for each resource recovery facility, including execution of Letters of Understanding (LOUs) with prospective customers and partners regarding their commitment to purchase resources, in order to confirm the size, timing and location of markets for the resources to be recovered from wastewater.
- c) Refine, by mid 2011, the system configuration and facility designs to ensure system compatibility with currently available and probable markets for resources.

2. RECOVERY OF ENERGY FROM BIOSOLIDS

The Capital Regional District and the participating municipalities will, by the end of 2016:

- a) Provide thermophilic anaerobic digesters to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction.
- b) Provide some additional capacity in the digesters to accept source separated food waste and/or fats, oils and greases (FOG) to enhance the production of biomethane.
- c) Upgrade the biogas to high quality biomethane and inject it into the natural gas pipeline system and/or use it in vehicles or at the biosolids processing facility.
- d) Recover waste heat from the digesters to warm the raw sludge being fed to them, thereby reducing digester heating costs.
- e) Dewater and thermally dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste to energy facilities.

3. RECOVERY OF HEAT FROM EFFLUENT (markets and degree of implementation to be quantified based on the outcome of commitment 1b above)

The Capital Regional District and the participating municipalities will:

- a) Use effluent source heat pumps to help heat treatment plant buildings using heat exchangers and hot water loops.
- b) Use effluent source heat pumps to meet the demand to provide cost-effective heat to:
 - (i) existing developments that have compatible heating infrastructure; and/or
 - (ii) new developments using district heating systems.

4. PHOSPHOROUS RECOVERY

The Capital Regional District and the participating municipalities will recover phosphorous fertilizer (via struvite crystallization) from anaerobic digester return streams for sale as a fertilizer.

5. GREENHOUSE GAS REDUCTION AND CARBON FOOTPRINT

The Capital Regional District and the participating municipalities will complete the wastewater treatment system in a manner that will result in its operation being carbon neutral, or better, due largely to the extensive utilization of wastewater resources to replace anthropogenic fossil fuels.

APPENDIX E

Stantec Consulting Ltd., *Core Area Wastewater Treatment Program – Feasibility Study for Heat Recovery for James Bay and Downtown Victoria*, January 2010.

SUPPORTING DOCUMENTATION PREVIOUSLY SUBMITTED

Discussion papers and reports previously provided to the Ministry of Environment with progress reports or LWMP amendments are available at www.wastewatertomadeclear.ca



Making a difference...together

**CORE AREA AND WEST SHORE SEWAGE TREATMENT
TECHNICAL AND COMMUNITY ADVISORY COMMITTEE MEETING**

Notice of Meeting on **Tuesday, November 5, 2013 at 12 noon**

Board Room, 6th floor, 625 Fisgard Street, Victoria, BC

D. Blackwell (Chair)	R. Barnhart	M. Baxter	M. Coburn
K. Cossey	T. Davies	G. Gillespie	D. Haldorson
E. Ishiguro	D. Kalynchuk	M. Mahovlich	D. Marshall
J. McIsaac	J. Miller	B. Oldham	D. Purewall
L. Resnick	J. Rosenberg	D. Spinner	T. Tiedje
D. White	C. Witter		

AGENDA

1. Approval of Agenda
2. Adoption of Minutes of October 15, 2013
3. Chair's Remarks
4. Committee of the Whole Review of Regional Biosolids Management Policy
5. Proposed Amendment No. 9
 - a) Biosolids Processing
 - b) Proposed Wording Changes
6. Motion for Which Notice Has Been Given
Environmental and Social Review for McLoughlin Point and Hartland North – C. Witter
7. New Business
8. Adjournment

Next Meeting: To be determined

LUNCH WILL BE PROVIDED.

To ensure a quorum, please advise June Tradewell at 250.360.3046 or jtradewell@crd.bc.ca if you cannot attend.



Making a difference...together

**Minutes of a Meeting of the Core Area and West Shore Sewage Treatment Technical and Community Advisory Committee (TCAC)
Held October 15, 2013, in the Board Room, 625 Fisgard St., Victoria, BC**

Present: **Committee Members:** D. Blackwell (Chair), R. Barnhart, K. Cossey, T. Davies, G. Gillespie, D. Halldorson, E. Ishiguro, D. Kalynchuk, M. Mahovlich, D. Marshall, J. McIsaac, J. Miller, B. Oldham, D. Purewall, J. Rosenberg, T. Tiedje, D. White, C. Witter
 Staff: J. Hull, Interim Program Director, Core Area Wastewater Treatment Program; L. Hutcheson, General Manager, Parks and Environmental Services; S. Santarossa, Manager, Legislative Services; D. Telford, Senior Manager, Environmental Engineering; J. Tradewell (recorder)
 External Resources: E. Dyck, Island Health; B. Mann, Ministry of Environment; J. Wilson, Ministry of Environment
Absent: M. Baxter, M. Coburn, L. Resnick, D. Spinner

The meeting was called to order at 12:01 pm.

1. Approval of Agenda

MOVED by T. Davies, **SECONDED** by J. McIsaac,
That the agenda be approved as circulated.

CARRIED

2. Adoption of Minutes

MOVED by K. Cossey, **SECONDED** by T. Davies,
That the minutes of the September 24, 2013 meeting be adopted as previously circulated.

CARRIED

B. Oldham entered the meeting at 12:02 pm.

3. Chair's Remarks

The Chair advised the TCAC members that the biosolids processing amendments included in Agenda Item 7 (Proposed Amendment No. 9) would not be discussed at this meeting. The Capital Regional District (CRD) Committee of the Whole will be considering the proposed biosolids processing amendments to the Core Area Liquid Waste Management Plan (CALWMP) in context with the proposed changes to the current CRD Regional Biosolids Policy at its meeting on October 30. The biosolids processing amendments will be brought to the next TCAC meeting for discussion.

4. Capital Regional District Board Procedures Bylaw

L. Hutcheson provided the following answers to a number of procedural questions posed by various TCAC members:

- How do members add discussion items to the TCAC agenda?
 - TCAC members can make a formal notice of motion at a particular meeting to be discussed at the following meeting.
 - Members are directed to contact D. Telford (TCAC staff liaison) regarding adding items to the agenda. These items will be discussed with the Chair and placed on the agenda as appropriate.

- Does TCAC receive delegations or presentations?
 - As the TCAC is an advisory committee and not a decision-making body, it does not receive delegations from the public. Technical experts may occasionally be invited to provide additional information pertaining to a particular request for advice from the Core Area Liquid Waste Management Committee (CALWMC).

- Are Alternates allowed for TCAC?
 - Alternates will not be allowed on the TCAC as there is no reference to Alternates in the Terms of Reference and only those individuals named on the TCAC membership list were approved by the CRD Board as TCAC members.

- Will TCAC minutes be posted and made available publicly and forwarded to the CALWMC?
 - Draft TCAC minutes will be posted on the CRD website once they have been reviewed by staff and the Chair.
 - Draft TCAC minutes will be forwarded to the next CALWMC meeting.

L. Hutcheson responded to additional questions from members and noted that the TCAC would be meeting to discuss all proposed changes in Amendment No. 9 before it is submitted to the Board for forwarding to the Minister of Environment by end of 2013. Any member that would like to propose an additional amendment to the CALWMP will need to first present it to the CALWMC for consideration.

J. Rosenberg entered the meeting at 12:15 pm.

MOVED by R. Barnhart, **SECONDED** by K. Cossey,
That the verbal report regarding *Capital Regional District Board Procedures Bylaw, 2012*,
be received for information.

CARRIED

5. Technical and Community Advisory Committee Terms of Reference

L. Hutcheson referred to the TCAC Terms of Reference's role and responsibilities and informed the TCAC that pursuant to the TCAC Terms of Reference Roles and Responsibilities, meeting agendas will be focussed on the requests for technical and community consultation and input made by the CALWMC.

The makeup of TCAC membership was established through consultation with Ministry of Environment (MOE) staff resulting in all amendments to date having been accepted by the

MOE as meeting its requirements around appropriate public consultation. The MOE was again consulted in putting together the existing membership list so that the TCAC could continue to provide advice to the CALWMC as needed.

Discussion followed and a concern was expressed that the TCAC Terms of Reference, based on the MOE guidelines, are extremely narrow. It was questioned why TCAC has been asked to only review the final reports and not being asked to be included in the creation of the final reports, as the preference is to see TCAC involved in the process of creating the amendments as, it was thought, the MOE guidelines are suggesting. The Chair explained that the CALWMP was approved by the Minister of Environment in 2010 and TCAC is currently meeting to look at only the changes to the CALWMP as proposed in Amendment No. 9.

It was commented that the TCAC membership seemed to lack representation from some groups, e.g., School Districts and Community Associations, although it was noted that the Members at Large somewhat represent the Community Associations.

Concern was expressed that TCAC has not sat as a committee for some time and it was queried why the TCAC was not called sooner.

The Chair explained that the CALWMP was approved as amended in 2010 by the Minister of Environment. No amendments to the approved plan have been considered since that time, so there has not been a need for the CALWMC to seek TCAC advice on matters pertaining to the plan. The Seaterra program has now developed to the point that some amendments to the CALWMP are needed to more clearly reflect the overall project direction. The decision was therefore made to reconvene the TCAC to assist the CALWMC in making decisions on the proposed new amendments to the plan.

MOVED by D. Kalynchuk, **SECONDED** by J. McIsaac,
That the Core Area and West Shore Sewage Treatment Technical and Community
Advisory Committee Terms of Reference be received for information.

CARRIED

6. Election of Vice-Chair

The Chair called for nominations for the position of Vice-Chair of the Core Area and West Shore Sewage Treatment TCAC.

MOVED by M. Mahovlich, **SECONDED** by D. Halldorson,
That D. Kalynchuk's name be put forward for the position of Vice-Chair of the Core Area
and West Shore Sewage Treatment Technical and Community Advisory Committee.

D. Kalynchuk accepted the nomination.

MOVED by D. Purewall, **SECONDED** by C. Witter,
That G. Gillespie's name be put forward for the position of Vice-Chair of the Core Area and
West Shore Sewage Treatment Technical and Community Advisory Committee.

G. Gillespie accepted the nomination.

The Chair called for nominations a second and third time and hearing none, declared nominations closed. Each candidate was given the opportunity to speak to the members.

Ballots were handed out and then collected and counted. The Chair announced that D. Kalynchuk was elected as Vice-Chair of the Core Area and West Shore Sewage Treatment TCAC.

MOVED by K. Cossey, **SECONDED** by J. Rosenberg,
That the ballots be destroyed.

CARRIED

7. Proposed Amendment No. 9

J. Hull reviewed the proposed changes to the CALWMP as proposed in Amendment No. 9.

Item 1 discussion on the project completion date included the following points:

- Completion date is July 2018 with a later date (final completion) for invoices and final accounting submission.
- Dollar amounts for the program as stated in the agreements remain unchanged.
- The program is on schedule at this point.
- There is no flexibility in the dates of the approved contribution agreement from the Province.

MOVED by K. Cossey, **SECONDED** by M. Mahovich,
That the change of the completion date from end of 2016 to end of 2018, as proposed in Amendment No. 9 of the Core Area Liquid Waste Management Plan, be accepted.

Discussion on the motion ensued and staff confirmed that the implementation schedule is on track.

CARRIED

Item 2 discussion on the storage volume of the Arbutus Road attenuation tank included the following points:

- If inflow and infiltration (I&I) remain at current levels no expansion of the proposed attenuation tank will be necessary in the future.
- The 2011 I&I report was submitted to MOE on schedule.
- The 5-Year Performance Audit of Plan Commitments was submitted to MOE in 2012 and is available for viewing on the CRD website.

MOVED by T. Davies, **SECONDED** by J. McIsaac,
That the initial storage volume of the proposed Arbutus Road attenuation tank be reduced from 12,000 cubic metres to 5,000 cubic metres, as proposed in Amendment No. 9 of the Core Area Liquid Waste Management Plan, be accepted.

CARRIED

Item 3 discussion on the new sewage screening facilities included the following points:

- size of screens
- physical appearance of pump stations
- method to be used for grit removal
- opportunity for the public to be involved in the design of Macaulay Point pump station upgrade
- grit removal and screening

MOVED by K. Cossey, **SECONDED** by M. Mahovlich,
That the new sewage screening facilities for both Clover Point and Macaulay Point pump stations, as proposed in Amendment No. 9 of the Core Area Liquid Waste Management Plan, be accepted.

CARRIED

8. New Business

Environmental and Social Review

A member questioned if an Environmental and Social Review (ESR) had been completed for McLoughlin Point. As an ESR is referred to in Amendments No. 7 and 8 and committed to, it was thought that the TCAC should see an ESR as a standalone report.

Staff responded that the content of an Environmental Impact Study (EIS) deals with all the same social aspects that would be required in an ESR. The work has been done and the social aspects have been dealt with (i.e., odour, transportation, community impacts, etc.). Eleven different EISs have been prepared and a summary report is in the process of being prepared for submission to MOE which will include McLoughlin Point.

Notice of Motion from C. Witter – Environmental and Social Review for McLoughlin Point

That TCAC be provided with the Environmental and Social Review for McLoughlin Point as it was commissioned and paid for.

9. Adjournment

MOVED by D. Kalynchuk, **SECONDED** by K. Cossey,
That the meeting be adjourned at 1:02 pm.

CARRIED

Next Meeting: Tuesday, November 5, 2013

CHAIR



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**REPORT TO CORE AREA AND WEST SHORE SEWAGE TREATMENT
TECHNICAL AND COMMUNITY ADVISORY COMMITTEE
MEETING OF TUESDAY, NOVEMBER 5, 2013**

**SUBJECT COMMITTEE OF THE WHOLE REVIEW OF REGIONAL BIOSOLIDS
MANAGEMENT POLICY**

ISSUE

To update the Technical and Community Advisory Committee on the outcome of the Capital Regional District (CRD) Board's reconsideration of the biosolids management policy.

BACKGROUND

At its meeting of June 12, 2013, the CRD Board passed the following motion:

That staff be directed to bring forward a report outlining environmental, social and economic implications for both the core area liquid waste management program and other regional impacts to the Board for reconsideration of the sludge and biosolids management policy for the region.

This report was brought forward to the Committee of the Whole on October 30, 2013 along with presentations from both the public and the Seaterra Program consultants.

Upon consideration of the information provided, the Committee of the Whole passed the following motion, which was subsequently passed by the CRD Board:

That the current policy, adopted July 13, 2011, regarding the banning of the land application of biosolids be confirmed.

Proposed Amendment No. 9 to the Core Area Liquid Waste Management Plan includes a number of wording changes relating to biosolids processing, which are intended to clarify ambiguities or to enable proponents to recommend innovative alternative technologies for beneficial use of biosolids that are in strict compliance with CRD Board Policy. These changes, as distributed last meeting, are to be discussed under the next item on this agenda.

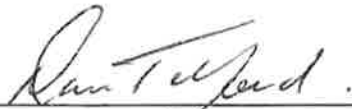
CONCLUSION

The CRD Board's policy on regional biosolids management as adopted on July 13, 2011 remains unchanged as follows:

1. *That the CRD will harmonize current and long-term practices at all CRD owned regional facilities and parks with the approved policies of the regional treatment strategy, including ending the production, storage and distribution of biosolids for land application at all facilities and parks.*
2. *That the CRD does not support the application of biosolids on farmland in the CRD under any circumstances and let this policy be reflected in the upcoming Regional Sustainability Strategy.*

RECOMMENDATION

That the Core Area and West Shore Sewage Treatment Technical and Community Advisory Committee receive this report for information.



Dan Telford, P.Eng.
Senior Manager, Environmental Engineering



Larisa Hutcheson, P.Eng.
General Manager
Parks & Environmental Services
Concurrence

DT:jt

**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, OCTOBER 9, 2013**

**SUBJECT DRAFT AMENDMENT NO. 9 TO THE CORE AREA LIQUID WASTE
MANAGEMENT PLAN - CORE AREA WASTEWATER TREATMENT
PROGRAM**

ISSUE

Over the past three years, since Amendment No. 8 was submitted to the Minister of Environment in June 2010, the Core Area Wastewater Treatment Program has been further developed and refined. This has resulted in a requirement to make a number of changes to the Core Area Liquid Waste Management Plan (CALWMP).

BACKGROUND

A summary of the proposed changes to the CALWMP, as proposed in Amendment No. 9, is attached as Appendix A. Applicable excerpts of the CALWMP Amendment No. 8 are attached as Appendix B. The most significant changes are as follows:

1. *The scheduled project completion date moves from the end of 2016 to the end of 2018.*

The additional time is required to make up for time lost when the project was put on hold for an extended period until all senior government funding was secured. The Federal and Provincial funding agreements are for work to be completed by the end of 2018.

2. *The initial storage volume of the proposed Arbutus Road Attenuation Tank is reduced from 12,000 cubic metres to 5,000 cubic metres.*

This attenuation tank is required to enable the transmission of all Saanich East flows to the proposed McLoughlin Point treatment plant. The original 12,000 cubic metre capacity tank was based on a 2004 consultant's study that indicated an original 6,000 cubic metre tank in 2010 and an additional 6,000 cubic metre tank in 2005, so a 12,000 cubic metre tank was proposed in Amendment No. 8. The consultant, Kerr Wood Leidal, has now updated the original study using flow data collected since 2004. Based on the current flow data and water reduction trends, the consultant now recommends that a 5,000 cubic metre facility be constructed initially, and that "space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase beyond current levels."

3. *New sewage screening facilities are proposed for both Clover Point and Macaulay Point pump stations.*

The commitment in Amendment No. 8 was to provide new grit removal facilities at both pump stations but to retain the existing raw sewage screens. On further consideration, it has been concluded that the existing screening facilities at both pump stations should be replaced at the same time as the grit removal facilities.

4. *Biosolids processing to produce only dry fuel for cement kilns, pulp mills or waste to energy facilities is revised to include other beneficial uses that comply with CRD Board Policy.*

The commitment in Amendment No. 8 was to dewater and dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste to energy facilities. On further consideration, this restricts the ability of proponents for the Biosolids Energy Centre to recommend other innovative, alternative technologies that may result in significantly improved system performance and cost savings while providing products for beneficial use in strict compliance with CRD Board policy. This policy will be discussed at the Committee of the Whole on October 30, 2013.

In addition to the above, there are a number of proposed wording changes in Amendment No. 9 intended to clarify ambiguities or to enable proponents to recommend alternative technologies that may result in improved system performance or cost savings.

ALTERNATIVES

1. That the Core Area Liquid Waste Management Committee (CALWMC) refer the proposed Amendment No. 9 to the Technical and Community Advisory Committee (TCAC) for consideration and that its recommendations on the proposed amendment be brought back to the next CALWMC meeting.
2. That the CALWMC request changes to the proposed Amendment No. 9 to the Core Area Liquid Waste Management Plan, as attached in Appendix A, prior to forwarding it to the TCAC for consideration and its recommendations.

ENVIRONMENTAL IMPLICATIONS

The proposed changes to the CALWMP, as outlined above, support the CRD goals and objectives of pursuing resource recovery opportunities and completing the wastewater treatment system to operate in a carbon neutral or better manner.

A 5,000 cubic metre attenuation tank will ensure that the Municipal Wastewater Regulations are met regarding overflows from the east coast interceptor, with the exception of those caused by the combined sewer system in the Uplands area of Oak Bay. An update on this item is anticipated to come before Committee in early 2014. The new screening facilities at both Clover Point and Macaulay Point outfalls are expected to provide more reliable and effective screening and reduce wear and tear on the pumps at those facilities.

The changes proposed in regards to biosolids stabilization, allowing technologies other than thermophillic anaerobic digestion, will maintain commitments to recover biogas and phosphorous from the process. The biosolids products will be produced for beneficial use in strict compliance with CRD Board policy, to be discussed in depth at the Committee of the Whole meeting on October 30, 2013.

ECONOMIC IMPLICATIONS

Most of the changes in draft Amendment No. 9 are expected to have little or no impact on project costs, with the exception of items 2, 3 and 4 described under "Background" above. As Item 2 will result in a reduction of project costs, while item 3 will result in an approximately similar increase in costs, the overall estimated cost of the project remains substantially unchanged. However, item 4 could potentially generate significant cost savings, depending on the alternative technologies brought forward by the proponents.

INTERGOVERNMENTAL IMPLICATIONS

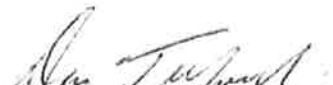
Staff have reviewed the series of proposed changes with ministry of environment staff. The amendments are considered minor and have been requested to be received in the form of a letter to the minister. The proposed amendments are to be forwarded to the TCAC for consideration as the next step.

CONCLUSION

Amendment No. 9 is required to incorporate changes into the Core Area Liquid Waste Management Plan that have been made to the Core Area Wastewater Treatment Program since June 2010. The changes include a smaller initial Arbutus Road attenuation tank, the addition of new raw sewage screening facilities at both Clover Point and Macaulay Point pump stations and the potential for innovative, alternative biosolids processing technologies.

RECOMMENDATION


That the Core Area Liquid Waste Management Committee refer the proposed Amendment No. 9 to the Technical and Community Advisory Committee for consideration and that its recommendations on the proposed amendment be brought back to the next Core Area Liquid Waste Management Committee meeting.



Dan Telford, P.Eng.
Senior Manager
Environmental Engineering



Larisa Hutcheson, P.Eng.
General Manager
Parks and Environmental Services
Concurrence



Robert Lapham, MCIP, RPP
Chief Administrative Officer
Concurrence

DT:jt
Attachment: 2

DRAFT

APPENDIX A

CORE AREA LIQUID WASTE MANAGEMENT PLAN

DRAFT AMENDMENT NO. 9 – SUMMARY

PURPOSE

Over the past three years, since Amendment No. 8 was submitted to the Minister of Environment in June 2010, the Core Area Wastewater Treatment Program has been further developed and refined. This has resulted in a requirement to make a number of changes to the Core Area Liquid Waste Management Plan (CALWMP), as revised by Amendment No. 8. The purpose of Amendment No. 9 is to incorporate these changes into the CALWMP by modifying the applicable clauses in Amendment No. 8.

BACKGROUND

The changes to the CALWMP, as proposed in Amendment No. 9, are as follows:

1. The scheduled project completion date moves from the end of 2016 to the end of 2018. The additional time is required to make up for time lost when the project was put on hold for an extended period until all senior government funding was secured. The Federal and Provincial funding agreements are for work to be completed by the end of 2018.

Amendment to Program Schedule:

Amend page 1.2 of Section 1, and Commitments 1 and 2 on page 6.1 of Section 6, by deleting the phrase *“by the end of 2016”* and replacing it with *“by the end of 2018”*, and also, in Section 13, by deleting the Preliminary Program Schedule, dated 09 June 2010 and replacing it with the Program Schedule, dated 30 September 2013, which is attached as Appendix 2.

2. The initial storage volume of the proposed Arbutus Road attenuation tank is reduced from 12,000 cubic metres to 5,000 cubic metres.

This attenuation tank is required to enable the transmission of all Saanich East flows to the proposed McLoughlin Point treatment plant. The original 12,000 cubic metre capacity tank was based on a 2004 consultant's study and was the ultimate size that would be required if inflow and infiltration (I&I) continued to increase beyond 2025. The consultant, Kerr Wood Leidal, has now updated the original study using flow data that has been collected since 2004. The consultant now recommends that a 5,000 cubic metre facility be constructed initially, and that “space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase beyond current levels.” The consultant's report is attached to this Amendment as Appendix 1.

Amendment to the Proposed Capacity of Arbutus Road Attenuation Tank:

Amend page 1.2 of Section 1 by deleting *“As indicated in figure 6.1A, a 12,000 m³ wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich.”* and replacing it with *“As indicated in figure 6.1A, a 5,000 m³ wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich.”* The revised figure 6.1A is attached as Appendix 3.

3. New sewage screening facilities are proposed for both Clover Point and Macaulay Point pump stations.

The commitment in Amendment No. 8 was to provide new grit removal facilities at both pump stations, but to retain the existing raw sewage screens. On further consideration, it has been concluded that the existing screening facilities at both pump stations should be replaced when the grit removal facilities are replaced.

Amendment to Add New Screening Facilities to Clover Point and Macaulay Point Pump Stations:

Amend Commitment 2.f) on page 6.1 of Section 6 by deleting *“New grit removal facilities at the existing Clover Point and Macaulay Point pump stations. The raw sewage screening facilities at both locations will be retained.”* and replacing it with *“New grit and screening facilities at the Clover Point and Macaulay Point pump stations.”*

4. Biosolids processing to produce only dry fuel for cement kilns, pulp mills or waste to energy facilities is revised to include other beneficial uses that comply with CRD Board Policy.

The commitment in Amendment No. 8 was to dewater and dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste to energy facilities. On further consideration, it has been concluded that this restricts the ability of proponents for the Biosolids Energy Centre to recommend other innovative alternative technologies that may result in significantly improved system performance and cost savings while providing products for beneficial use that are in strict compliance with CRD Board.

Amendment to Biosolids Processing:

Amend Commitment 3.a) on page 6.2 of Section 6 by deleting *“Using thermophilic anaerobic digestion to stabilize and reduce solids, kill pathogens and generate methane gas (biogas) for use onsite or offsite in the natural gas distribution system.”* and replacing it with *“Using a solids stabilization process to stabilize and reduce solids, kill pathogens and generate biogas for use onsite or offsite.”*

Amend Commitment 3.b) on page 6.2 of Section 6 by deleting *“Dewatering and drying some or all of the digested biosolids and selling it as a fuel for cement kilns, paper mills or other energy facilities.”* and replacing it with *“Preparing the biosolids for beneficial use.”*

5. In addition to the above, there are a number of proposed wording changes in Amendment No. 9 intended to clarify ambiguities or to enable proponents to recommend innovative alternative technologies that may result in improved system performance or cost savings. These changes include the replacement of the words *“thermophilic anaerobic digestion”* with the words *“solids stabilization”* to enable the biosolids processing system to be designed and operated to economically produce a product that is suitable for its proposed use or disposal method.

Amendments Regarding the Recovery of Energy from Biosolids:

Amend Commitment 2.a) on page 7.1 of Section 7 by deleting *“Provide thermophilic anaerobic digesters to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction.”* and replacing it with *“Provide solids stabilization to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction.”*

Amend Commitment 2.b) on page 7.1 of Section 7 by deleting *“Provide some additional capacity in the digesters to accept source separated food waste and/or fats, oils and greases (FOG) to enhance the production of biomethane.”* and replacing it with *“Provide additional capacity in the stabilization process to accept source separated food waste and/or fats, oils or greases (FOG) to enhance the production of biogas.”*

Amend Commitment 2.c) on page 7.1 of Section 7 by deleting *“Upgrade biogas to high quality biomethane and inject it into the natural gas pipeline system and/or use it in vehicles or at the biosolids processing facility.”* and replacing it with *“Use the biogas generated by the solids stabilization process onsite or offsite.”*

Amend Commitment 2.d) on page 7.1 of Section 7 by deleting *“Recover waste heat from the digesters to warm the raw sludge being fed to them, thereby reducing digester heating costs.”* and replacing it with *“Recover waste heat, where practical, from the solids stabilization process to reduce energy consumption.”*

Amend Commitment 2.e) on page 7.1 of Section 7 by deleting *“Dewater and thermally dry the digested biosolids to be used as a fuel for cement kilns, paper mills or waste to energy facilities.”* and replacing it with *“Prepare the biosolids for beneficial use.”*

Amendment Regarding Phosphorous Recovery:

Amend Commitment 4 on page 7.2 of Section 7 by deleting *“The Capital Regional District and the participating municipalities will recover phosphorous fertilizer (via struvite crystallization) from anaerobic digester return streams for sale as a fertilizer.”* and replacing it with *“The Capital Regional District and the participating municipalities will recover phosphorous fertilizer from the solids stabilization process.”*

Amendment Regarding Greenhouse Gas Reduction and Carbon Footprint:

Amend Commitment 5 on page 7.2 of Section 7 by deleting *"The Capital Regional District and the participating municipalities will complete the wastewater treatment system in a manner that will result in its operation being carbon neutral, or better, due largely to the extensive utilization of wastewater resources to replace anthropogenic fossil fuels."* by replacing it with *"The Capital Regional District and the participating municipalities will complete the wastewater treatment system in a manner that will result in operations being carbon neutral, or better."*

Attachments: 3

**CAPITAL REGIONAL DISTRICT
CORE AREA LIQUID WASTE MANAGEMENT PLAN**

AMENDMENT NO. 8

SECTION 6

(Modifies Section 6 in Amendment No. 7)

PROPOSED SYSTEM CONFIGURATION AND BIOSOLIDS MANAGEMENT PLAN

(REPLACES CHAPTER 14 IN THE EXISTING PLAN)

GOAL

The goal of the proposed wastewater management system is to protect public health and the environment and comply with provincial and federal regulations in a sustainable and cost effective manner.

COMMITMENTS

1. GENERAL

The Capital Regional District (CRD) and the participating municipalities commit to completing the required wastewater management program by the end of 2016 in a manner that will:

- a) Protect public health and the environment.
- b) Have a net negative carbon footprint.
- c) Be sustainable and optimize the recovery and beneficial use of resources.
- d) Avail of opportunities to integrate the solid and liquid waste functions wherever a mutual benefit can be achieved.
- e) Provide appropriate wastewater treatment for the participating municipalities that will minimize the cost to taxpayers.
- f) Provide facilities that are compatible with neighbouring communities.
- g) Comply with the draft operational certificates, which will be amended as required.

2. WASTE WATER TREATMENT

The CRD and the participating municipalities commit to providing, by the end of 2016, a wastewater management system as indicated in Figure 6.1A (page 6.3) that will include the following major components:

- a) Wet weather flow attenuation tanks and pump station at Arbutus Road in Saanich.
- b) A pump station at Clover Point that will pump up to three times the average dry weather flow (ADWF) to McLoughlin Point for secondary treatment.
- c) A treatment plant at McLoughlin Point that will provide primary treatment for flows up to four times ADWF and secondary treatment for flows up to two times ADWF from the northwest trunk and from Clover Point.
- d) A biosolids processing and resource recovery facility at Hartland Landfill and a biosolids transmission system to convey the biosolids from McLoughlin Point to this location for treatment.
- e) Primary treatment of any discharges over four-times ADWF after 2030.
- f) New grit removal facilities at the existing Clover Point and Macaulay Point pump stations. The raw sewage screening facilities at both locations will be retained.

3. BIOSOLIDS PROCESSING

The CRD and the participating municipalities commit to processing the biosolids generated by primary and secondary treatment in a manner that will optimize opportunities for beneficial use by:

- a) Using thermophilic anaerobic digestion to stabilize and reduce solids, kill pathogens and generate methane gas (biogas) for use onsite or offsite in the natural gas distribution system.
- b) Dewatering and drying some or all of the digested biosolids and selling it as a fuel for cement kilns, paper mills or other energy facilities.

4. PROPOSED TREATMENT PLANT LOCATION

As indicated in the attached draft operational certificate, the proposed treatment plant will be located at the following lot legal description:

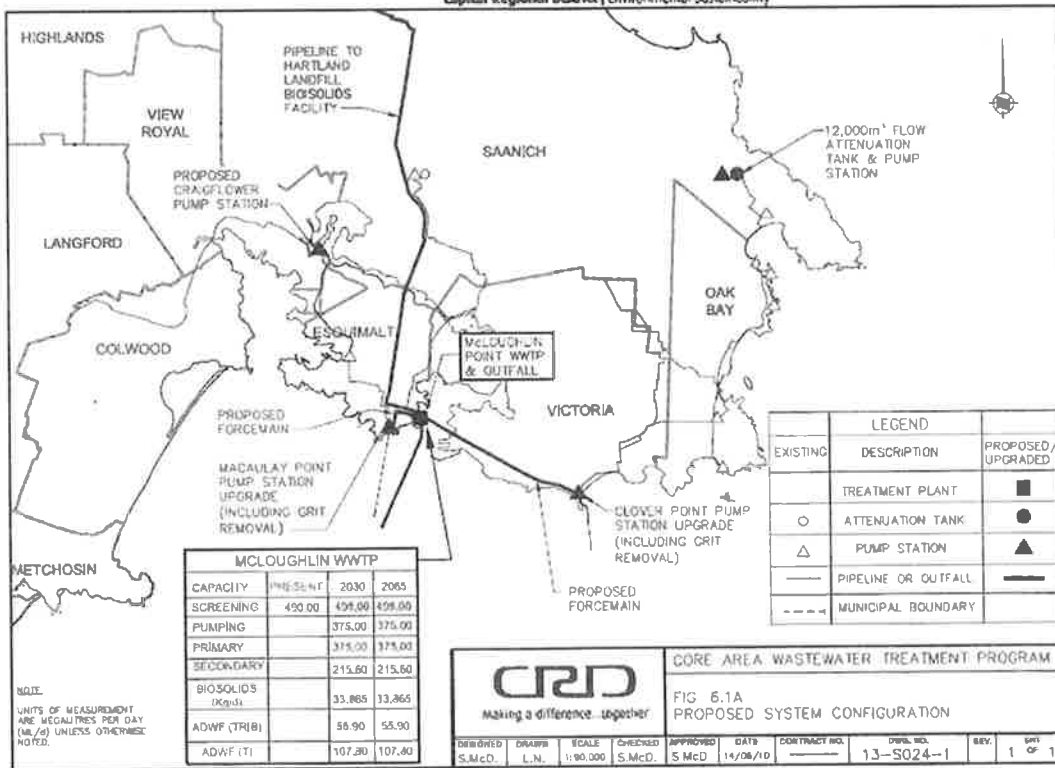
McLoughlin Point
Lots A-E, Plan 35322 (337 Victoria View Road)

APPENDIX D

Stantec Consulting Ltd., *Core Area Liquid Waste Management Program – Management of Wet Weather Flow at Clover Point*, May 2010

SUPPORTING DOCUMENTATION PREVIOUSLY SUBMITTED

Discussion papers and reports previously provided to the Ministry of Environment with progress reports or LWMP amendments are available at www.wastewatertomadeclear.ca



**CAPITAL REGIONAL DISTRICT
CORE AREA LIQUID WASTE MANAGEMENT PLAN**

AMENDMENT NO. 8

SECTION 7
(Modifies Section 7 in Amendment No. 7)

**SUSTAINABILITY, RESOURCE RECOVERY, CARBON FOOTPRINT AND
GREENHOUSE GAS REDUCTION**

GOAL

Manage wastewater in a sustainable and regulatory compliant manner by establishing resource recovery opportunities, including partnerships for heat recovery and the beneficial use of biosolids, and by aggressively pursuing opportunities to minimize greenhouse gas emissions.

COMMITMENTS

1. GENERAL

The Capital Regional District and the participating municipalities will:

- a) Complete and submit to the Ministry of Environment, by end of 2010, a comprehensive and detailed Resource Recovery and Use Plan for optimizing the management and processing of resources from wastewater, taking into account the approved system configuration, facility locations and currently available or probable markets for resources.
- b) Complete, by the end of 2011, a business case for each resource recovery facility, including execution of Letters of Understanding (LOUs) with prospective customers and partners regarding their commitment to purchase resources, in order to confirm the size, timing and location of markets for the resources to be recovered from wastewater.
- c) Refine, by mid 2011, the system configuration and facility designs to ensure system compatibility with currently available and probable markets for resources.

2. RECOVERY OF ENERGY FROM BIOSOLIDS

The Capital Regional District and the participating municipalities will, by the end of 2016:

- a) Provide thermophilic anaerobic digesters to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction.
- b) Provide some additional capacity in the digesters to accept source separated food waste and/or fats, oils and greases (FOG) to enhance the production of biomethane.
- c) Upgrade the biogas to high quality biomethane and inject it into the natural gas pipeline system and/or use it in vehicles or at the biosolids processing facility.
- d) Recover waste heat from the digesters to warm the raw sludge being fed to them, thereby reducing digester heating costs.
- e) Dewater and thermally dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste to energy facilities.

3. RECOVERY OF HEAT FROM EFFLUENT (markets and degree of implementation to be quantified based on the outcome of commitment 1b above)

The Capital Regional District and the participating municipalities will:

- a) Use effluent source heat pumps to help heat treatment plant buildings using heat exchangers and hot water loops.
- b) Use effluent source heat pumps to meet the demand to provide cost-effective heat to:
 - (i) existing developments that have compatible heating infrastructure; and/or
 - (ii) new developments using district heating systems.

4. PHOSPHOROUS RECOVERY

The Capital Regional District and the participating municipalities will recover phosphorous fertilizer (via struvite crystallization) from anaerobic digester return streams for sale as a fertilizer.

5. GREENHOUSE GAS REDUCTION AND CARBON FOOTPRINT

The Capital Regional District and the participating municipalities will complete the wastewater treatment system in a manner that will result in its operation being carbon neutral, or better, due largely to the extensive utilization of wastewater resources to replace anthropogenic fossil fuels.

APPENDIX E

Stantec Consulting Ltd., *Core Area Wastewater Treatment Program – Feasibility Study for Heat Recovery for James Bay and Downtown Victoria*, January 2010.

SUPPORTING DOCUMENTATION PREVIOUSLY SUBMITTED

Discussion papers and reports previously provided to the Ministry of Environment with progress reports or LWMP amendments are available at www.wastewatermadeclear.ca

Agenda Item #6

**Notice of Motion from C. Witter
Environmental and Social Review for McLoughlin Point and Hartland North**

An Environmental and Social Review (ESR) for McLoughlin Point and Hartland North has been mandated by the CRD in both Amendment 7 and Amendment 8. If this requirement to complete an ESR for all selected sites using the specific CRD framework for site selection has been changed, all documentation supporting this change must be vetted through TCAC prior to advising the Core Area Liquid Waste Management Committee to sign off on Amendment 9.



Making a difference...together

Minutes of a Meeting of the Core Area and West Shore Sewage Treatment Technical and Community Advisory Committee (TCAC)
Held November 5, 2013, in the Board Room, 625 Fisgard St., Victoria, BC

Present: **Committee Members:** D. Blackwell (Chair), R. Barnhart, M. Baxter, G. Gillespie, D. Halldorson, E. Ishiguro, D. Kalynchuk, M. Mahovlich, D. Marshall, J. Miller, B. Oldham, D. Purewall, L. Resnick, D. Spinner, T. Tiedje, D. White, C. Witter
 Staff: T. Brcic, Deputy Program Director, Core Area Wastewater Treatment Program; J. Hull, Interim Program Director, Core Area Wastewater Treatment Program; L. Hutcheson, General Manager, Parks and Environmental Services; A. Sweetnam, Program Director, Core Area Wastewater Treatment Program; D. Telford, Senior Manager, Environmental Engineering; J. Tradewell (recorder)
 External Resources: E. Dyck, Island Health; B. Mann, Ministry of Environment; J. Wilson, Ministry of Environment

Absent: M. Coburn, K. Cossey, T. Davies, J. McIsaac, J. Rosenberg

The meeting was called to order at 12:02 pm.

1. Approval of Agenda

MOVED by D. Kalynchuk, **SECONDED** by R. Barnhart,
That the agenda be approved as circulated.

CARRIED

2. Adoption of Minutes

A member noted a date discrepancy in the consolidated version of the Core Area Liquid Waste Management Plan – May 2011 (CALWMP) that was distributed to members with the September TCAC agenda package. It was suggested that on page 7.1 in Section 7 – Item 2 *Recovery of Energy from Biosolids*, the first sentence should read *The CRD and the participating municipalities will, by the end of 2018* (instead of 2016).

MOVED by D. Halldorson, **SECONDED** by B. Oldham,
That the minutes of the October 15, 2013 meeting be adopted as amended.

CARRIED

[Upon further consideration after the meeting, staff confirmed that the 2016 date was in fact stated correctly in the consolidated version (May 2011), since it reflects CALWMP as it exists prior to the proposed Amendment No. 9 being approved by the Ministry of Environment. Therefore, the October 15 minutes were not amended as requested above.]

3. Chair's Remarks

The Chair reported that at the meeting of October 30, 2013, the Capital Regional District (CRD) Committee of the Whole and CRD Board reviewed staff recommendations regarding changes to the regional biosolids management policy and decided that the policy should remain as originally approved. There is still, however, a need to amend the wording in the CALWMP to allow the consideration of other innovative alternative technologies for dealing with the biosolids.

4. Committee of the Whole Review of Regional Biosolids Management Policy

L. Hutcheson confirmed that the TCAC report *Committee of the Whole Review of Regional Biosolids Management Policy* documents the outcome of the CRD Board's Committee of the Whole discussion last week.

A member queried why the second item in the Conclusion section of the staff report specifically states that the CRD does not support the application of biosolids on farmland and perhaps should refer to land in general. Staff replied that the wording in Conclusion items 1 and 2 are as approved by the CRD Board in 2011 and upheld at the meeting of October 30, 2013. Conclusion item 2 reinforces the policy with respect to application of biosolids to farmland.

MOVED by D. Kalynchuk, **SECONDED** by M. Mahovlich,
That the Core Area and West Shore Sewage Treatment Technical and Community Advisory Committee receive for information the report *Committee of the Whole Review of Regional Biosolids Management Policy*.

CARRIED

5. Proposed Amendment No. 9

J. Hull reported that the Core Area Liquid Waste Management Committee (CALWMC) recommended a change to the proposed wording in *Draft Amendment No. 9 – Item 4 Amendment to Biosolids Processing*. The recommended change was to add the words *in a manner that is consistent with CRD policy* to the last sentence so that it would read: *Preparing the biosolids for beneficial use in a manner that is consistent with CRD policy.*

A member queried what other potential uses for biosolids are there. Staff responded that this is presently under investigation and that thermal destruction and gasification could potentially be added to the list of options.

A member queried a page number discrepancy in the consolidated version of the CALWMP (May 2011) and the *CALWMP Draft Amendment No. 9 – Summary* and suggested to strike the reference to page numbers entirely. Clarification was given that the draft amendment summary is referencing the Amendment No. 8 document sections provided in the staff report as Appendix B.

Discussion ensued, which included the following:

- sludge stabilization process – solids vs. sludge – these terms are interchangeable
- different classes of biosolids

MOVED by D. Kalynchuk, **SECONDED** by M. Mahovlich,
That the proposed Amendment No. 9 of the Core Area Liquid Waste Management Plan, be accepted with the addition of *in a manner that is consistent with CRD policy* added to the proposed amended sentence in Commitment 3.b) on page 6.2 of Section 6 so that it reads as follows: *Preparing the biosolids for beneficial use in a manner that is consistent with CRD policy.*

CARRIED
B. Oldham, C. Witter **OPPOSED**

6. Motion for Which Notice Has Been Given

MOVED by C. Witter, **SECONDED** by G. Gillespie,
That staff be directed to provide the Core Area Liquid Waste Management Committee and the Technical and Community Advisory Committee with documentation that confirms an Environmental and Social Review for McLoughlin Point and Hartland North is no longer mandated by the CRD.

Discussion on the motion followed. Staff provided a brief history on how the Environmental and Social Review (ESR) and Environmental Impact Study (EIS) evolved. Staff clarified that the Ministry of Environment (MOE) and Environment Canada jointly developed and agreed (2008-2009) on a required format for the Seaterra Program's EIS that covers all of the same topics normally included in an ESR. The *Environmental Impact Study of Core Area Wastewater Treatment Facilities: Terrestrial Environment Part 2: McLoughlin Point – Hartland Facilities* was included in Amendment No. 8 to the CALWMP, which was approved by the TCAC, CALWMC, CRD Board and MOE in 2010. Staff reported that the ESR referred to in the motion has been done, but under the EIS name.

A member stated that an ESR and EIS are two distinctly different reports and there is no discussion or directives that the two reports should be merged. Staff listed the various topics covered under ESRs versus EISs, as provided by the environmental consultant who prepared the reports for the CRD. The Chair requested the consultant's comparison of topics be made available to members.

Discussion on the motion ensued and included the following:

- Major and minor amendments trigger different consultation requirements from MOE.
- Amendment No. 8 had all of the appropriate documentation when submitted to MOE.
- A suggestion was made to submit the question around the ESR and EIS reports through staff to the CALWMC.
- EIS reports are mandated by MOE not the CRD.

Staff advised that the discussion on the above motion will go to the CALWMC in the TCAC minutes. The Chair requested that the list of differences between an ESR and an EIS that staff read to the members be attached to the minutes for information.

The Chair ruled the above motion out of order based on the TCAC Terms of Reference and it not being relevant to the discussion regarding the minor changes included under draft Amendment No. 9.

7. New Business

There was no new business.

8. Adjournment

MOVED by D. Kalynchuk, **SECONDED** by M. Mahovlich,
That the meeting be adjourned at 12:44 pm.

CARRIED

CHAIR

Attachment: 1

Memo

Date: 26 October 2013
To: Dan Telford
From: David Harper
File: 10215
Re: Comprehensiveness of environmental and social assessments

The CRD's review of potential environmental and social effects of the Core Area Wastewater Management Program has been exhaustive. The following points help to explain the evolving and expanding scope of the project assessment.

The comparative Environmental and Social Reviews (ESRs) of the wastewater management program originally proposed in 2007 were designed to examine topics relevant to siting and operating wastewater facilities. The ESR process was developed in the 1990s and has been successfully applied to selected CRD and municipal projects. With regard to the Core Area wastewater program, the ESR format was used to compare various siting options for treatment facilities in Saanich East-North Oak Bay.

In 2008-09, the CRD and the Ministry of Environment (with involvement of Environment Canada) jointly developed and agreed on a format for the program's Environmental Impact Study (EIS). The CRD is required under the Municipal Wastewater Regulation to prepare an EIS. When it became clear that the EIS covers same topics as the ESR, further ESR work became redundant. Table 1 compares the content headings in ESRs and EISs.

Table 1. Topics considered in ESRs and EISs

ESR	EIS
Landforms, geology, and soils	Geotechnical hazards
Hydrology and water quality	Hydrology and water quality
Vegetation	Vegetation
Wildlife	Wildlife Fish
Archaeology and heritage	Archaeology and heritage
Community use	Land use

ESR	EIS
Noise, vibration and lighting	Noise, vibration and lighting
Dust and air emissions	Air quality
Odour	(includes dust and odour)
Traffic	Traffic
Public health and safety	Human health
Visual aesthetics	Visual aesthetics

The duplication of topics and headings made it unnecessary for the CRD to commit public money to preparing two kinds of virtually identical studies.

The foregoing information pertains only to the terrestrial EIS. In addition, a marine EIS has been prepared that examines effects on the marine environment of project construction and operation. The marine EIS is a substantial body of work that examines potential offshore effects of the project.

Even as the terrestrial and marine EISs were being prepared, the CRD conducted extensive discussions with federal agencies regarding environmental assessment requirements. With the passage of the *Canadian Environmental Assessment Act (CEAA) 2012*, the CRD conducted other studies to comply with the new law. In fulfilling Section 67 of CEAA 2012, the CRD prepared an *Aquatic Effects Assessment of harbour and stream effects*, and a *Vegetation, Wildlife and Habitat Evaluation Survey* investigation that focused on species at risk.

Additional special studies of social topics were prepared by the CRD:

- *Considerations In Preparing a Community Benefit Framework for the Capital Regional District's Wastewater Treatment Program* fostered extensive discussion by elected representatives of the provision of amenities as part of the wastewater program.
- In addition to traffic studies prepared as part of the ESR and EIS, the CRD conducted a traffic study specific to the effects on Esquimalt of construction of the McLoughlin Point facility.
- Triple-Bottom-Line (TBL) studies accompanied most major engineering investigations, and examined environmental, social, and economic implications of project recommendations.
- Several facility siting studies were prepared as part of the wastewater program. Each of these investigations examined environmental, land use, and social considerations. Some of these studies were quite detailed, examining the capability and suitability of specific properties for wastewater facilities.

This CRD's extensive program of environmental and social investigations and assessments should provide assurance that the potential effects of the wastewater management program have been thoroughly examined and reported.