



Comox Strathcona  
Waste Management

# STRATEGY FOR CVWMC LEACHATE MANAGEMENT Updates

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THINK REDUCE REUSE RECYCLE

# UPDATES TO COSTS SUMMARY



- Input from CVRD Staff
  - South Sewer Project: file 5330-20/SS
    - Sewer use fees updated to \$1.10/m<sup>3</sup>
    - \$3MM contribution in capital for SSP infrastructures (as per CVRD Report)
    - \$60 000/yr contribution for operation of SSP facility
  - Brent Road facility: file 5340-20
    - Sewer use fees updated to \$1.15/m<sup>3</sup>
- On-site
  - Revised costs for leachate equalization system (phased tank(s) option)
- Engineering costs 10%

# COSTS SUMMARY, REV.1 (CLASS C ESTIMATE)

## OPTIONS 1, 2, 4 AND 6



Item	Description	Option 1 On-site SBR w/ ground discharge	Option 2 On site MBBR w/ ground discharge	Option 4 Off-site to CVRD SS project	Option 6 Off-site to Brent Rd facility
<b>Preliminary Capital Costs</b>					
1.0	Equalization tank	\$ 1,162,000	\$ 1,162,000	\$ 1,162,000	\$ 1,162,000
2.0	On-site treatment plant	\$ 2,935,000	\$ 3,035,000	\$ -	\$ -
3.0	Infiltration bed for ground discharge	\$ 250,000	\$ 250,000	\$ -	\$ -
4.0	Pre-treatment (on-site)	\$ -	\$ -	\$ 690,000	\$ 690,000
5.0	Pumping and conveyance of leachate	\$ -	\$ -	\$ 1,052,000	\$ 1,568,000
6.0	Contribution to wastewater treatment plant	\$ -	\$ -	\$ 3,000,000	\$ 600,000
	<b>SUB-TOTAL</b>	\$ 4,347,000	\$ 4,447,000	\$ 5,904,000	\$ 4,020,000
	Contingency (25%)	\$ 1,086,750	\$ 1,111,750	\$ 1,476,000	\$ 1,005,000
	Engineering (10%)	\$ 543,375	\$ 555,875	\$ 738,000	\$ 502,500
	<b>Capital Costs - Total</b>	\$ <b>5,977,125</b>	\$ <b>6,114,625</b>	\$ <b>8,118,000</b>	\$ <b>5,527,500</b>
<b>Preliminary Yearly Operational and Maintenance Costs</b>					
1.0	Energy	\$ 118,330	\$ 118,330	\$ 78,140	\$ 78,140
2.0	Chemicals	\$ 133,090	\$ 133,090	\$ 31,150	\$ 31,150
3.0	Maintenance	\$ 36,880	\$ 39,380	\$ 39,040	\$ 39,040
4.0	Sludge management	\$ 5,400	\$ 5,400	\$ -	\$ -
5.0	Manpower	\$ 58,240	\$ 58,240	\$ 23,300	\$ 23,300
6.0	Sewer use fees	\$ -	\$ -	\$ 67,100	\$ 70,150
7.0	Contribution to treatment plant operation costs	\$ -	\$ -	\$ 60,000	\$ -
	<b>Operational Costs - Total</b>	\$ <b>351,940</b>	\$ <b>354,440</b>	\$ <b>298,730</b>	\$ <b>241,780</b>
<b>Preliminary Total Costs (Lifespan)</b>					
	Lifespan (years)	20	20	20	20
	<b>Total - Capital Costs</b>	\$ 5,977,125	\$ 6,114,625	\$ 8,118,000	\$ 5,527,500
	<b>Total - Operational Costs</b>	\$ 351,940	\$ 354,440	\$ 298,730	\$ 241,780
	<b>Total Costs (Lifespan)</b>	\$ <b>13,015,925</b>	\$ <b>13,203,425</b>	\$ <b>14,092,600</b>	\$ <b>10,363,100</b>

# UNCERTAINTIES

## OPTIONS 1 & 2 (ON-SITE TREATMENT AND DISCHARGE)



- Regulatory
  - Construction permit issued by Village of Cumberland for new facilities on landfill property
  - Approval by *BC Ministry of Environment* for a discharge to ground approach
  - Environmental impact assessments to groundwater
  - Consultation process almost completed

# UNCERTAINTIES

## OPTION 4 (SOUTH SEWER PROJECT)



- Financial
  - CVWMC final contribution to new South Sewer Project per CVRD Report
  - Costs of additional systems at SSP treatment plant for leachate-related processes (removal of heavy metals if required)
  - Additional costs for leachate hauling and disposal before commissioning of SSP treatment plant
- Public interaction
  - Public perception about the discharge of treated leachate into Bayne's Sound
- Technical
  - Impact of pre-treated leachate on the biological components of the treatment and increased fouling of the membranes
- Regulatory
  - Provincial permitting required
- Schedule
  - Realization of the project
  - Date of the commissioning of SSP treatment plant
  - Schedule incompatibilities raise questions (technical, logistics, financial)

# UNCERTAINTIES

## OPTION 6 (BRENT ROAD FACILITY)



- Financial
  - CVRD final contribution to future Brent Rd facility upgrades and contribution to the operational costs
- Regulatory
  - Authorization to use sewerage service initially created for City of Courtenay, Town of Comox, Department of Defense and K'ómoks First Nation
  - Authorization by owner to convey pre-treated leachate into their system
  - Approval by land owners for the construction of a pre-treated leachate line from the landfill to Courtenay sewer system and related costs
- Public interactions
  - Public perception about the discharge of treated leachate into the Strait of Georgia



# STRATEGY TO MOVE FORWARD



- Given the above, current situation and risk analysis
  1. Preferred option at this point would be an on-site treatment and discharge into infiltration bed to ground
    - Authorization by the MoE for a discharge to ground is needed
    - We recommend to conduct a modelling work to assess the environmental impact to the groundwater pending meeting with MoE for OC application
  2. Fall-back option would be to pursue leachate treatment at the Brent Road facility
  3. South Sewer Project does not appear to be a feasible option
    - Schedule is one of the main concern