Comox Valley Regional District
Sewer Extension South

Final Draft Addendum – Summary Report
April 2024

Comox Valley
REGIONAL DISTRICT

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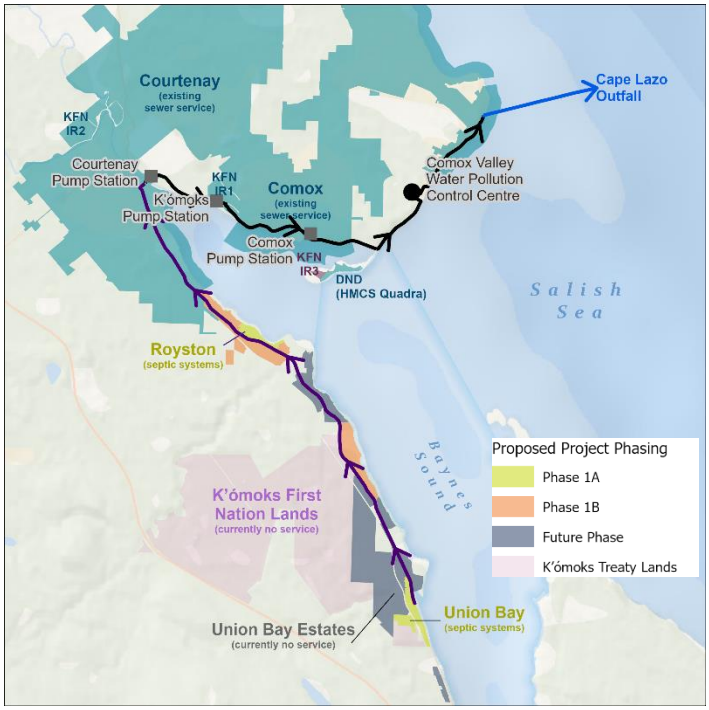
1. Introduction

Project Background/History



The Electoral Area A communities of Royston, Union Bay, and surrounding neighbourhoods border the waters of Baynes Sound. Baynes Sound produces 70% of BC's cultured oysters and holds important cultural, economic, environmental and recreational value. There is no centralized sewage collection system in the area – privately owned onsite septic systems are used instead. These systems have a history of failures with the potential to negatively impact the environment and public health.

In 2014, a Stage 1 and 2 Liquid Waste Management Plan (LWMP) for the south region was initiated and plans for a new sewer collection system and south wastewater treatment facility were developed. The LWMP process was paused in 2015, and in 2016 after an unsuccessful referendum on the project, it became evident that a new approach was needed.

A regional approach to wastewater management is now being developed in cooperation with K'ómoks First Nation as a key partner, which provides for long-term, safe and cost-effective sewage treatment for Royston and Union Bay. In 2020, the Sewage Commission supported recommendations to receive wastewater flows from portions of Electoral Area A into the existing Comox Valley sewer system, eliminating the need for a separate wastewater treatment facility in the south. This new regional system will also serve Union Bay Estates and K'ómoks First Nation Southlands, should treaty be ratified.

Overview of Addendum Process

The LWMP addendum summarizes the work completed to date for the Sewer Extension South Project, which will connect communities in the south to the regional sewer system. The LWMP is a three-stage planning process and this addendum will be attached to the Comox Valley Sewerage Service Stage 1 and 2 LWMP already reviewed by the province.

The addendum will be submitted to the province for review in 2024 and the project will then be included in Stage 3 of the Comox Valley Sewerage Service LWMP.

The following tasks were completed during Stage 1 and Stage 2 of the addendum:

- review background information, including past studies, record drawings and GIS;

- define south region plan area, regulatory requirements and design criteria;
- evaluate conveyance and collection system options and develop conceptual design and cost estimates;
- develop system overview and phasing;
- develop preliminary design and associated Class C cost estimates;
- hold technical and public advisory (PACTAC) and Steering Committee meetings at strategic points to present materials and obtain committee feedback and input;
- complete public engagement to obtain input from the community at large; and
- First Nations consultation.

2. Public, Rightsholder, and Stakeholder Consultation

The addendum includes a comprehensive consultation plan for the project. Here is a summary of the consultation involved to date, including public, First Nations and advisory committee consultation.

Public and Technical Advisory Committee (PACTAC) Meetings

The public and technical advisory committees were established in September 2022 to provide technical and public input to the addendum process. A total of five combined PACTAC meetings were held at regular intervals throughout the planning process with a sixth meeting completed in March 2024 to review the final draft addendum report.

For a summary of these meetings, please see the full report.

Consultation with the K'ómoks First Nation

The CVRD acknowledges that Indigenous peoples are entitled to safe access to shellfish for food, social and ceremonial purposes and to protect the productive capacity of their lands (as per Article 29 of United Nations Declaration on the Rights of Indigenous Peoples) and that this right is threatened by the existing environmental risk in Baynes Sound.

K'ómoks First Nation (K'ómoks) has expressed concern about the health of Baynes Sound and related environmental and economic impacts, including its aquaculture businesses and planned future development of their south treaty settlement lands. Should treaty be ratified, K'ómoks fee-simple and intended Treaty Settlement Lands will be connected to the regional sewer system.

Some consultation steps completed to date include:

- 2020: Discussions about a regional solution for sewer as part of consultation for the Comox Valley Sewer Conveyance Project and Comox Valley Sewer Service LWMP.

- February 2021: K'ómoks and CVRD ratify a Community Benefit Agreement to support upgrades to the sewer line that crosses IR#1 and extend sewer services to K'ómoks Fee-Simple and intended treaty settlement lands.
- 2021-2023: K'ómoks and the CVRD confirmed their partnership through a provincial grant application. In April 2023, $30 million in funding was awarded.
- June 2023 & January 2024: CVRD and Treaty team staff attended community information sessions.
- Ongoing: CVRD and K'ómoks continue to meet at the elected official and staff level to move the project forward. Next steps will include establishing a formal partnership agreement.

Public Consultation

Public consultation has been planned at all critical steps in the LWMP addendum process, to ensure the community can help determine the plan ahead as it is created. The engagement plan for the addendum process involves phases, including:

PHASE 1: PROJECT INITIATION + FUNDING ANNOUNCEMENT

- Residents advised of LWMP addendum process, public advisory committee formed and provincial grant funding announced via news release

PHASE 2: PHASING, COLLECTION SYSTEMS, PUMP STATIONS

- Kick-off of online engagement hub and first public events to introduce project planning to date

PHASE 3: DEVELOPMENT OF DRAFT ADDENDUM

- Additional public events, informing community of updates, next steps and sharing the draft addendum

PHASE 4: REVIEW/APPROVAL

- Final PACTAC meeting and distribution of second 'What We Heard' report to the public

Other First Nation Consultation

In addition to K'ómoks, 13 First Nations identify land and/or marine territory in all, or parts of Courtenay, Comox, Royston, Union Bay and Baynes Sound (Fanny Bay, Denman Island and Hornby Island).

The CVRD identified a consultation timeline for the Sewer Extension South Project from summer 2022 to winter 2023 to meet with interested Nations (either with Staff or Chief and Council as advised) and to engage with the community if requested.

To read more about the Public and First Nation consultation process and view a timeline of activities, see the full report.

3. Service Area, Land Use, Development and Population Growth

The addendum identifies the specific areas to be serviced by regional sewer and anticipates future land use and populations within these areas. Here is a brief summary of these details, with full projection tables available in the report.

Service Area

The service area for the Sewer Extension South project includes the following areas:

- Royston
- Gartley Point
- Kilmarnock
- Union Bay
- New development areas (Union Bay Estates and K'ómoks First Nation Fee-Simple and intended Treaty Settlement Lands)

Development and Official Community Plans

It is necessary to project future land use within the plan area to properly plan for wastewater facilities. This section of the report highlights the three land use designations in the south region area:

- Settlement nodes
- Settlement expansion areas
- Rural settlement areas

Population Projections

As a forward-looking planning document, an LWMP is intended to anticipate a community's future liquid waste management needs. As a key input into this work, it is necessary to consider potential future growth and development within the community and translate this into population projections.

To view a map illustrating land use designations for the project area, see the full report.

4. Regulations And Guidelines

The addendum includes a review of regulations and guidelines that could influence the delivery of current and future services, and suggests introduction of new ones where needed – these are summarized below.

Guidelines for I&I Reduction

Inflow and Infiltration (I&I) into the sewer collection system can substantially increase the volume of wastewater arriving at treatment facilities. I&I varies depending on weather, soil moisture, groundwater levels and the duration and intensity of storm events.

The project proposes new collection systems, which will initially contribute minimal I&I to the system. I&I is a larger concern for older collection systems as sewer pipes and manholes develop defects such as cracks and leaking joints over time. As the proposed system ages, proactive policies should be adopted to help address I&I.

 To read all recommended policies and regulations see the full report.

Septic Systems

This section of the report highlights:

- Risks of failing septic systems & how septic systems are regulated in BC
- Importance of septic system maintenance and requirements of the Sewerage System Regulation
- Typical lifespan of septic systems and the three types of septic systems
- Details of studies indicating failing septic systems in Royston/Union Bay
- Reasons for failing systems in these areas
- Feasibility study concluded that continued use of septic systems was not considered a suitable long-term wastewater management option for the area
- Comparison of septic system costs vs costs to construct the sewer project; over a 50-year timeframe, septic costs averaged just over $3,000 per year compared to sewer costs of approx. $2,000 per year

Septic Regulatory Bylaw

There is currently no formalized CVRD mandatory septic maintenance bylaw for on site septic systems. The CVRD commits to exploring the development of a bylaw for septic system maintenance within the plan area, to be put in place in future phase neighborhoods and in Phase 1A/1B neighborhoods if sewer servicing does not proceed as planned. The CVRD also intends to explore implementation of the septic maintenance bylaw in other electoral area neighborhoods outside the addendum plan area.

5. Project Design

In the proposed design, wastewater will be collected from neighborhoods in the Royston and Union Bay area through new sewer collection systems to seven neighbourhood pump stations. It will then be pumped to the existing Courtenay River Siphon and conveyed to the Comox Valley Water Pollution Control Centre (sewage treatment plant).

This report highlights Phase 1A/B preliminary design for pump stations, forcemains and collection systems, including:

- Three pump stations: Royston Pump Station (PS#1), Kilmarnock Pump Station (PS#3) and Union Bay Pump Station (PS#6)

- Forcemain connecting these pump stations to the Courtenay River Siphon
- Three local collection systems located in Royston, Kilmarnock and Union Bay

Flows, Organic Loads and Projections

This section of the report highlights the catchment areas for each of the proposed seven neighbourhood pump stations and a regional pump station. It also summarizes, with a table, each pump station catchment population, area and projected flow. Additionally, it anticipates the projected organic loads of the south region to the Comox Valley Water Pollution Control Centre, based on historical data.

Phasing and Catchment Selection

While this addendum focuses primarily on the proposed Phases 1A and 1B, there are four main phases planned for the Sewer Extension South Project:

- Phase 1A: includes PS #1 & PS #6 catchments (Royston historic core & Union Bay existing developed area and future new development areas)
- Phase 1B: includes PS #3 catchment (Kilmarnock North existing developed area and future new developments)
- Future phase: includes a regional pump station
- Ultimate build-out phase: includes PS #2, 4, 5 & 7 catchments

These phases were selected based on technical, environmental and financial considerations. Phase 1A areas have the highest dwelling density with a significant proportion of properties that have decades-old septic systems. The future phase and ultimate build out phase will vary according to master planning and the availability of funding.

Local Collection Systems

Seven different collection system options were evaluated for this project. A hybrid gravity sewer – low pressure sewer (LPS) system (with grinder pumps) was identified as the preferred approach. This is because it offers the most benefits for costs, technical aspects and environmental protection.

The majority of the service connections are expected to be gravity, however, there are some properties that will utilize grinder pumps to connect to the system.

- Gravity Sewer: Wastewater from each source (normally a home) is conveyed through a building sewer to a collection main. Where gravity flow from a building to the collection main is not possible, grinder pumps are used.
- Low Pressure Sewer: Each connection point uses a grinder pump to transport wastewater from a building to the collection main. The grinder pump is located on private property, owned by each property owner, who would be responsible for this infrastructure. Homeowners also are responsible for the operation and maintenance cost of the system on their property, e.g., pumping energy.

This section of the report shares maps of the collection system alignment for each pump station. It also highlights pipe sizes, utility easements and locations of low pressure forcemains etc.

Pump Stations

There are two pump stations proposed for Phase 1A in Royston and Union Bay, and a third to be located in the Kilmarnock area for Phase 1B. All three pump stations are included in this planning phase but only those in Phase 1A will move forward with construction.

Committees have recommended the Royston Pump Station be installed on the Northwest corner of the Royston Road/Marine Drive intersection. This location is within the coastal flood zone, and three options to mitigate impacts of this are included in the full report.

Future plans for the Royston Pump Station may include potential community amenity options like public washrooms and parking.

The exact locations are still under consideration for the Union Bay Pump Station and the Kilmarnock Pump station. See the full report for maps indicating the areas under consideration.

Forcemain

The Highway 19A forcemain consists of two proposed sections in Phase 1A:

- North Royston Forcemain
- South Royston Forcemain

The proposed route is along Highway 19A and starts with a collection system for Union Bay along with a local pump station that will move sewage from this community into the regional sewer line. Sewage will then move through a second pump station that will also collect sewage from Royston, before it is pumped to the existing Courtenay River Siphon on the west side of the Puntledge River.

The siphon discharges on the east side of the Puntledge River into the existing Courtenay Pump Station for conveyance through the sewer conveyance line that runs through K'ómoks IR#1 and the Town of Comox to the Comox Valley Water Pollution Control Centre (sewage treatment plant). It is assumed that the proposed forcemains will be constructed within the BC Ministry of Transportation and Infrastructure (MOTI) road right of way and therefore no private property acquisition is required. As the alignment is along a provincial secondary highway, MOTI approvals will be required.

The full report also highlights an alternative alignment along the E&N railway corridor that may be considered for some sections of the sewer line as design work progresses. The report also provides a map showing plans for Phase 1B forcemain alignment.

To see how wastewater will move through the new regional sewer pipe and find out more about how the catchment system and local pump stations will work, view the maps and process flow diagrams in the full report.

6. Environmental Impact Study

A draft Stage 1 Environmental Impact Study (EIS) for construction of Phase 1A of the project was completed by Current Environmental Ltd. in November 2022 with a revision provided in January 2024.

The primary objectives of the EIS were to:

- describe Environmentally Sensitive Areas (ESAs) in the project vicinity
- complete a screening level review of existing contaminated sites information to identify Areas of Potential Environmental Concern (APECs)
- summarize cultural resources associated with the project, including potential areas of conflict with known archaeological sites

The EIS also investigated potential adverse impacts to environmental, social and cultural components resulting from construction and operation of the project, and recommended mitigation strategies to avoid or minimize potential impacts.

The conclusion of the overall environmental impact study is that with over 98% of the permanent project footprint located within existing road systems, construction and operation of the project is expected to have less than significant residual effects to environmental, social and cultural valued components.

Environmentally Sensitive Areas (ESAs)

Background information was first collected on ESAs in the project area. ESAs located within 30m of the proposed forcemain alignment, and within 100m of the proposed pump station locations were considered to be at risk. Site visits were then conducted in October 2022 and September 2023, and the entire alignment was reviewed.

This study work identified environmental risks such as: at-risk ecological communities, sensitive habitats, wildlife trees with high bird nesting potential, protected riparian area setbacks, species at risk and watercourses with fish presence all within or intersecting the impacted area.

The Environmental Impact Study identifies mitigation measures and can be found in the full report.

Contaminated Sites Assessment

There was also a review for potential issues that may arise with exposure/handling of soils or groundwater during construction. Nine areas of potential environmental concern located within 100m of the project alignment were identified as 'high-risk'. A well prepared, measured and safety-oriented approach will be taken during any activities that will disturb soils/groundwater in these areas. The results of this review and any further study work will be considered in the final stages of project planning.

Archaeological Sites Assessment

An Archaeological Overview Assessment (AOA) and Preliminary Field Reconnaissance were completed in 2015 and reconsidered in 2022, identifying seven archaeological sites in potential conflict with the proposed site alignment. Archaeological due diligence for the project will be serviced through a K'ómoks First Nation Cultural Heritage Investigation Permit and concurrent *Heritage Conservation Act* Site Alteration Permits and Heritage Investigation Permits.

7. Cost Impacts

The addendum includes a complete breakdown of estimates for total capital project costs and per household costs.

Class 'C' Cost Estimates for Phases 1A & 1B

At the preliminary design stage of projects, a Class "C" cost estimate is prepared. Preliminary design is when the project has, for the most part, been developed but additional changes/additions are still being made. The Class "C" cost estimate has a 30% contingency to account for any unforeseen changes in detailed design.

Class C cost estimates have been completed for Phases 1A and 1B, including forcemains, collection systems and pump stations. Cost ranges are presented to account for multiple pump station design and configuration options still under development:

- Phase 1A: $64,848,000 – $66,816,000
- Phase 1B: $25,105,000 – $25,541,000

Cost Impacts to Residents

Property owners are expected to pay the cost of connecting to the service, as well as a share of costs for constructing, operating and maintaining the sewer system. There are two categories of costs associated with the service connections:

1. One-time costs which will vary from home to home; and
2. Ongoing annual costs.

Grant funding and partner contributions towards the cost of shared conveyance infrastructure will reduce the overall cost impact to property owners in the plan area.

Phase 1A property owner costs are estimated as follows:

	Cost per household
One-time costs	
Connection from home to new pipe at property line	$3,500 – $6,000
Decommissioning of septic system	$1,000 – $2,000
Installation of LPS equipment	$4,500
Total	$3,500 – $12,500
Annual Costs	
Borrowing (25 years)	$1,200 – $1,500
Operations + Maintenance (ongoing)	$550 – $650
Total	$1,730 – $2,150

Phase 1B property owner cost impacts will be calculated at a further stage of project planning as external funding sources and timelines are established.

In order to maintain fairness between Phase 1A and future project phases, the CVRD is committed to create as much equity between system participants and neighbours as possible. The CVRD will make all reasonable efforts to identify and secure additional grants, partnerships and funding opportunities to help create equitable costs per household between all phases of the project.

For a complete breakdown of costs for the proposed project view the full report.

For more information about the Sewer Extension South Project and to view all related documents visit: www.engagecomovalleyrd.ca/sewerextension