WHAT HAPPENS AFTER YOU FLUSH?

Wastewater Management in the CVRD

CVRD Infrastructure

1 HOMES & BUSINESSES
Wastewater is collected

2 COLLECTION SYSTEM
Gravity pipe collects waste

3 PUMP STATION
Collects and pushes waste to treatment plant

4 FORCEMAIN
Carries waste in high pressure pipe to treatment plant

5 WASTEWATER TREATMENT
Four steps of treatment completed

6 OUTFALL
3 kms off of Cape Lazo (depth: 60m)

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Comox Valley REGIONAL DISTRICT

PLANNING A FUTURE FOR OUR LIQUID WASTE

Long-term planning for liquid waste management can be a complicated process. To help streamline these big projects and give local governments the ability to deliver agreed-on plans, liquid waste management plans are often used.

LIQUID WASTE MANAGEMENT PLAN (LWMP): A process established by BC Ministry of Environment and Climate Change to assist communities to plan for the management of their wastewater.

PUBLIC ENGAGEMENT AND CONSULTATION is key to the process, as is the creation of a Public Advisory Committee. It is required that local governments demonstrate their efforts to engage with the community, and how the feedback is incorporated.

PROVINCIAL REVIEW of the final reports is required – and if approved – they give local government the ability to borrow funds for construction without further elector assent.

LWMP INVOLVES:

- Engineering study
- Environmental assessment
- Public consultation
- Financial analysis
- Provincial regulatory review

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PLANNING AND PUBLIC ENGAGEMENT: TIMELINE

The Liquid Waste Management Plan process includes distinct stages that require public input.

1. SETTING THE STAGE AND KICK OFF (COMPLETE)

The CVRD staff got ready to start the management planning process. This included the first public consultation in June 2018 and establishing public and technical advisory committees.

2. GOAL SETTING (COMPLETE)

The committees reviewed the information collected in the June public consultation sessions to help them set goals and objectives for the management plan. The community reviewed these goals and provided feedback.

3. ESTABLISHING A LONG LIST (COMPLETE)

Six options for conveyance and four options for treatment and three options for resource recovery were brought to the public for comment in 2019. All feedback was considered by the committees.

4. NARROWING DOWN A SHORT LIST (UNDERWAY)

Conveyance scenarios have now been narrowed down to a shortlist of three possible options. We are seeking further input from the public on the possible impacts of these three options.

5. CHOOSING THE PREFERRED OPTION

The committees will review technical considerations and take into account public feedback on the conveyance shortlist before recommending a preferred option for conveyance, treatment and resource recovery to the Sewage Commission.

6. BORROWING APPROVAL FOR CONVEYANCE

An Alternative Approval Process (AAP) will likely be held early in 2021 to approve borrowing so that work can begin as soon as possible.

7. DRAFTING THE REPORT

The preferred options will be presented to the public and then the project team and the committees will work towards developing a final draft report. This will include a summary of all of the work done to date – and a report on the public's feedback and comments during the process.

8. REPORT SUBMITTED

Stages 1 and 2 final report of the management plan will be completed and submitted for review to the provincial government. Time for them to provide feedback to us!

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REVIEWING THE LONG LIST: WHAT WE HEARD

In January 2019, a long-list of six options for conveyance were presented to the community via an online survey and through two facilitated sessions.

GOAL OF FEEDBACK

The CVRD was looking for feedback on:

- Whether there were other options that should be considered/reviewed
- Any other information about proposed options that should be considered

CONSIDERING WHAT WE HEARD

Community members provided a range of comments re: conveyance options, which generally aligned with three themes:

Protection of the Environment: High priority was placed on stewardship and conservation with concerns raised about the estuary, shellfish industry, groundwater and more. An interest in moving sewage pipes inland was clear.

Consider the Cost: Finding efficiencies in cost was highlighted, including an interest in seeing larger upfront investment to minimize costs over the long term.

Opposition to Comox No. 2 Pump Station: Those opposed to an option that could see a pump station around the Croteau Beach neighbourhood were well represented.

WHAT WE DID NEXT

Following that engagement, and considering what we heard, the project team:

Consulted with K'ómoks First Nation: Meaningful dialogue with KFN was undertaken regarding this key infrastructure which crosses their land.

Public/Technical Advisory Review: The committees reviewed the longlist, considering feedback and recommended a short list.

Further Assessment of Options: Options were reviewed further by technical experts to identify further challenges or limitations.

Sewage Commission Selection: On March 10, the sewage commission approved the short list of options, which are now presented to the community for review/feedback.

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OPTION 1: OVERLAND FORCEMAIN

This option would see a trench dug along existing roadways, with a new pipe installed between the Courtenay Pump Station and the sewage treatment plant. This means installing pipe up and over the Comox Road and Lazo Road hills. It also includes:

- Replacement of the Courtenay Pump Station to accommodate the high-pressure pumps needed to push wastewater up over the two hills
- Upgrades to the K'ómoks First Nation and Jane Place pump stations
- Tunneling beneath the Lazo Marsh

*Our engineering consultants are currently reviewing whether this option could be delivered in phases.

COSTS

COST TO BUILD: $65M

COST TO RUN AND MAINTAIN (30 YEAR): $17M

COST PER HOUSEHOLD: $240/household for 20 years

TRAFFIC IMPACTS

MEDIUM: Comox Road, Comox Ave, Beaufort, Stewart, Balmoral, Lazo and Morland (single-lane alternating)

LOW: Lazo/Brent Road

ARCHEOLOGICAL MITIGATION: Full alignment, especially through IR1 (Comox Rd)

BENEFITS

LOWER RISK CONSTRUCTION APPROACH: 'Cut and cover' (digging trench, laying pipe, then covering) is a standard construction practice and more predictable.

REMOVES FORESHORE PIPE: Public feedback has indicated a preference for removing the foreshore pipe along the Comox estuary, though technical studies show there is 15-20 years remaining in the pipe.

CHALLENGES

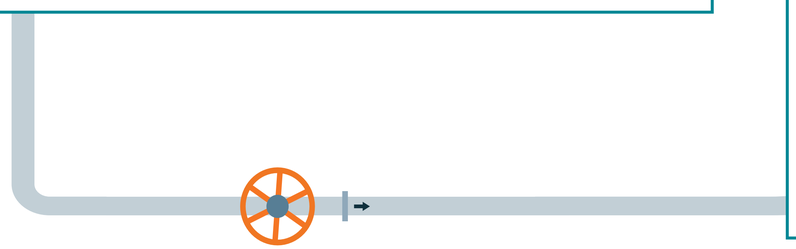
NEW COURTENAY PUMP STATION: Required to accommodate higher pressure.

HIGHER COST TO RUN: Pushing so much volume up and over the two hills requires high-powered pumps that cost more to operate.

HIGHER LIFECYCLE COSTS: Increased pressure and high energy has long-term cost and maintenance impacts.

ADDRESSING GROUNDWATER CONCERNS: Managing groundwater to ensure there is no impact to groundwater and individual wells.

ROADWAY CONSTRUCTION: Largest overall construction footprint and most traffic disruption over time, because all sections will include road work and excavation along Lazo and Balmoral roads in Area B could have more impact to vegetation in that area.



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OPTION 2: TUNNEL FORCEMAIN

This option combines ‘cut and cover’ construction (trenching) with directional drilling (a type of tunneling). The trench would be dug, with pipe installed, along existing roadways for much of the route, but tunneling would be used to go through rather than over the Comox and Lazo Road hills. It also includes:

- Upgrades to all three pump stations on the route: Courtenay, K’ómoks First Nation and Jane Place
- Tunneling beneath the Lazo Marsh

COSTS

COST TO BUILD: $58M

COST TO RUN AND MAINTAIN (30 YEAR): $13M

COST PER HOUSEHOLD: $210/household for 20 years

TRAFFIC IMPACTS

HIGH: Comox Road (KFN pump station to Comox Hill), Balmoral (Port Augusta/Pritchard) – local traffic only

MEDIUM: Comox Road (Courtenay pump station to KFN pump station) Comox Ave, Ellis, Beaufort, Stewart, Morland and Brent Road (single-lane alternating)

LOW: Tunnel areas at Comox and Lazo Hill

ARCHEOLOGICAL MITIGATION: Full alignment, especially through IR1 (Comox Rd)

BENEFITS

LOWER OPERATING COSTS: By tunneling through the two hills instead of pushing waste up and over, there is reduced pumping demands on the system, making it cheaper to operate.

LOWER LIFECYCLE COSTS: This reduced demand is easier on equipment, and the smaller pumps will be cheaper to replace when needed.

LESS CONSTRUCTION FOOTPRINT: While construction impacts would still occur, tunneled sections would mean reduced impacts around Comox and Lazo Hills.

REMOVES FORESHORE PIPE: Some public feedback has indicated a preference for removing the foreshore pipe along the Comox estuary, though technical studies show there is 15-20 years remaining in the pipe.

CHALLENGES

INCREASED CONSTRUCTION RISK: Though preliminary assessments show favourable ground conditions, tunneling work introduces more risk to the construction phase.

ADDRESSING GROUNDWATER CONCERNS: Managing groundwater to ensure there is no impact to groundwater or individual wells.

ADDITIONAL RIGHT-OF-WAYS REQUIRED: Because this route moves off already established right-of-ways, new agreements would have to be negotiated with landowners.

ADDITIONAL LAYDOWN AREA: A portion of Comox Rd and Balmoral Rd (Stewart to Port Augusta) will be heavily impacted due to the need to assemble and lay down pipe before it is fed underground.

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OPTION 3: PHASED TUNNEL

This option uses the combined trench-and-tunneling route of Option 2 but breaks the project into two phases. Phase 1 would include the stretch between Marina Park and the treatment plant. Phase 2 would replace the pipe between Courtenay Pump Station and Marina Park in 15-20 years. It also includes:

- Upgrades to all three pump stations on the route
- A temporary line from a tie-in at Marina Park to the new forcemain on Beaufort Ave for 15-20 years until Phase 2 of the project is introduced
- A new line from Jane Place to new forcemain
- Lowest immediate cost to build
- Tunneling beneath the Lazo Marsh

COSTS

COST TO BUILD: $43M

COST TO RUN AND MAINTAIN (30 YEAR): $13M

COST PER HOUSEHOLD: $160/household Until Phase 2

PHASE 2 CAPITAL COST (TO BE IMPLEMENTED IN 15-20 YEARS): $18M

TRAFFIC IMPACTS (PH.1)

HIGH: Balmoral (from Stewart) and Lazo/Morland (local traffic), Marina Park

MEDIUM: Jane Place/Wilcox and Morland (single-lane alternating)

LOW: Lazo/Curtis Road

ARCHEOLOGICAL MITIGATION: Full alignment, especially through IR1 (Comox Rd)

BENEFITS

ADDRESSES URGENT ENVIRONMENTAL RISK: The at-risk pipe at Willemar Bluffs would be replaced as part of the first phase of construction.

REDUCED SHORT TERM CAPITAL COST: By splitting the work into phases, a significant portion of cost is postponed/spread out over a longer timeframe with more users to contribute.

LOWER OPERATING AND LIFECYCLE COSTS: Reduced pressure requirements means it costs less to operate.

MAXIMIZES LIFE OF EXISTING INFRASTRUCTURE: The existing foreshore pipe in Comox estuary – which has been assessed and is still in good condition – remains in place for another 15-20 years.

REDUCED CONSTRUCTION IMPACT: By completing half of the route at a time, the short-term construction impact is smaller.

CHALLENGES

FORESHORE PIPE REMAINS: While assessment shows this pipe in good condition, some community members want it removed.

CHALLENGING CONNECTION AT MARINA PARK: High construction impacts at Marina Park, limited impact to boat ramp access, as new system is connected to existing.

INCREASED CONSTRUCTION RISK: Though preliminary assessments show favourable ground conditions, tunneling work introduces more risk to the construction phase.

ADDRESSING GROUNDWATER CONCERNS: Managing groundwater along tunneled sections to ensure there is no impact to groundwater levels and individual wells.

ADDITIONAL LAYDOWN AREA REQUIRED: Long stretches of roadway will need to be used as for the pipe to be assembled- including a portion of Balmoral (Stewart to Port Augusta).

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PROTECTING GROUNDWATER AND WELLS

As part of a technical assessment for regional sewer system improvements in the Comox Valley, the Comox Valley Regional District (CVRD) is undertaking geotechnical investigatory work and hydrogeological data assessment in the Lazo Road and Comox Hill areas. The results of this work will provide information about ground conditions and groundwater levels to help assess the viability of options. Once data from this work is analyzed, reports will be made available to the public.

Protecting groundwater as we consider sewer options involves a number of different approaches, including:

Recognizing the importance of protection:

The CVRD understands that for those who rely on wells – and for widespread environmental protection, groundwater must be protected. Protection has been identified as a priority.

Working with experts:

The project team is working closely with local contractor GW Solutions who is well-informed on the area, to understand the aquifer and highlight possible challenges. Long term protection of groundwater will be through robust engineering design and construction practices.

On-the-ground investigations:

More than desktop assessments, the projects engineers are also monitoring groundwater on location, using equipment called piezometers, placed in the exploratory bore holes completed in the summer.

Drilling equipment like this has been used to assess geotechnical conditions and groundwater in the area.

LOCAL KNOWLEDGE

We understand that residents in the area hold a lot of personal information with their experiences on their property. If you have details that you feel we should know, please connect with a member of the project team, or send us a message at **engineeringservices@comoxvalleyrd.ca**.

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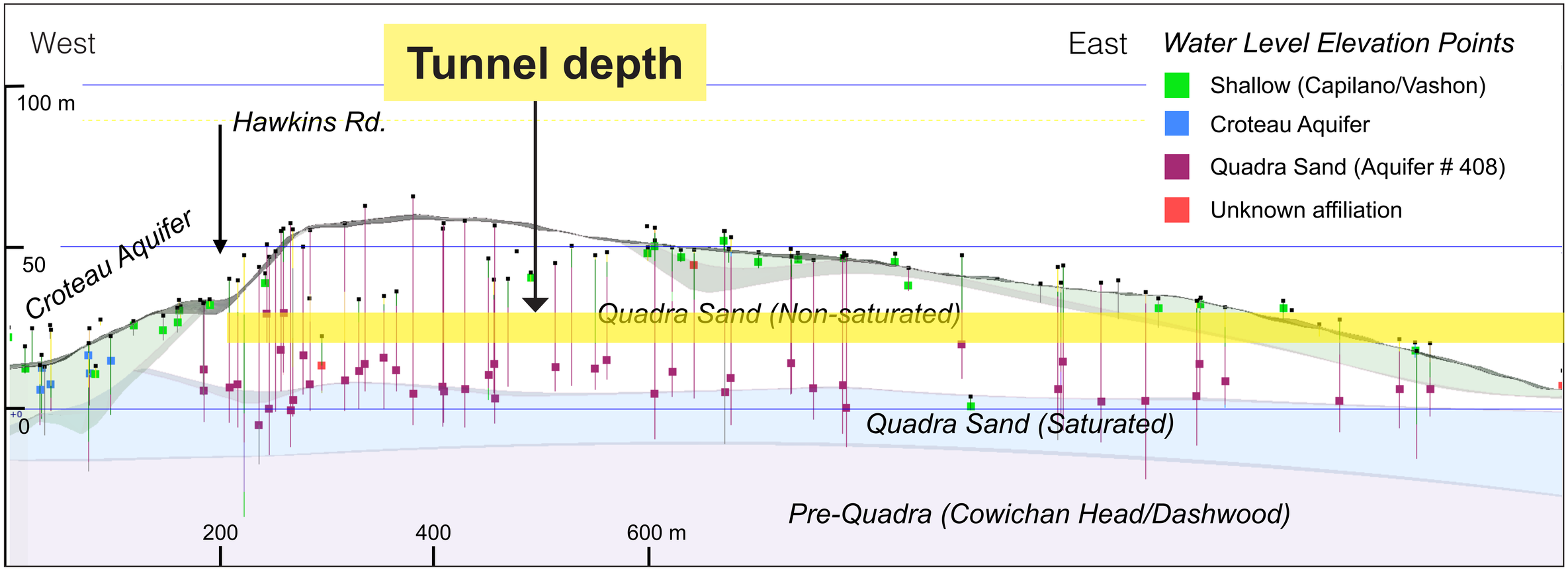
AQUIFER ASSESSMENT

As part of the technical assessment underway for these options, groundwater has been an important focus. Surveys have shown so far that the tunnel location will not interfere with groundwater significantly, as it is located outside of aquifers or saturated sands. Below is an image to demonstrate.



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YOUR CONCERNS: CULTURALLY SENSITIVE AREAS

For thousands of years Indigenous peoples have occupied the Comox Valley including lands along the proposed conveyance route. We understand there is risk of encountering archaeological remains in this area. Making plans to manage this risk will be a key part of our construction planning.

WHAT WE KNOW:

The designated archeological site labelled DkSF-19 – a shell midden and habitation site – conflicts with the western half of the proposed sanitary sewer line. Reviewing records for six other building projects have shown that within the conflicting area previous findings have ranged from nothing (at the western edge) to intact midden deposits and human burials.

WE ARE COMMITTED TO:

- **Using the information we have:**
  - » A preliminary route can be selected that avoids areas where intact archaeological findings have been made to date.
  - » Staying within the existing roadway – a previously disturbed area – can reduce the potential impact. The most intact remains reported are off of the roadway.
- **Following direction from experts:**
  - » Our plans will be approved by KFN Chief and Council and our work will be supervised by a Guardian Watchman or other representatives appointed by KFN.
  - » We will receive permitting from the BC Archaeology Branch.
  - » We will conduct geotechnical testing to gather information about any archaeological remains below the road – including depths/size and in some cases, condition.
- **Planing ahead for unexpected finds:**
  - » If archaeological deposits are found to be in conflict, we can pre-dig the trench ahead of the pipe laying crew, allowing for the proper treatment of anything that is found.

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NEXT STEPS FOR SEWER PLANNING

This stage of consultation on the Comox Valley Sewer Service Liquid Waste Management Plan is critical to informing the next steps for the Comox Valley Regional District's Sewage Commission and project team.

Here's what's happening next:

Ready to Provide Feedback?

Visit www.connectcvrd.ca/lwmp to fill out the survey

SELECT A PREFERRED OPTION

The feedback of the community, public and technical advisory committees and additional technical information will be considered by the sewage commission as they select a preferred option.

REPORT BACK TO THE COMMUNITY

We are committed to reporting back to the public about the outcome of their process and the role that comment from the public played in the selection of a preferred option.

BORROWING APPROVAL FOR CONVEYANCE

An Alternative Approval Process (AAP) will likely be held early in 2021 to approve borrowing so that work can begin as soon as possible.

DRAFTING THE REPORT

Once a preferred option is in place, the draft of the Liquid Waste Management Plan will be prepared and submitted for review by the provincial government.

REVISIONS/ APPROVALS

Working with the province, we will address any outstanding issues and, once approved, begin preparation for the final design work that will allow the construction work to proceed.

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