

**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, DECEMBER 11, 2013**

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

ISSUE

The BC Ministry of Environment approved Amendment No. 8 of the Core Area Liquid Waste Management 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.

BACKGROUND

The existing CALWMP is a culmination of the original plan approved in July 2000 and the subsequent Amendments Nos. 1 through 8. Draft Amendment No. 9 is meant to incorporate a number of new changes into the overall CALWMP by modifying the wording in the applicable clauses of Amendment No. 8, with all other commitments in the plan remaining unchanged.

At its meeting of October 9, 2013, the Core Area Liquid Waste Management Committee (CALWMC) received *Draft Amendment No. 9 – Summary* and referred it to the Technical and Community Advisory Committee (TCAC) for review with the following additional wording, as highlighted in the proposed amendments below.

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 that is consistent with CRD Policy.**”

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 that is consistent with CRD Policy.**”

At its meeting of November 5, 2013, the TCAC approved Draft Amendment No. 9, as amended, and forwarded a recommendation to the CALWMC for consideration at its November 13 meeting.

On November 13, 2013, the CALWMC discussed the proposed amendments included in Draft Amendment No. 9 to the CALWMP and tabled its decision until further information was received regarding four items. The following appendices provide the requested information:

Appendix A Differences between an Environmental and Social Review and an Environmental Impact Study and accounting of decision to merge the reports.

Appendix B Proposed upgrades to screening facilities at Clover Point pump station.

Appendix C Technical and Community Advisory Committee makeup and role.

Appendix D Proposed amended wording for the greenhouse gas reduction and carbon footprint.

The CALWMC also directed that the proposed amendment regarding Greenhouse Gas Reductions and Carbon Footprint be deleted from Draft Amendment No. 9 so that the existing wording in Amendment No. 8 remains unchanged.

The revised Draft Amendment No. 9 – Summary is provided in Appendix E.

ALTERNATIVES

1. That the Core Area Liquid Waste Management Committee recommend to the Capital Regional District Board that Draft Amendment No. 9 to the Core Area Liquid Waste Management Plan be approved, as amended, and forwarded to the Minister of Environment for regulatory approval.
2. That the Core Area Liquid Waste Management Committee amend Draft Amendment No. 9 to the Core Area Liquid Waste Management Plan prior to recommending Capital Regional District Board approval and forwarding to the Minister of Environment for regulatory approval.

CONCLUSION

Draft Amendment No. 9 is required to incorporate changes into the Core Area Liquid Waste Management Plan that have been made to the Seatterra Program since June 2010. The changes include an extension to the project completion date, a smaller initial Arbutus Road attenuation tank, upgraded sewage screening facilities at 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 recommend to the Capital Regional District Board:

That Draft Amendment No. 9 to the Core Area Liquid Waste Management Plan be approved as amended and forwarded to the Minister of Environment for regulatory approval.

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Attachments: 5

DIFFERENCES BETWEEN AN ENVIRONMENTAL AND SOCIAL REVIEW AND AN ENVIRONMENTAL IMPACT STUDY AND AN ACCOUNT OF THE DECISION TO MERGE THE REPORTS

The BC Ministry of Environment mandated that an EIS of the selected sites for the Core Area Wastewater Treatment Program facilities be submitted to satisfy the requirements under the BC Municipal Wastewater Regulation of the *Environmental Management Act* for both the terrestrial and marine environments.

The Core Area Liquid Waste Management Committee (CALWMC) requested additional information that speaks to the difference between an Environmental and Social Review (ESR) and an Environmental Impact Study (EIS) and an account of the decision to use an EIS instead of an ESR.

Comparison on Environment and Social Reviews and Environmental Impact Studies

WorleyParsons Canada Ltd. completed the marine outfall components of the required EIS and staff presented the results to the CALWMC in September 2013, which were subsequently approved by the Capital Regional District Board prior to submission to the Ministry of Environment.

The Stage 1 EIS for outfalls describes the receiving environment, including water quality, receiving environment uses and ecological resources. The Stage 2 EIS for outfalls refines the results of the Stage 1 EIS by using site-specific receiving environment data and updated wastewater system design characteristics. Both the Stage 1 EIS and Stage 2 EIS are different from an ESR. The Stage 1 EIS and 2 EIS deal with impacts on the marine environment, whereas, an ESR examines environmental and social effects of the operation and construction of wastewater facilities.

The EIS prepared for the various sites of Core Area Liquid Waste Management Plan (CALWMP) Amendment No. 8 examines the environmental and social effects of the operation and construction of wastewater facilities. The EIS is more comprehensive than an ESR, as can be seen by comparing the table of contents of the *Comparative ESR of Saanich East-North Oak Bay Wastewater Treatment Facility Sites* (July 2009) to the Table of Contents for the *EIS of Core Area Wastewater Treatment Program Facilities: Terrestrial Environment Volume I of II* (October 2013), which are provided as Attachments 1 and 2 to this appendix. All analysis topics listed in Section 6.0 of the ESR (except property values) are also listed in Section 4.0 of the EIS. Additional topics analyzed in the EIS and not in the ESR include noise, vibration, lighting and site contaminants.

Presentation of the *EIS of Core Area Wastewater Treatment Program Facilities: Terrestrial Environment, Volume I of II* (October 2013) to the CALWMC is included later on this meeting agenda.

The information generated by a comparative ESR of multiple sites for a particular facility is used in completing the more comprehensive EIS for the individual selected site to meet the regulatory requirements of the CALWMP. The Saanich East-North Oak Bay (SENOB) ESR information generated in comparing a number of different sites was used in the preparation of the detailed site-specific EIS for the Arbutus Road attenuation tank facility.

The CRD did not prepare a comparative ESR for the McLoughlin Point treatment plant or Clover Point pump station, since there were no other sites for comparison. Despite the absence of an

ESR, however, the regulators still required a comparable, or greater, level of detail to develop the environmental and social review information needed to complete the EISs for McLoughlin Point and Clover Point.

The Hartland Resource Recovery Centre site has, however, had a number of ESRs done on it, including the *Environmental and Social Review – Proposed In-Vessel Composting Facility and Existing Outdoor Composting Facility of Hartland* (February 1996) and the more recent *Environmental and Social Review of Capital Regional District Candidate Biosolids Facility Sites* (November 2004), which is listed as a reference document to *Discussion Paper No. 7 – Core Area and West Shore Sewage Treatment Biosolids Management* (issued March 21, 2007) prepared by Associated Engineering-CH2MHill and posted on the Wastewater Made Clear website. Again, the ESR information relating to the specific site chosen will be used in completing the *EIS of Core Area Wastewater Treatment Program Facilities: Terrestrial Environment Volume II of II*.

The report *Environmental and Social Review of Capital Regional District Candidate Biosolids Facility Sites* (November 2004) can be found on the CRD website at <http://www.crd.bc.ca/seatterra/info/publications.htm>.

The information developed for the *EIS of Core Area Wastewater Treatment Program Facilities: Terrestrial Environment, Volume I of II* (October 2013) meets both the EIS and ESR requirements for the specific sites included in Amendment No. 8 of the CALWMP.

Accounting of Decision to Merge ESR and EIS Reports

The original scope for the environmental review was to examine the entire wastewater program and prepare a single comparative document on site identification and evaluation. The content and approach to the environmental and social review of facilities was discussed in detail with both the CALWMC and Technical and Community Advisory Committee at the start of the process.

Given that the Associated Engineering-CH2MHill Path Forward Conceptual Design would not meet the criteria for the environmental review needed by the regulator, staff moved forward with the evaluation of the first proposed facility, which was the Saanich East–North Oak Bay wastewater treatment facility (SENOB).

Going forward, the intention was that the other projects would also be reviewed in a similar manner to the SENOB site. However, with the proliferation of sites and the CALWMC direction to investigate a more distributed system configuration, there was a decision that the Triple Bottom Line assessments in the engineering studies of the various sites would be a more practical approach than conducting individual detailed ESRs for every project site option identified. Other emerging priorities of the CALWMC, particularly resource recovery, also drove the need for additional studies that included energy demand assessments.

Through discussions with the Ministry of Environment and Environment Canada, the regulators agreed to accept the use of the ESR as a template for the preparation of the terrestrial EIS for the selected wastewater facility sites. Additional information and investigations required under an EIS format would still be required in the final document submitted for approval.

With the change in reporting format from the ESR to an enhanced EIS, the budget allowance for the ESR work was reallocated to the EIS work.

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PROPOSED UPGRADES TO SCREENING FACILITIES AT CLOVER POINT PUMP STATION

The request for the new pump station at Clover Point is contained in Amendment No. 8 of the Core Area Liquid Waste Management Plan. The existing station is dated and in need of significant upgrades. The following provides supplemental information to clarify the issue around the amended wording proposed in Draft Amendment No. 9, which only addresses the changes from Amendment No. 8.

Excerpts related to Clover Point pump station in Amendment No. 8 are noted:

Section 1, The Proposed System Configuration, page 1.2

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.

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.

Section 6, Item 2, Wastewater 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:

- 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.*
- 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.*

There is nothing in the above wording that is in conflict or contradiction to what is being planned. However, in order to retain the existing raw sewage screening so that wet weather flows can receive fine screening prior to discharging through the Clover Point outfall, new screens need to be installed as part of the new grit removal facilities. The new grit removal facilities will not work unless the raw sewage is screened to remove large objects first. Draft Amendment No. 9 attempts to clarify that new screens are required as part of the grit removal facilities at a pump station that will pump up to three times average dry weather flow to McLoughlin Point for secondary treatment. As noted in Section 6 above, Clover Point pump station is a major component to the wastewater management system. The overall budget for the pump station upgrades includes an allowance for the new screens.

In addition, Seaterra staff met with residents who live across the street from the Clover Point pump station in August 2013 to discuss the project and inform them about some geotechnical work. More recently, in October 2013, staff were invited to Fairfield Gonzales and James Bay Community Associations and presented information about the project, including the size and location.

TECHNICAL AND COMMUNITY ADVISORY COMMITTEE MAKEUP AND ROLE

The Terms of Reference (TOR) and membership list for the combined Technical and Community Advisory Committee (TCAC) were originally approved by the Core Area Liquid Waste Management Committee (CALWMC) and CRD Board in October 2006 and subsequently revised in December 2006, November 2007, June 2013 and August 2013.

In May 2013, it was confirmed that the TCAC would need to be reconvened to assist in reviewing Draft Amendment No. 9. The following provides a chronology of key TCAC related events in 2013.

May 31	E-mail notice to past members that the TCAC was going to be reconvened for Draft Amendment No. 9.
Jun 7	E-mails to past members notifying them that due to circumstances, a whole new membership for the TCAC will be formed.
Jun 10	Letters sent to all past member groups and organizations inviting their submission of new member nominations.
Jun 11/12	Newspaper advertisements in Times Colonist and Black Press for new members.
Jun 12	CALWMC was informed that TCAC was being reconvened with new membership and directed that a member from the Esquimalt Chamber of Commerce be included (staff report included TOR).
Jul 24	CALWMC (closed meeting) recommended to the CRD Board the appointment of new TCAC membership list with the addition of a second First Nations member, a member from the Esquimalt Chamber of Commerce, and the municipal engineers from View Royal and Oak Bay (staff reported included the TOR with the membership list providing both past and new members).
Aug 14	CRD Board approved (closed meeting) the revised TOR and membership list and reported out in open meeting.
Sep 11	TCAC meeting #1 – Orientation and overview of approved system configuration.
Oct 9	CALWMC referred Draft Amendment No. 9 to TCAC for review.
Oct 15	TCAC meeting #2 – Draft Amendment No. 9 (items 1, 2 and 3 were approved).
Oct 30	CRD Board reconfirmed the Regional Biosolids Management Policy.
Nov 5	TCAC meeting #3 – Draft Amendment No. 9 (remaining items were approved).
Nov 13	CALWMC request for additional information regarding TCAC makeup and role.

Since the TCAC Terms of Reference and membership list have been revised a number of times since its inception, further revisions are likely to be implemented as the Core Area Liquid Waste Management Plan evolves over time. The Prospect Lake District Community Association, Willis Point Community Association and Peninsula Streams Society have recently expressed interest in seats on the TCAC regarding any discussions on the sludge conveyance pipeline routing from McLoughlin Point to Hartland landfill and the siting of the Hartland Resource Recovery Centre.

GREENHOUSE GAS REDUCTION AND CARBON FOOTPRINT

Climate change is emerging as the defining challenge of a generation. To meet this challenge, in 2007, the CRD joined more than 175 government agencies in signing the BC Climate Action Charter. As part of this commitment, the CRD elected to become carbon neutral in corporate operations, starting in 2012.

The Seaterra Program is one of the largest infrastructure projects in the Capital Region, and will impact the region's carbon footprint. In the planning stage of this project, the organization required a greenhouse gas (GHG) assessment for various design options (*Core Area Wastewater Treatment Program, Wastewater Treatment Plant Options*, May 4, 2010 report). In light of the potential for the treatment project and its operations to have a negative carbon footprint, the Core Area Liquid Waste Management Committee made a commitment in the Core Area Liquid Waste Management Plan stating:

*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.***

The **bolded** text within this commitment limits the scope of potential GHG benefits to those resulting from the displacement of fossil fuels. However the Seaterra project could generate other GHG savings opportunities. For example, through systems optimization and demand management strategies, it is possible to reduce the emissions produced during the design, development and operational phases of the project. Further emissions benefits could be generated through carbon sequestration in green spaces located on site (i.e., green roofs, living walls, etc.). As well, phosphorous (struvite) recovered from sewage can be used to displace carbon intensive, processed chemical fertilizer, and could potentially generate carbon credits.

CORE AREA LIQUID WASTE MANAGEMENT PLAN

DRAFT AMENDMENT NO. 9 – SUMMARY

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 (Seaterra 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 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 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.”

6. ~~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.”~~