

REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE MEETING OF WEDNESDAY, MARCH 12, 2014

SUBJECT CORE AREA LIQUID WASTE MANAGEMENT PLAN – COLWOOD WASTEWATER TREATMENT PLANT

ISSUE

To discuss the issues arising for the Capital Regional District Seaterra Program and the City of Colwood in considering an amendment to the Core Area Liquid Waste Management Plan (CALWMP) to accommodate a separate wastewater treatment and disposal plan for the City of Colwood.

BACKGROUND

At its meeting of January 27, 2014, City of Colwood Council passed the following motion directing staff to:

"....prepare an application and supporting documents for an amendment to the Core Area Liquid Waste Management Plan to allow the City of Colwood to proceed independently with a waste water treatment facility complete with integrated resource recovery in Colwood with a target date of 2016 at no cost or risk to the CRD or its current Plans".

The City of Colwood proposal for a separate wastewater treatment system for their community is described in the attached Colwood Staff Report and FAQ sheet (Appendix A). Colwood is proposing to be solely responsible for the costs of construction and operation of a separate wastewater treatment system, and is not requesting any portion of the provincial or federal government funding that is committed to the Seaterra Program. Colwood has only a small percentage of properties currently on sewers. In this unique situation Colwood proposes it makes economic sense to build a modular system that meets the community's current needs and easily expanded to accommodate future growth.

Parks and Environmental Services staff have met with staff from Colwood and from the Ministries of the Environment and Community Sport and Cultural Development (CSCD) to discuss this proposal and the potential impact on the Provincial Grants and the CALWMP. The attached appendices outline some of the issues to the Capital Regional District (CRD) and Colwood arising from this proposal.

Discussions have also taken place within the CRD Executive Leadership Team to identify the potential impact on the CRD authorities and responsibilities under the current legislative environment including the following:

- The terms and conditions in CRD Bylaw 2312, as amended
- The terms and conditions regarding the current CALWMP
- The processes and requirements of the Ministry of Environment for substantial LWMP changes
- The potential impact on any senior government funding agreements

- The potential timeline impact on the Seaterra Program
- The financial impact on the six municipalities participating in Bylaw 2312
- The potential on-going financial impact on Colwood resulting from the proposal due to the potential requirement for emergency redundancy and capacity in the McLoughlin wastewater treatment plant and conveyance system and participation in on-going downstream conveyance operation and improvements
- The Core Area Liquid Waste Management Amendment No. 8 envisions an eventual Westshore secondary wastewater treatment plant with a marine outfall when there is insufficient capacity in the McLoughlin wastewater treatment plant (estimated to be after 2030)

Attached in Appendix B is a more detailed snapshot of the key potential issues and options currently identified. Also attached is Appendix B.1, a drawing indicating the location of the Colwood Sewage Treatment Proposal in relation to the Northwest Trunk Sewer – Western Communities Section, that currently receives the Colwood and Langford sewer inputs.

All solutions require various levels of consensus and agreement among the seven municipal participants in Bylaw 2312, the Ministries of Environment, CSCD, and potentially the Federal Government.

Also attached is Appendix C, which has relevant excerpts from Bylaw 2312 and 2388.

ALTERNATIVES

Alternative 1

That the Core Area Liquid Waste Management Committee recommend to the CRD Board:

That the required amendments and legislative changes be supported, in principle, to enable a separate wastewater treatment system to serve the City of Colwood, subject to:

- a) Colwood obtaining approval by December 2014 from the Provincial Government to proceed in the proposed direction without compromising existing funding agreements, and
- b) by December 2015, Colwood having acceptable solutions to the inter-municipal issues that arise from this proposal, such that the cost of the capacity required to be maintained on behalf of Colwood, as is necessary during the approval process, and in the event that the Province requires the CRD to maintain redundant capacity in the event of regulatory non-compliance, is fairly compensated, and
- c) Colwood having completed all necessary plans and approvals to enable commencing construction of the proposed components of the sewage system.

Alternative 2

That the Core Area Liquid Waste Management Committee recommend to the CRD Board: That the time line or conditions that would allow Colwood to cease to be a full participant in the Seaterra Program be amended.

Alternative 3

That the Core Area Liquid Waste Management Committee recommend to the CRD Board: That Colwood not be allowed to leave the Seaterra Program.

FINANCIAL IMPLICATIONS

The current funding agreements and agreements in principle with senior governments are based on the current Core Area LWMP. There may be a requirement to amend one or more of the grant agreements to accommodate Colwood's proposal.

Given Colwood's relatively small proportionate share of capacity in the Seaterra Program, there would be no material impact on the scale or sizing of the McLoughlin wastewater treatment plant (WWTP) or the Resource Recovery Centre. If Colwood does not participate in the Seaterra Program, these costs would be prorated over the remaining participants. Given there is no certainty on the completion date for the Colwood wastewater treatment system and to meet the commitments of the Core Area LWMP with regards to timeline, the CRD must proceed with construction of full capacity in order to accommodate Colwood's flows until they achieve full commissioning.

CONCLUSION

The City of Colwood proposes to construct and operate its own separate wastewater treatment system to serve its community. Colwood is proposing to completely fund its program and will not request any of the senior government funds committed to the Seaterra Program. Colwood staff have been made aware of the scope of work required to identify and obtain the required approvals to proceed with a separate system. Colwood proposes to continue funding its share of the Seaterra Program for 2014.

RECOMMENDATION

That the Core Area Liquid Waste Management Committee recommend to the CRD Board:

That the required amendments and legislative changes be supported, in principle, to enable a separate wastewater treatment system to serve the City of Colwood, subject to:

- a) Colwood obtaining approval by December 2014 from the Provincial Government to proceed in the proposed direction without compromising existing funding agreements, and
- b) by December 2015, Colwood having acceptable solutions to the inter-municipal issues that arise from this proposal, such that the cost of the capacity required to be maintained on behalf of Colwood, as is necessary during the approval process, and in the event that the Province requires the CRD to maintain redundant capacity in the event of regulatory non-compliance, is fairly compensated, and
- c) Colwood having completed all necessary plans and approvals to enable commencing construction of the proposed components of the sewage system.

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Concurrence

Attachments: Appendix A - Colwood Staff Report and FAQ

Appendix B - Potential Issues and Options

Appendix B.1 Map

Appendix C – Selected excerpts from SLP & Bylaws 2312 and 2388



Sewage Treatment and Resource Recovery in Colwood

Date: February 12, 2014

Issue

The City of Colwood is asking the Capital Regional District (CRD) for support to request an amendment to the CRD Core Area Liquid Waste Management Plan (CALWMP) that will allow for the construction of a resource recovery and sewage treatment facility in Colwood earlier than identified in the CRD plan (currently about 2030) to the financial benefit of the other CALWMP members. This note describes the environmental and fiscal benefits of this proposed approach.

Colwood recognizes the need for sewage treatment

Colwood understands that treatment of sewage in our region is important for the environment, and that the current system (primary only) is inadequate. We support sewage treatment that maximizes recovery of resources, ensures no harmful materials are discharged into the ocean (preferably no discharge at all), and minimizes environmental impacts including carbon emissions.

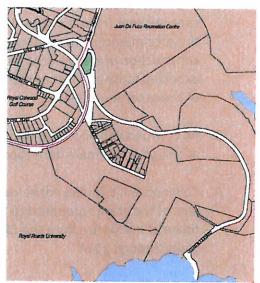
In pursuit of these goals, Colwood aims to construct a resource recovery and sewage treatment facility that will treat all of Colwood's sewage to tertiary standards (or better) and recover both energy and water.

Environmental Benefits of a Colwood Facility

The tertiary treatment will remove more of every class and type of pollutant than secondary treatment does. Colwood is planning for a facility that will treat water to near potable standard and eliminate the need for ocean discharge.

Colwood's facility would be targeted to begin treating sewage and selling recovered resources by 2016, treating sewage in an environmentally responsible way 2–4 years before the main plant will be in operation.

The proposed location in Colwood's town centre (noted in green in the image at right) will maximize recovery and reuse of energy and water to supply nearby facilities. Recycled water from wastewater treatment could be used for toilet flushing, irrigation and other low public contact uses, reducing the need for potable water by up to 40% in buildings



Proposed location for a Colwood sewage treatment facility is noted here in green.

that use it. Recycled heat from the treatment process will be provided to buildings through a district energy sharing system in Colwood's business core. This will reduce energy requirements by up to 60% in buildings that use it. Particular targets are the Juan de Fuca Recreation Centre and Royal Roads University.

Only about 25% of Colwood's existing residents are on sewers. As our community grows and additional sewers are constructed, the energy sharing benefits can be extended to more businesses and residences.

The City of Colwood will assume all costs and revenues associated with the finance, design, construction, operation, maintenance, and future upgrading of the wastewater treatment plant in Colwood. Colwood will use its own resources to prepare the amendment and undertake public consultation including all supporting documents, consultants' reports, environmental studies etc. as required to obtain the Minister's approval. Colwood will, through a legal agreement, guarantee complete control of the quality of the facility outputs, relieving the CRD of any risk or responsibility. It should be noted that the facility will, after a proving period, be owned by Colwood and all operations and maintenance work will be done by municipal employees.

Benefits and impacts on other municipalities

This amendment will provide major advantages to the other core municipalities.

- 1. The Province has consistently asked for demonstrations of innovation as one of its funding conditions. The Colwood approach will provide the opportunity to demonstrate additional innovation within the Core Area LWMP, at no cost or risk to the CRD.
- 2. The CALWMP calls for a Westshore facility to be built when the main plant begins to near its capacity limit (new taxation for this cost would likely start as early as 2030), financed by all of the core municipalities and with no grant support expected. By Colwood taking on the cost and construction of a treatment facility in the WestShore now, this future expense, which is expected to be at a higher cost per unit of treatment than the main plant, is no longer required of the other municipalities.
- 3. As Colwood will no longer require capacity in the CRD plant, other municipalities will have access to additional future capacity, deferring the need for future plant expansion.
- 4. Colwood will bear the entire cost of building and operating its own facility and will not seek any part of the grants promised to the CRD by the provincial or federal governments nor any financial assistance from the CRD. Colwood will continue to pay into the fund for the main plant through 2014.
- 5. Colwood's share of the current core area plant is small only about 4% of the total. Therefore this proposal would cause only minimal financial impact to other municipalities (approx. 4%

increase or \$15 for the typical home) in the short term but more than offset by the substantial financial savings in 2030 and beyond. The money that Colwood has already contributed toward effective sewage treatment in the region will remain with the CRD, while further financial contributions to the core area system would cease in 2015.

Why the economics of this work for Colwood

In Colwood, the majority of homes are on septic systems, with only about 25% connected to sewers. This is dramatically different from most of the other municipalities where more than 95% of their homes are connected to sewers and their projected growth rate is much smaller. Colwood's population is projected by some to double by 2028 but may take much longer. Taking on the known costs and benefits now of a small-scale, tertiary level, modular resource recovery facility that can be expanded as our population grows is a fiscally and environmentally responsible choice for Colwood. As more buildings are added the plant will be expanded but the costs will be spread over an increasing population.

Next steps for Colwood

- Colwood must first obtain support from the CRD Board to request an amendment (Amendment 10) to the Core Area Liquid Waste Management Plan. Note that Colwood is not seeking its own LWMP, only an amendment to the current plan that allows the Colwood facility to be built now (as was the case in the earlier Amendment 7) rather than starting in about 2030.
- 2. CRD must then obtain approval of the proposed amendment to the Core Area Liquid Waste Management Plan from the Minister of Environment. This step will involve public consultation throughout the region which will be carried out with Colwood's resources.
- 3. Colwood must then design and obtain approval for the proposed sewage treatment facility from the Ministry of the Environment. (Note that the Ministry will not discuss approval until the previous two steps are complete).
- 4. Construction can then begin. The first two approvals can be achieved in about six months, the third approval would take another several months and construction can begin immediately afterwards (2015). Colwood already has the required land ready for use as shown on the plan on page 1 and will use a great deal of prefabrication of the treatment modules to speed up the start date for treatment.

A resolution and supporting documents requesting CRD support for an amendment will go to the CRD Core Area Liquid Waste Management Committee on March 12, 2014.



March 2014

Colwood Sewage Treatment Proposal FAQ

CALWMP = Core Area Liquid Waste Management Plan
CALWMC = Core Area Liquid Waste Management Committee
WWTP = Waste Water Treatment Plant
CRRC = Colwood Resource Recovery Plant

1. Will the Colwood proposal delay or alter the proposed CRD sewage treatment project?

No. The Seaterra Director, Albert Sweetnam, has been clear that the Colwood portion is so small that the change will not in any way alter the design of the WWTP, nor delay its progress. Colwood intends to be treating sewage well before the federal deadline (and likely before the McLoughlin plant is operational). Colwood's proposal is an addition to the overall sewage treatment plan that improves it rather than detracting from it.

2. Is Colwood trying to opt out of or leave the CRD?

No. Colwood is not opting out of any CRD services nor leaving the CALWMP.

Colwood is simply asking the Board to support an amendment to the CALWMP which will include the construction of a tertiary treatment plant on the Westshore at the same time as the downtown plant as did Amendment 7 of the CALWMP, approved in 2010. The significant difference between the Colwood amendment (Amendment 10) and Amendment 7 is that it (10) would be based on Colwood alone paying for all of the costs of the WestShore plant. Upon approval of the amendment Colwood would take on the financial obligations of constructing and operating the CRRC (WWTP) in the WestShore as a contractor to the CRD for the provision of this service. Colwood would provide firm guarantees to the CRD backed by the full resources of the City.

3. Will the Colwood proposal result in the other municipalities paying more money?

No, it will result in cost *savings* for others. In the immediate future, there will be a slight lift in contributions from participating municipalities – about 4.7% (or about \$16 annually per household). However, Colwood's approach eliminates a significant *future* cost. The current CALWMP calls for a second sewage treatment plant to be built in the 2030s for which additional taxation would likely start in about 2030 and end in about 2055. Colwood is offering to cover the entire cost and risk of this second plant and to expand it as necessary in the future. This will save the average homeowner in the participant municipalities about \$240 per year, or about \$5,750 per household overall.

In addition to avoiding the cost of the future WestShore plant, participating municipalities will gain an extra 4–5 years of life in the McLoughlin plant.



4. What about the funds that Colwood has contributed to the project thus far?

The funds that Colwood has contributed to this project, up to and including 2014, will remain with the CRD. Colwood is not seeking a share of the federal and provincial grants; these would also remain part of the Core Area budget.

5. Why is this approach best for Colwood?

Colwood has only a small percentage of properties (less than 30%) currently on sewers, but would take on a considerable amount of capacity in the McLoughlin plant to address future needs. For Colwood, it makes economic sense to build a modular system that is sized to meet the community's current needs, and can be easily expanded to accommodate growth as it occurs (a more "just-in-time approach"). Colwood also has some unique opportunities to treat sewage to tertiary level, and to recover heat and water from the process. These will provide revenue generation over the long term.

6. Will the Colwood proposal require any additional work on the part of Seaterra staff?

No. Colwood will undertake all the work required to obtain the CALWMP amendment and design and construct the Colwood Resource Recovery Plant (CRRC). CRD staff will be working to review the proposal and will oversee Colwood's work on the CALWMP amendment. Some staff time will be spent in reviewing and then monitoring the contract between Colwood and the CRD.

7. Does Colwood have the resources to build and operate the proposed CRRC (WWTP)?

Yes. Many municipalities smaller than Colwood build and operate their own sewage treatment plants. The small scale will allow Colwood to keep initial expenditures lower and increase its expenditures when and if the tax base expands as the population increases. Colwood will be exploring financial models to best meet the needs of our citizens.

8. Will the CRRC be privately owned and operated?

No. The CRRC will be owned by the City of Colwood and will be operated and maintained by City of Colwood employees who will be trained during the proving period of the plant.

9. What will happen to the treated effluent from the CRRC instead of an ocean outfall?

The CRRC will produce clean water that can be used for irrigation, toilet flushing and similar uses. Initially there will be large amounts of excess clean water which will be absorbed by the enormous gravel deposits in Colwood but as the City Centre is redeveloped most or all of the water will be reused.

10. What will happen to the biosolids from the CRRC?

The biosolids will be dried and compressed to produce very light, board-like sheets of material that can be easily transported for use as fuel in existing gasification plants, such as the one in Seattle.



11. Will the CRRC be safe from tsunamis and other natural disasters?

The CRRC will be high above ocean levels at Colwood City Centre and will be built into the ground except for one side. The CRRC will be built to post-disaster standards to ensure it survives any natural disaster. Multiple redundancies of equipment and power supply will ensure continuous operation.

12. Will the Ministry of the Environment approve Colwood's proposed methods of sewage treatment and disposal?

It will be Colwood's responsibility to obtain the necessary Ministry of the Environment approvals; first the CALWMP amendment and then the Operating Certificate for the CRRC. The Minister of the Environment's original letter called for this type of innovation and Colwood is offering to provide that at its own cost. Colwood has been examining this idea for a number of years now and is confident that approvals can be obtained and will do whatever is necessary to meet Ministry requirements.

13. Will other municipalities want their own amendments to the CALWMP if Colwood succeeds?

No other municipalities are known to have been looking into this possibility as Colwood has. Colwood's low number of sewer users creates a unique challenge with the main plants which will be built to suit the needs of more fully developed municipalities. The Westshore plant is in the current version of the CALWMP and only the date of construction is being changed. Other municipal plants would not have the support of the existing CALWMP. In addition, Colwood's unusual geology and geography and the fact that its town centre is at the beginning of an extensive redevelopment period give it exceptional opportunities for energy and water reuse.

14. Will Colwood be treating sewage from Langford?

Langford has clearly stated that it wants capacity in the CRD WWTP and is paying accordingly. In future, when the main plant gets close to capacity, Langford's capacity could be gradually accommodated through additions to the Colwood modular plant and removed from the main plant equally gradually. Colwood will commit, through its contract with the CRD, to providing this capacity as a contractor to the CRD at the same cost it charges its own citizens.

CRD Trunk Sewers & Sewage Disposal Service Delivery Issues

The CRD provides service to the Core Area & Western Communities municipalities through an Establishment Bylaw, approved by the Province of BC that:

- defines the municipalities covered by the bylaw as the 7 municipalities, including Colwood
- establishes the CRD as the Sole Authority to deliver these services within the named municipalities.
- establishes that the CRD is responsible for and is the owner of all infrastructure
- provides the option for the CRD and a Municipality to agree that the municipality could construct infrastructure to serve the municipality, on behalf of the CRD
- also provides that the CRD and a municipality may agree that the construction and operation of the works are within the powers of the municipality.

Service Withdrawal Issues

The CRD, with approval of 2/3 of the Bylaw 2312 participants (being the seven municipalities that are currently in the Seaterra Program), could agree to the withdrawal of Colwood from the Liquid Waste Management Core Area and Western Communities Service – the Province would also have to agree to this withdrawal.

Potential Issues:

- Currently the CRD as an organization is the entity with the responsibility for the collection, conveyance, treatment and disposal of sewage within the entire geographical area covered by the seven municipalities. The Provincial Government may be hesitant to sign off on removing that responsibility from the CRD, regardless of who is paying for what portion of the infrastructure.
- The Province may see the CRD as the body that would be there in an emergency to back Colwood up, as long as Colwood is still in the Service. This could cause hesitation on the part of the province to approve any withdrawal.

Core Area Liquid Waste Management Plan

This plan, approved by the CRD and the Minister of the Environment compels the CRD to provide the defined sewer works to the seven named municipalities, including Colwood.

Potential Issues:

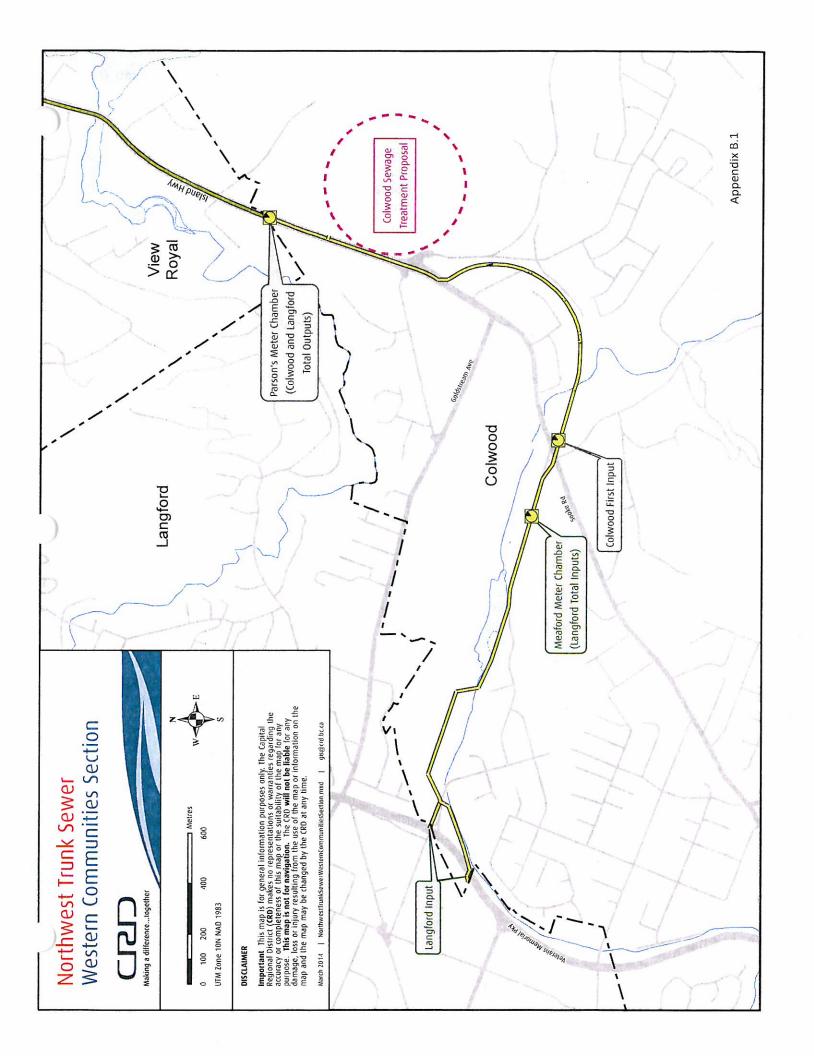
Ministry of Environment Requirements:

- A major amendment to the CALWMP is necessary for Colwood to construct an advanced wastewater treatment system to discharge effluent to ground. The CALWMP currently recognizes only three points of discharge to the environment (at Clover Point, Macaulay Point and McLoughlin), excluding overflows. The amendment would recognize the addition of a discharge to ground in Colwood.
- As part of the amendment, an operational certificate would be appended to the CALWMP. It
 would outline the discharge criteria that the Colwood project would be required to meet. The
 operational certificate would be issued to Colwood as the owner and operator of the treatment
 system, and as such would hold Colwood responsible for compliance with the conditions
 specified in the operational certificate.
- In order for this major amendment to be approved and an operational certificate to be issued by the MOE, Colwood would be required to comply with a number of provincial requirements, including:

- o Completion of an environmental impact assessment
- o Compliance with the Municipal Wastewater Regulation including security requirements
- Consultation with other government agencies including Health
- Consultation with the public and First Nations
- o Preparation of the draft operational certificate
- o Review by the Technical and Community Advisory Committee (TCAC)
- o CALWMC and CRD Board approval
- o Minister of Environment approval of amendment and draft operational certificate
- Based on past experience, obtaining final approval for this major amendment could take a
 significant length of time (two+ years) given the complexity of the environmental and technical
 assessments required, consultation requirements and finalization of funding allocations and other
 agreements between the participants

Financial Issues

- The existing participating municipalities will absorb the costs and acquire the capacity that Colwood will no longer require if Colwood construct a completely separate system from the CRD
- If Colwood continue to have a connection to the existing liquid waste infrastructure, this will
 reduce the "open" capacity to the remaining participants and the CRD will have to negotiate an
 appropriate funding formula with Colwood to ensure that Colwood is funding any reduction in
 capacity in the Seaterra Program.
- There may be a requirement to amend one or more of the grant agreements to accommodate this change
- Attached as Appendix B-1 is a drawing indicating the location of the Colwood Sewage Treatment plan in relation to the Northwest Trunk Sewer – Western Communities Section



Selected excerpts from CRD Supplementary Letters Patent & Bylaws 2312 and 2388

- Capital Regional District by Supplementary Letters Patent Division VII dated December 28, 1967, as amended by further Supplementary Letters Patent, the Capital Regional District was granted the function of the acquisition, design, construction, operation, maintenance, renewal and administration of trunk sewers and sewage disposal facilities within all member municipalities of the Regional District except the District of Sooke and the Southern Gulf Islands;
- These Supplementary Letters Patent (SLP) were partially converted to provide for the three
 peninsula municipalities to be the participants in the Saanich Peninsula Wastewater Treatment
 Plant/system under bylaw 2388 "Liquid Waste Management Saanich Peninsula Local Service
 Establishment Bylaw No 1, 1996"
- 3. The SLP were partially converted for the Core Area Incorporated Municipalities through Bylaw 2312 "Liquid Waste Management Core Area and Western Communities Establishment Bylaw No 1, 1995"
 - The service described is for the "collection, conveyance, treatment and disposal of sewage"
 - The participating areas are the municipalities of Saanich, Victoria, Oak Bay, Esquimalt, View Royal, Colwood and Langford
 - Under section 7 Powers, the regional District may:
 - a) Acquire, design, construct, operate, maintain, renew and administer trunk sewers and sewage disposal and treatment facilities and buildings
 - b) Enter into an agreement with a member municipality on such terms as are mutually agreed upon providing that the municipality may undertake on behalf of the Regional District the design, construction, operation and maintenance of any of the facilities of the Regional District within that municipality
 - Under section 10 Sole Authority,
 - a) the Regional District is the sole authority with jurisdiction to construct the works referred to in Paragraph 7 (a), provided that a member municipality may proceed on its own initiative with any such work within its own boundaries that the Regional Board is unable or unwilling to construct at that time, the design of such work having been approved by the Regional Board
 - b) Despite paragraph (a) the Regional District and a municipality which includes a participating area may agree that the construction and operation of works referred to in paragraph 7(a) are within the powers of the municipality
- 4. Under Section 11 Continuing Authority
 - A. Nothing in this bylaw shall be interested as affecting or impairing in any way the rights and powers of the Regional District under the Supplementary Letters Par=tent, Division VII, dated December 28, 1967, as amended by further Supplementary Letters Patent, in relation to that part of the Regional District not contained within the service area created by this bylaw, or the District of Sooke or the Southern Gulf Islands.