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## **CEDAR LANE WATER SERVICE COMMISSION**

Notice of Meeting on **Thursday, November 5, 2020 at 9:00 AM**  
Lions Hall, 103 Bonnet Ave, Salt Spring Island, BC

Gary Holman

Lynda Wilcox

Jason Griffin

Cathy Lenihan

(r) regrets

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### **AGENDA**

#### **1. Territorial Acknowledgement / Call Meeting to Order**

#### **2. Limited Space Meeting Resolution**

That this resolution applies to the Cedar Lane Water Service Commission for the meeting being held on November 5, 2020, and that the attendance of the public at the place of the meeting will be limited in accordance with the applicable requirements or recommendations under the Public Health Act, despite the best efforts of the Commission because:

- a. The available meeting facilities cannot accommodate more than (30) people in person, including members of the Commission and staff, and
- b. There are no other facilities presently available that will allow physical attendance of the Commission and the public in sufficient numbers; and

That the Commission is ensuring openness, transparency, accessibility and accountability in respect of the open meeting by the following means:

- a. By making the meeting agenda, as well as the other relevant documents, available on the CRD website, and directing interested persons to the website by means of the notices provided in respect of the meeting,
- b. By making the minutes of the meeting available on the CRD website following the meeting.

#### **3. Approval of Agenda**

#### **4. Approval of Minutes October 8, 2019**

3-4

#### **5. Director, Chair and Commissioner Reports**

#### **6. New Business**

##### **6.1 2021 Capital and Operating Budget**

5-20

That the Cedar Lane Water Services Commission:

1. Approve the 2021 operating and capital budget as presented, and that the 2020 actual surplus or deficit be balanced on the 2020 transfer to the Capital Reserve Fund and Operating Reserve Fund; and,

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*To ensure quorum, advise Tracey Shaver 250 537 4448 if you cannot attend.*

2. Recommend that the Electoral Area Services Committee recommend that the CRD Board approve the 2021 Operating and Capital Budget and the five year Financial Plan for the Cedar Lane Water Service as presented.

**7. Outstanding Business**

**7.1 Water license application annual volume for cedar lane water service area**

**21-24**

That the Cedar Lane Water Service Commission directs staff to apply for a water license using an annual volume of 7,000 m<sup>3</sup> and a daily maximum volume of 38 m<sup>3</sup>

**7.1 Cedar Lane Asset Management Plans**

**25-79**

To be received for information

**8. Adjournment**



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**Minutes of the Meeting of the CEDAR LANE WATER SERVICE COMMISSION**  
**Held Tuesday October 8, 2019 in the Creekside Meeting Room 108 121 McPhillips Ave,**  
**Salt Spring Island, BC**

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**Present:** **CRD Director:** Gary Holman  
**Commission Members:** Lynda Wilcox, Jason Griffin (chair)  
**Staff:** Karla Campbell, Senior Manager, Salt Spring Island Electoral Area; Dan Robson, Manager, Saanich Peninsula and Gulf Islands Operations; Allen Xu, Manager SSI Engineering; Lia Xu, Manager, Finance Services; Tracey Shaver, Recording Secretary  
**Absent:** Cathy Lenihan

Chair Griffin called the meeting to order at 1:00 pm.

**1. Approval of Agenda**

**MOVED** by Commissioner Wilcox, **SECONDED** by Commissioner Griffin,  
That the Cedar Lane Water Service Commission meeting agenda of October 8, 2019 be approved.

**CARRIED**

**2. Adoption of Minutes of January 16, 2019**

**MOVED** by Director Holman, **SECONDED** by Commissioner Wilcox,  
That the Cedar Lane Water Service Commission Minutes of January 16, 2019 be approved with the following correction to item 6.10 in the 5<sup>th</sup> bullet "Residence" to "Resident".

**CARRIED**

**3. Director, Chair and Commissioner Reports**

**3.1** Director Holman briefly reported that the Province has agreed to fund pay for a water optimization study for Salt Spring Island.

**4. New Business**

**4.1 2020 Operating and Capital Budget**

- Reservoir cleaning and inspection-combine with other services under one contract
- Capital Reserve Funds to be used to bring manganese levels into compliance with new health Canada regulations.
- Combine designs for backup power sources with other small water services.
- User charge increased, parcel tax decreased, water sales under new tiered rates.

**MOVED** by Commissioner Wilcox, **SECONDED** by Commissioner Griffin,  
That the Cedar Lane Water Services Commission approve the 2020 operating and capital budget as presented, and that the 2019 actual surplus or deficit be balanced on the 2019 transfer to the Capital Reserve Fund and Operating Reserve Fund;

**CARRIED**

**MOVED** by Director Holman, **SECONDED** by Commissioner Wilcox,  
Recommend that the Electoral Area Services Committee recommend that the CRD Board approve the 2020 Operating and Capital Budget and the five year Financial Plan for the Cedar Lane Water Service as presented.

**CARRIED**

**5. Outstanding Business**

**5.1 Pump Expenses – Staff Verbal Report**

- Total cost for pump and labour last year to replace pump was \$4,400

**5.2 Decommissioned Pumps (2008) – Staff Verbal Report**

CRD staff confirmed with North Salt Spring Water Works that there has never been a pressure pump at well #1. There is no used pump or equipment stored for future use by Cedar Lane.

**6. Adjournment**

**MOVED** by Commissioner Griffin, **SECONDED** by Commissioner Wilcox,  
That the meeting be adjourned at 1:53 pm.

**CARRIED**

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**CHAIR**

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**SENIOR MANAGER**





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## **REPORT TO CEDAR LANE WATER SERVICE COMMISSION MEETING OF THURSDAY, NOVEMBER 5, 2020**

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### **SUBJECT     2021 OPERATING AND CAPITAL BUDGET**

### **ISSUE**

To present the 2021 operating and capital budget. In accordance with Bylaw No 3505, "Cedar Lane Water Service Commission Bylaw No. 1, 2008" the Commission's approval of the annual budget is required.

### **BACKGROUND**

The Capital Regional District (CRD) is required by legislation under the *Local Government Act* (LGA) to prepare an annual operating and capital budget and a 5-year financial plan including Operating Budgets and Capital Expenditure Plans annually. CRD staff have prepared the financial plan shown in attachment to this report for the Cedar Lane Water Service.

The Operating Budget includes the regular annual costs to operate the service. The Capital Expenditure Plan shows the anticipated expenditures for capital additions. These may include purchases of new assets or infrastructure, upgrades or improvements to existing assets or asset review and study work that could potentially lead to future capital improvements.

In preparing the Operating Budget, CRD staff took into account:

1. Actual expenditures incurred between 2018 and 2020
2. Anticipated changes in level of service (if any)
3. Maximum allowable tax requisition
4. Annual Cost per taxpayer and per SFE

Factors taken into consideration in the preparation of the Capital Expenditure Plan included:

1. Available funds on hand
2. Projects already in progress
3. Condition of existing assets and infrastructure
4. Regulatory, environmental and health and safety factors.

Adjustments for surpluses or deficits from 2020 may be made in January 2021. The CRD Board will give final approval to the budget and financial plan in March 2021.

The Financial Plan for the years 2022 – 2025 may be changed in future years.

### **BUDGET OVERVIEW**

#### ***Operating Budget***

It is anticipated that operating expenses in 2020 will be approximately \$3,409 under budget as a one-time favorable variance mainly from operations contracts.

It is anticipated that the operating revenue in 2020 will be \$1,099 less than budgeted due to slightly lower projected water sales revenue.

This results in an overall service budget surplus of approximately \$2,310.

In order to balance the 2020 budget, CRD staff recommend that the 2020 transfer to the Capital Reserve Fund be increased by the projected surplus amount.

The 2021 net operating cost has been increased by \$3,047 (6.3%) over 2020. The increase is primarily to account for core inflation and increased contracted operating maintenance costs for the service.

The 2021 operating budget also includes a \$5,000 expenditure to inspect Well No.1 to be funded by the Operating Reserve Fund.

### ***Municipal Finance Authority (MFA) Debt***

Loan Authorization Bylaw 3425 to borrow \$168,000 was approved and adopted in 2007 for constructing new waterworks. \$60,000 of this loan authorization was issued in 2008 and retired in 2018. Table 1 below summarizes the detailed information for existing MFA debt issue related to LA3425.

***Table 1 - Existing Debt Summary***

<i>MFA Issues</i>	<i>Term</i>	<i>Borrowing Year</i>	<i>Retirement Year</i>	<i>Refinance Year</i>	<i>Original Interest Rate</i>	<i>Current Interest Rate</i>	<i>Principal</i>	<i>Principal Payment</i>	<i>Interest Payment</i>	<i>Total Annual Debt Cost</i>
LA3425-106	15	2009	2024	2019	4.13%	2.25%	\$108,000	\$5,394	\$2,430	\$7,824

### ***Operating Reserve Fund***

The Operating Reserve Fund is used to undertake maintenance activities that typically do not occur on an annual basis. Typical maintenance activities include hydrant/standpipe maintenance and reservoir cleaning and inspection and ground water well servicing. The operating reserve also funds the procurement of equipment and supplies that are not purchased on an annual basis. Additionally, the operating reserve could be used for emergency unplanned repairs.

It is proposed that transfers to the operating reserve increase from \$1,000 to \$4,200 in 2021 to ensure future maintenance activities are fully funded and an optimum minimum balance in the reserve fund be maintained. There is \$25,000 of planned maintenance to be funded by the Operating Reserve over the next five years.

The Operating Reserve Fund balance at the end of 2020 is projected to be approximately \$5,295.

### ***Capital Reserve Fund***

The Capital Reserve Fund is to be used to pay for capital expenditures that are not funded by other sources such as grants, operating budget or debt.

It is proposed that transfers to the Capital Reserve Fund increase from \$4,096 to \$4,170 (1.8%) in 2021 to ensure future funding of capital projects. The balance at the end of 2020 is projected to be \$92,830.

### ***Capital Expenditure Plan***

The 5-year plan includes \$160,000 of expenditures to be funded from the Capital Reserve Fund or grant.

Three projects were added to the 2021-2025 five year capital plan:

1. Detailed Hydrogeological Assessment \$55,000 (2021)
2. Investigation for new groundwater sources \$30,000 (2023)
3. Security fencing for Water Treatment Plant, Pump Station and Reservoir \$15,000 (2024)

The service's asset management plan (AMP) (completed in Q1 2020) supports long term planning on assets which drive capital replacement strategy, prioritization and schedule, as well as inform operations on the ongoing maintenance of assets, and assist with the asset upgrades and replacements. The AMP assist with defining the level of service required for the service. Using this information, and the asset age and condition information, the AMP helps classify the capital upgrades, operational requirements and appropriate budgets, and project funding mechanisms to include in the 5-year capital plans for the service.

### ***Capital Projects Fund***

As specific capital projects are approved, the funding revenues for them are transferred into this Capital Project Fund from multiple funding sources if applicable, including Capital Reserve Fund (CRF), grant funding, external contributions and Debt. Any funds remaining upon completion of a project will be transferred back to its original funding source(s). Project CE.642 (SAMP Study) is anticipated to be closed by the end of 2020.

### ***User Charge and Parcel Tax***

The service is funded by parcel tax, fixed user charges and variable water consumption charge. Properties connected to the water system pay the annual user charge and all properties within the local service area are responsible for the parcel tax. The 2021 water rate for consumption charge remains unchanged from 2020.

Table 2 below summarizes the 2021 over 2020 changes for parcel tax and user fee.

***Table 2 – Parcel Tax and User Charge Summary***

<b><i>Budget Year</i></b>	<b><i>Parcel Tax</i></b>	<b><i>Taxable Folios Numbers</i></b>	<b><i>Parcel Tax per Folio</i></b>	<b><i>User Charge</i></b>	<b><i>SFE Numbers</i></b>	<b><i>User Charge per SFE</i></b>	<b><i>Parcel Tax &amp; User Charge</i></b>
<b>2020</b>	\$11,951	37	\$339.95	\$36,699	37	\$991.86	<b>\$1,331.81</b>
<b>2021</b>	\$12,024	37	\$342.03	\$44,047	37	\$1,190.46	<b>\$1,532.49</b>
<b>Change (\$)</b>	\$73	0	\$2.09	\$7,348	0	\$198.59	<b>\$200.68</b>
<b>Change (%)</b>	0.61%	0.00%	0.61%	20.02%	0.00%	20.02%	<b>15.07%</b>

\* Includes the 5.25% admin fee charged by the Ministry of Finance (not CRD revenue)

**RECOMMENDATION**

That the Cedar Lane Water Services Commission:

1. Approve the 2021 operating and capital budget as presented, and that the 2020 actual surplus or deficit be balanced on the 2020 transfer to the Capital Reserve Fund and Operating Reserve Fund; and,
2. Recommend that the Electoral Area Services Committee recommend that the CRD Board approve the 2021 Operating and Capital Budget and the five year Financial Plan for the Cedar Lane Water Service as presented.

Submitted by	Karla Campbell, Senior Manager, Salt Spring Island Electoral Area
Submitted by	Matthew McCrank, MSc., P.Eng., Senior Manager, Infrastructure Operations
Submitted by	Rianna Lachance, BCom, CPA, CA, Senior Manager Financial Services
Concurrence	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence	Robert Lapham, MCIP, RPP, Chief Administrative Officer

MMc/KC/RL/:ts

Attachment: [2021 Budget Cedar Lane Water Service Budget](#)

# **CAPITAL REGIONAL DISTRICT**

## **2021 Budget**

### **Cedar Lane Water (SSI)**

#### **Commission Review**

Service: 2.628 Cedar Lane Water (SSI)

Committee: Electoral Area

**DEFINITION:**

To provide and operate water supply and distribution facilities for the Salt Spring Island Cedar Lane Water Service Area.  
Bylaw 3424 (Oct 10, 2007)

**PARTICIPATION:**

Local Service Area #31, P(764)

**MAXIMUM LEVY:**

Greater of \$54,000 or \$4.76/ \$1,000 of actual assessed value of land and improvements to a maximum of \$100,581.

**MAXIMUM CAPITAL DEBT:**

Authorized:	LA Bylaw No. 3425 (Oct 10, 2007)	\$168,000	
Borrowed:	SI Bylaw 3514 (Feb 13, 2008)	(\$60,000)	Repaid April 23, 2018
	SI Bylaw 3634 (Aug 12, 2009)	(\$108,000)	Matures 2024 (4.13%)
Remaining:		<u>\$0</u>	

**COMMISSION:**

Cedar Lane Water Service Commission established by Bylaw 3505, Feb 13, 2008.

**FUNDING:**

**Parcel Tax:** Annual charge only on properties capable of being connected to the system.

**User Charge:** Annual Fixed Fee per single family dwelling unit or equivalent.  
The consumption charge for water will be the total volume of water metered to the water service connections, measured in cubic meters at the following rate:

- First 30 cubic metres or portion - \$2.50 / cubic metre
- Next 30 cubic metres or portion - \$9.00 / cubic metre
- Greater than 61 cubic metres - \$25.00 / cubic metre

**RESERVE FUND BYLAW:**

Cedar Lane Water Service Capital Reserve Fund, Bylaw #3582 (Nov 12, 2008).  
Cedar Lane Water Service Operating Reserve Fund, Bylaw #4144 (Dec 14, 2016).

2.628 - Cedar Lane Water (SSI)

	2020		BUDGET REQUEST				FUTURE PROJECTIONS			
	BOARD BUDGET	ESTIMATED ACTUAL	CORE BUDGET	2021 ONGOING	ONE-TIME	TOTAL	2022	2023	2024	2025
<u>OPERATING COSTS</u>										
Operations Contract	21,180	18,000	22,200	-	-	22,200	22,650	23,100	23,560	24,030
Repairs & Maintenance	21,070	20,000	1,080	-	5,000	6,080	1,110	1,140	1,170	21,200
Allocations	3,761	3,761	4,786	-	-	4,786	4,512	4,599	4,688	4,779
Water Testing	2,990	2,990	3,040	-	-	3,040	3,100	3,160	3,220	3,280
Electricity	4,500	4,200	4,580	-	-	4,580	4,670	4,760	4,860	4,960
Supplies	1,660	2,950	1,540	-	-	1,540	1,570	1,600	1,630	1,660
Labour Charges	10,329	10,500	11,231	-	-	11,231	11,500	11,730	11,966	12,207
Other Operating Expenses	2,990	2,670	3,070	-	-	3,070	3,130	3,190	3,250	3,310
<b>am</b>	<b>68,480</b>	<b>65,071</b>	<b>51,527</b>	<b>-</b>	<b>5,000</b>	<b>56,527</b>	<b>52,242</b>	<b>53,279</b>	<b>54,344</b>	<b>75,426</b>
*Percentage Increase over prior year						-17.5%	-7.6%	2.0%	2.0%	38.8%
Transfers from Operations Reserve Fund	(20,000)	(20,000)	-	-	(5,000)	(5,000)	-	-	-	(20,000)
<b>NET OPERATING COSTS</b>	<b>48,480</b>	<b>45,071</b>	<b>51,527</b>	<b>-</b>	<b>-</b>	<b>51,527</b>	<b>52,242</b>	<b>53,279</b>	<b>54,344</b>	<b>55,426</b>
*Percentage Increase over prior year			6.3%			6.3%	1.4%	2.0%	2.0%	2.0%
<u>DEBT / RESERVES</u>										
Transfer to Capital Reserve Fund	4,096	6,406	4,170	-	-	4,170	4,250	5,000	5,000	12,000
Transfer to Operating Reserve Fund	1,000	1,000	4,200	-	-	4,200	4,280	4,370	4,460	4,550
MFA Debt Reserve Fund	30	30	30	-	-	30	30	30	30	30
MFA Debt Principal	5,394	5,394	5,394	-	-	5,394	5,394	5,394	5,394	-
MFA Debt Interest	2,430	2,430	2,430	-	-	2,430	2,430	2,430	2,430	-
<b>TOTAL DEBT / RESERVES</b>	<b>12,950</b>	<b>15,260</b>	<b>16,224</b>	<b>-</b>	<b>-</b>	<b>16,224</b>	<b>16,384</b>	<b>17,224</b>	<b>17,314</b>	<b>16,580</b>
<b>TOTAL COSTS</b>	<b>61,430</b>	<b>60,331</b>	<b>67,751</b>	<b>-</b>	<b>-</b>	<b>67,751</b>	<b>68,626</b>	<b>70,503</b>	<b>71,658</b>	<b>72,006</b>
<u>FUNDING SOURCES (REVENUE)</u>										
Sales - Water	(12,600)	(11,500)	(11,500)	-	-	(11,500)	(11,500)	(11,500)	(11,500)	(11,500)
User Charges	(36,699)	(36,700)	(44,047)	-	-	(44,047)	(44,842)	(45,969)	(47,124)	(48,296)
Other Revenue	(180)	(180)	(180)	-	-	(180)	(180)	(180)	(180)	(180)
<b>TOTAL REVENUE</b>	<b>(49,479)</b>	<b>(48,380)</b>	<b>(55,727)</b>	<b>-</b>	<b>-</b>	<b>(55,727)</b>	<b>(56,522)</b>	<b>(57,649)</b>	<b>(58,804)</b>	<b>(59,976)</b>
<b>REQUISITION - PARCEL TAX</b>	<b>(11,951)</b>	<b>(11,951)</b>	<b>(12,024)</b>	<b>-</b>	<b>-</b>	<b>(12,024)</b>	<b>(12,104)</b>	<b>(12,854)</b>	<b>(12,854)</b>	<b>(12,030)</b>
*Percentage increase over prior year										
Sales						-8.7%	0.0%	0.0%	0.0%	0.0%
User Charge						20.0%	1.8%	2.5%	2.5%	2.5%
Requisition						0.6%	0.7%	6.2%	0.0%	-6.4%
<b>Combined</b>						<b>10.3%</b>	<b>1.3%</b>	<b>2.7%</b>	<b>1.6%</b>	<b>0.5%</b>

Cedar Lane Water (SSI)  
Reserve Summary Schedule  
2021 - 2025 Financial Plan

**Reserve/Fund Summary**

	<b>Estimated</b>	<b>Budget</b>				
	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Capital Reserve Fund	92,830	42,000	36,250	11,250	1,250	13,250
Operating Reserve Fund	5,295	4,495	8,775	13,145	17,605	2,155
<b>Total</b>	<b>98,125</b>	<b>46,495</b>	<b>45,025</b>	<b>24,395</b>	<b>18,855</b>	<b>15,405</b>



## Reserve Schedule

### Reserve Fund: 2.628 Cedar Lane Water (SSI) - Capital Reserve Fund

Bylaw 3582

## Reserve Cash Flow

Fund: Fund Centre:	1076 102020	Estimated	Budget				
		2020	2021	2022	2023	2024	2025
Beginning Balance		92,334	92,830	42,000	36,250	11,250	1,250
Transfer from Ops Budget		4,096	4,170	4,250	5,000	5,000	12,000
Transfer from Cap Fund		-	-	-	-	-	-
Transfer to Cap Fund		(5,000)	(55,000)	(10,000)	(30,000)	(15,000)	-
Interest Income*		1,400	-	-	-	-	-
Ending Balance \$		92,830	42,000	36,250	11,250	1,250	13,250

### Assumptions/Background:

Transfer as much as operating budget will allow.

\* Interest should be included in determining the estimated ending balance for the current year. Interest in planning years nets against inflation which is not included.

## Reserve Schedule

### Reserve Fund: 2.628 Cedar Lane Water (SSI) - Operating Reserve Fund - Bylaw 4144

Reserve fund used for: unforeseen operational repairs and maintenance; infrequent maintenance activities such as reservoir cleaning and inspection, hydrant maintenance and ground water well maintenance. Optimum minimum balance of \$4,500 (approximately 10%) of the annual operating budget.

## Reserve Cash Flow

Fund: Fund Centre:	1500 105208	Estimated	Budget				
		2020	2021	2022	2023	2024	2025
Beginning Balance		23,935	5,295	4,495	8,775	13,145	17,605
Transfer from Ops Budget		1,000	4,200	4,280	4,370	4,460	4,550
Expenditures		(20,000)	(5,000)	-	-	-	(20,000)
Planned maintenance activity		Reservoir cleaning and inspection	Well No.1 Inspection				Reservoir cleaning and inspection
Interest Income*		360	-	-	-	-	-
Ending Balance \$		5,295	4,495	8,775	13,145	17,605	2,155

### Assumptions/Background:

\* Interest should be included in determining the estimated ending balance for the current year. Interest in planning years nets against inflation which is not included.

**CAPITAL REGIONAL DISTRICT**  
**FIVE YEAR CAPITAL EXPENDITURE PLAN SUMMARY - 2021 to 2025**

<b>Service No.</b>	<b>2.628</b>	<b>Carry</b>						
	<b>Cedar Lane Water (SSI)</b>	<b>Forward from</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>TOTAL</b>
		<b>2020</b>						

**EXPENDITURE**

Buildings	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Land	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Engineered Structures	\$35,000	\$105,000	\$10,000	\$30,000	\$15,000	\$0	\$160,000
Vehicles	\$0	\$0	\$0	\$0	\$0	\$0	\$0

<b>\$35,000</b>	<b>\$105,000</b>	<b>\$10,000</b>	<b>\$30,000</b>	<b>\$15,000</b>	<b>\$0</b>	<b>\$160,000</b>
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**SOURCE OF FUNDS**

Capital Funds on Hand	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Debenture Debt (New Debt Only)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment Replacement Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Grants (Federal, Provincial)	\$0	\$50,000	\$0	\$0	\$0	\$0	\$50,000
Donations / Third Party Funding	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Reserve Fund	\$35,000	\$55,000	\$10,000	\$30,000	\$15,000	\$0	\$110,000

<b>\$35,000</b>	<b>\$105,000</b>	<b>\$10,000</b>	<b>\$30,000</b>	<b>\$15,000</b>	<b>\$0</b>	<b>\$160,000</b>
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**CAPITAL BUDGET FORM**  
**2021 & Forecast 2022 to 2025**

2.628

### Cedar Lane Water (SSI)

**Asset Class**

- L** - Land
- S** - Engineering Structure
- B** - Buildings
- V** - Vehicles

**Total Project Budget**  
This column represents the total project budget not only within the 5-year window.

FIVE YEAR FINANCIAL PLAN													
Proj. No.	Capital Exp.Type	Capital Project Title	Capital Project Description	Total Proj Budget	Asset Class	Funding Source	C/F from 2020	2021	2022	2023	2024	2025	5 - Year Total
18-01	Renewal	Abandon unused wells	Decommission wells	\$10,000	S	Res	\$0	\$0	\$10,000	\$0	\$0	\$0	\$10,000
20-01	New	WTP Manganese removal	Review and carry out a design to address manganese removal	\$35,000	S	Res	\$35,000	\$35,000	\$0	\$0	\$0	\$0	\$35,000
21-01	New	Power generation equipment	Back up power construction	\$15,000	S	Res	\$0	\$15,000	\$0	\$0	\$0	\$0	\$15,000
23-01	New	Investigation for new groundwater sources	Conduct study and site investigation to identify groundwater sources and new well location	\$30,000	S	Res	\$0	\$0	\$0	\$30,000	\$0	\$0	\$30,000
24-01	New	Fencing for WTP, pump station and the reservoir	Install fencing for WTP, pump station and reservoir	\$15,000	S	Res	\$0	\$0	\$0	\$0	\$15,000	\$0	\$15,000
21-02	New	Detailed Hydrogeological Assessment	Conduct a detailed hydrogeological assement of the Cedar Lane water system	\$50,000	S	Grant	\$0	\$50,000	\$0	\$0	\$0	\$0	\$50,000
21-02	New	Detailed Hydrogeological Assessment	Conduct a detailed hydrogeological assement of the Cedar Lane water system	\$5,000	S	Res	\$0	\$5,000	\$0	\$0	\$0	\$0	\$5,000
			GRAND TOTAL	\$160,000			\$35,000	\$105,000	\$10,000	\$30,000	\$15,000	\$0	\$160,000

Service: 2.628

Cedar Lane Water (SSI)

Proj. No. 18-01

Capital Project Title Abandon unused wells

Capital Project Description Decommission wells

Asset Class S

Board Priority Area 0

Corporate Priority Area 0

**Project Rationale** The original system drilled five wells, and two (well #1 and #5) are in production and operate separately. Wells that are no longer in use must be closed to avoid potential future aquifer contamination. Abandoning a well must be in accordance with Groundwater Protection Regulations

Proj. No. 20-01

Capital Project Title WTP Manganese removal

Capital Project Description Review and carry out a design to address manganese removal

Asset Class S

Board Priority Area 0

Corporate Priority Area 0

**Project Rationale** Health Canada has changed manganese limits. Maximum acceptable concentration (MAC) for total manganese in drinking water is 0.12 mg/L (120 µg/L). Cedar Lane water testing results can exceed this threshold value and sometimes double.

Proj. No. 21-01

Capital Project Title Power generation equipment

Capital Project Description Back up power construction

Asset Class S

Board Priority Area 0

Corporate Priority Area 0

**Project Rationale** Back up power equipment

Proj. No. 21-02

Capital Project Title Detailed Hydrogeological Assessment

Capital Project Description Conduct a detailed hydrogeological assessment of the Cedar Lane water system

Asset Class S

Board Priority Area 0

Corporate Priority Area 0

**Project Rationale** Detailed study of groundwater source, state of the aquifer, ground water balance and potential risks and concerns are required to support a sustainable groundwater supply for the residents of the Cedar Lane Water Service Area.

Proj. No. 23-01

Capital Project Title Investigation for new groundwater sources

Capital Project Description Conduct study and site investigation to identify groundwater sources and new well location

Asset Class S

Board Priority Area 0

Corporate Priority Area 0

**Project Rationale** 0

Proj. No. 24-01

Capital Project Title Fencing for WTP, pump station and the reservoir

Capital Project Description Install fencing for WTP, pump station and reservoir

Asset Class S

Board Priority Area 0

Corporate Priority Area 0

**Project Rationale** Fencing is required to secure site and protect them from vandalism.

## 2.628 - Cedar Lane Water (SSI)

### Capital Projects Fund

Updated @ Oct 07, 2020

Year	Project#	Status	Capital Project Description	Total Project Budget	Expenditure Actuals	Remaining Funds	Funding Source		Total Funding in Place	Return Project Surplus After Completion***	
							CRF*	CWF**		CRF*	CWF**
2018	CE.642	Closed	2018 SAMP	5,000	4,601	399	-	5,000	5,000	-	399
2019	CE.699.4505	Open	Safe Work Procedures	5,000	930	4,070	5,000	-	5,000	-	-
2020	CE.735.4503	Open	Power Generation Equipment	5,000	-	5,000	5,000	-	5,000	-	-
			<b>Totals</b>	<b>15,000</b>	<b>5,531</b>	<b>9,469</b>	<b>10,000</b>	<b>5,000</b>	<b>15,000</b>	<b>-</b>	<b>399</b>

\* CRF (Capital Reserve Fund)

\*\* CWF (Community Works Fund)

\*\*\* Actual project surplus will be finalized at 2020 year end.

Service: **2.628 Cedar Lane Water (SSI)**

Committee: **Electoral Area**

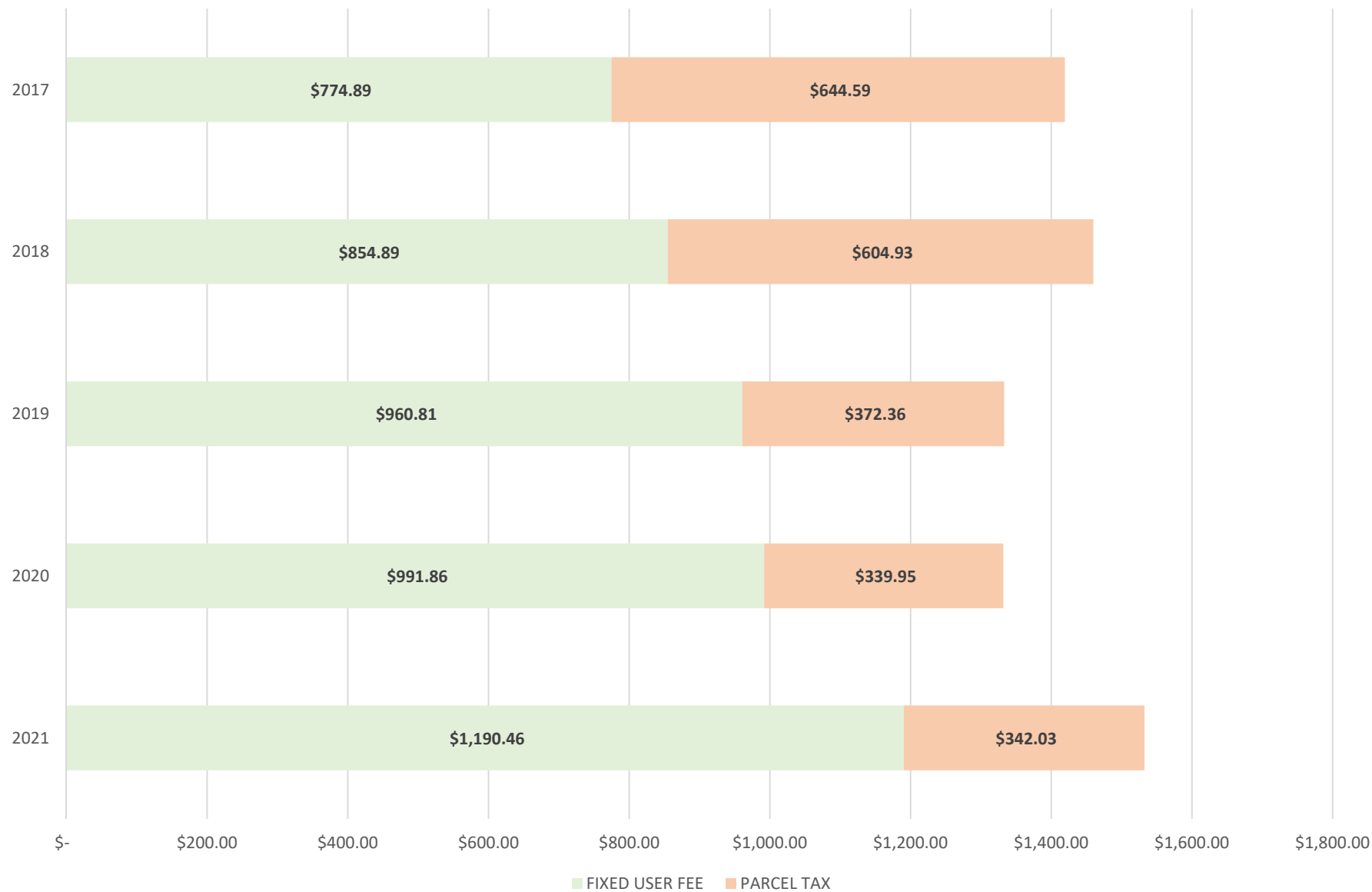
<u>Year</u>	<u>Taxable Folios</u>	<u>Parcel Tax</u>	<u>SFE's</u>	<u>User Charge*</u>	<u>Tax &amp; Charges</u>	<u>Bylaw</u>	<u>Actual Assessments \$(000's)</u>
2012	37	\$826.44	37	\$763.11	<b>\$1,589.55</b>	3822	14,605.43
2013	37	\$615.94	37	\$763.11	<b>\$1,379.05</b>	3891	13,690.33
2014	37	\$615.94	37	\$763.11	<b>\$1,379.05</b>	3891	13,719.03
2015	37	\$615.85	37	\$763.24	<b>\$1,379.09</b>	3993	13,478.10
2016	37	\$615.85	37	\$763.24	<b>\$1,379.10</b>	4073	13,824.40
2017	37	\$644.59	37	\$774.89	<b>\$1,419.48</b>	4171	15,179.00
2018	37	\$604.93	37	\$854.89	<b>\$1,459.82</b>	4236	17,881.90
2019	37	\$372.36	37	\$960.81	<b>\$1,333.17</b>	4311	21,162.91
2020	37	\$339.95	37	\$991.86	<b>\$1,331.81</b>	4339	21,130.41
2021	37	\$342.03	37	\$1,190.46	<b>\$1,532.49</b>		

**Change from 2020 to 2021**

\$2.09	\$198.59	\$200.68
0.61%	20.02%	15.07%

**\* A variable consumption charge is paid in addition to the fixed user charge.**

### Cedar Lane Water Funding Analysis 2021 - 2025







Making a difference...together

**REPORT TO CEDAR LANE WATER SERVICE COMMISSION  
MEETING OF THURSDAY, NOVEMBER 5, 2020**

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**SUBJECT WATER LICENSE APPLICATION ANNUAL VOLUME FOR CEDAR LANE  
WATER SERVICE AREA**

**ISSUE**

To seek the Commission's directions on an appropriate annual water use volume for the water license application under the *Water Sustainability Act* (WSA).

**BACKGROUND**

WSA was brought into force on February 29, 2016 by the province. One of the key changes compared with previous water legislation is the management of groundwater diversion and use. Groundwater users, except for domestic groundwater users for a private dwelling, are required to apply for a water licence for the extraction of water. As a result, the CRD applied for a licence in 2017 with the Ministry of Forest Lands Natural Resource Operations (FLNRO). The volume applied in 2017 for Cedar Lane license application was 25,000 m<sup>3</sup> per year. FLNRO has recently questioned the application volume and requested that the CRD provide the FLNRO with rationale and appropriate annual and maximum daily use volume.

The Cedar Lane water system extracts groundwater via two wells located at two separate locations; Well #1 on Mansell Road between 121 and 145 Mansell Road; and Well #5 in the south corner 235 Cedar Lane. Water production data for the last five years are provided in Table 1.

**Table 1 Cedar Lane Water Production 2015-2019**

<b>Year</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Water Production (m<sup>3</sup>/Year)</b>	3,568	3,609	3,856	3,887	3,478

Historically the combined well capacity is reported to be about 36 m<sup>3</sup>/day (13,140 m<sup>3</sup>/year) based on previous pump testing. However, recent summer operations have experienced problems when the combined yield from both wells exceeds 16 m<sup>3</sup>/day (5,840 m<sup>3</sup>/year). During summer months, Operations restrict the supply to maintain minimum levels in wells.

The annual water consumption data for Cedar Lane between 2015 and 2019 is provided in Table 2.

**Table 2 Cedar Lane Water Consumption 2015-2019**

<b>Year</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Water Production (m<sup>3</sup>/Year)</b>	3,705	3,356	3,552	3,507	3,251

Average water consumption per capita data from various sources are summarized in Table 3. As shown in the Table 3, the Cedar Lane Water Service community is aware of the delicate nature of the water supply and has consciously been practicing water conservation which is apparent from the water usage volumes derived from the water billing data. Cedar Lane's water consumption rate is significantly lower than BC's average of 291 l/day from Statistics Canada as well as Master Municipal Construction Documents (MMCD) guideline's Average Water Daily Demand of 300 l/day that is used for designing water systems.

**Table 3 Average Residential Water Use Information**

Source of Information	Statistics Canada Data for BC <sup>1</sup>	CRD Water Specification	Cedar Lane Water Consumption Data	2019 Golder Report <sup>2</sup>	MMCD 2016
Average Water Use per Capita (l/day)	291	545	90	126	300
Average Water Use per Capita (m <sup>3</sup> /year)	106	199	33	46	110
Total Water Use for Cedar Lane <sup>3</sup> (m <sup>3</sup> /year)	15,295	28,645	4,730	6,623	15,768
Maximum Day Demand <sup>4</sup> (m <sup>3</sup> /day)	84	157	26	36	86

1. Table: 38-10-0271-01, data from 2011 to 2017

2. Aquifer Mapping and Monthly Groundwater Budget Analysis for Salt Spring Island, 2019, prepared by Golder Associates;

3. Assume 45 connections and 3.2 persons per connection.

4. Peaking factor of 2 is used as per discussion with FLNRO in September 2020.

The CRD submitted an application to FLNRO for the Cedar Lane Water Services in 2017. The annual volume being applied for under the license application is 25,000 m<sup>3</sup> per year. This application volume is more than 60% higher than the BC average daily water use rate or the MMCD guideline values for design purposes and almost 500% of the average water consumption rate based on billing data of the Cedar Lane Water Services.

Upon review of water use data from design guidelines, Statistics Canada, research reports and actual billing information, it is believed that an annual volume of 7,000 m<sup>3</sup> per year will meet current operational needs for the Cedar Lane Water Service at current level of service with sufficient buffer (an annual volume of 7,000 m<sup>3</sup> is 201% higher than annual average consumption volume for the service from 2015-2019). It should however be noted that current low consumption rate of the service is a result of extreme water conservation measures that are taken by the community as they are aware of the challenges associated with water supply from existing wells. The current service also does not meet fire flow and storage requirements of the MMCD and Fire Underwriters Survey (FUS).

The Cedar Lane Water Service Area is comprised of 37 parcels of land of which all parcels are presently connected to the system. 2020 Asset Management Plan concludes that "While population on Salt Spring is anticipated to grow by approximately 2.5% per year, it is also predicted that water consumption per person will continue to decrease. Currently 100% of the properties in the water district are serviced. Unless the boundaries of the water district are

expanded or significant subdivision occurs within the district boundaries, we would anticipate that future demand will remain at current levels or perhaps decrease slightly.”

CRD staff had discussed current zoning and subdivision/expansion possibilities with the Island Trust. Currently 36 out of the 37 lands are Rural (R) zoned and none of the R zoned lots are of sufficient size to be subdivided. Therefore there will be limited or no subdivisions for the Cedar Lane service area. However, there's one lot (135 Kangro Road, 0.81 ha) that is zoned as R1 and could allow a multi-family residential unit of up to 29 units. In order for such development to be permitted, the application will need to demonstrate that community water and sewer services can be provided and all other subdivision requirements of the Salt Spring Island Land Use Bylaw can be met. Currently there's no community sewer service for the area. Significant investment will likely be required to meet waste water treatment and water supply requirements in order for a 135 Kangro Road multi-unit development to proceed, which may discourage such investment to happen.

CRD staff also consulted FLNRO on the Cedar Lane existing water license application. Originally the CRD proposed to FLNRO and wish to apply for up to 15000 m<sup>3</sup> annually for the service which is based on average consumption rate of Canada. However the Ministry believes this volume (approximately four times the average annual volume for Cedar Lane between 2015 and 2019) is excessive and considers an annual volume of 7,000 m<sup>3</sup> more reasonable and acceptable. They suggested that should any future major infrastructure expansion, replacement, or growth beyond 7,000 m<sup>3</sup>/year happen, it will need to be assessed as part of a separate new groundwater license application.

## **ALTERNATIVES**

### **Alternative 1**

That the Cedar Lane Water Service Commission directs staff to apply for a water license using an annual volume of 7,000 m<sup>3</sup> and a daily maximum volume of 38 m<sup>3</sup>.

### **Alternative 3**

That the Cedar Lane Water Service Commission recommends the request be referred back to staff.

## **IMPLICATIONS**

### **Service Delivery Implications**

An annual volume of 7,000 m<sup>3</sup> is approximately 201% more than the average annual water consumption volume for the Cedar Lane service. It will meet current level of service requirements for the service and likely sufficient to accommodate future growth (theoretically double the current amount of connections, to a total of 74 connections).

The current service does not meet fire flow and storage requirements of the MMCD and Fire Underwriters Survey (FUS). Should the current infrastructure (e.g., well or water main) need to be relocated or replaced in the future, it is desirable that the level of service for the renewed infrastructure meet design guideline requirements such as MMCD in terms of average daily demand (currently at 300 l/day) and fire flow. It is likely additional water license volume will need to be applied for, should such upgrade/replacement need to be installed for the service.

The Asset Management Plan completed in 2020 identify water supply as a critical issue for the Cedar Lane Water Service and recommended a new well be located and constructed within five years. The CRD has included a study to identify a new well for the service in the five year capital plan. An annual water license of 7,000 m<sup>3</sup> is expected to be sufficient for the new installation assuming water conservation measures will continue and consumption per capita for the service will not increase significantly.

### **CONCLUSION**

The CRD is required to apply a water license for the Cedar Lane Water Service under the new *Water Sustainability Act*. . An annual volume of 7,000 m<sup>3</sup> is proposed to be applied for which is approximately 201% of the current average annual water consumption volume of the Cedar Lane service. This annual volume will meet current water consumption requirements for the service and likely sufficient to accommodate future growth.

### **RECOMMENDATION**

That the Cedar Lane Water Service Commission directs staff to apply for a water license using an annual volume of 7,000 m<sup>3</sup> and a daily maximum volume of 38 m<sup>3</sup>.

Submitted by	Allen Xu, MSc., P.Eng, Manager of Engineering, Salt Spring Island Electoral Area
Submitted by	Karla Campbell, BBA, Senior Manager, Salt Spring Island Electoral Area
Concurrence	Matthew McCrank, MSc., P.Eng, Senior Manager, Infrastructure Operations
Concurrence	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services

AX:ax

**TO:** Cedar Lane Water Local Area Service

**FROM:** Karla Campbell, Senior Manager, Salt Spring Island Electoral Area

**DATE:** November 5, 2020

**SUBJECT: Cedar Lane Asset Management Plans**

---

**BACKGROUND:**

In 2019 the CRD engaged McElhanney Consulting Services to develop an Asset Management Plan (AMP) for each of the CRD water services on Salt Spring Island. The purpose of the AMP is to ensure that we are being sustainable in our delivery of our service and with that, the CRD has changed the name of the plan to Sustainable Service Delivery Plan (SSDP). An SSDP is essentially a plan to understand the demands of our community, the level of service that is being provided to serve that demand, risk, workforce and management of the asset's current and future lifecycle needs. It guides prioritization of future capital improvements and/or replacement through informed decision making and provides the basis to create a financial strategy for maintaining required and desired level of services. An SSDP ensures that sufficient resources are in place when needed to address the full lifecycle costs of owning tangible capital assets (assets) that are needed for delivering services. An asset is a physical component that has value, enables services to be provided, and has an economic life greater than 12 months.

The SSDP helps put some rigour and structure around the information used to make strategic decisions; and to ensure that the level of service being provided is sustainable and the assets will continue to work well, with no surprises, and provide our citizens with services by providing the following information:

- What are the demands and what is the level of service (current and desired) that is being provided?
- What performance level that each asset need to provide to provide the agreed upon level of service to the community?
- What we own, where it is, and what condition is it in?
- What is the asset's remaining useful life or service life?
- Which assets are the most critical, and what is the level of risk to their function and sustainability?
- What do we need to do to sustain the services provided by each asset? When do we need to do it by? What will it cost?

SSDP is a process used in decision making. It helps the CRD sustain the services that is delivered to the community and essential care for the infrastructure in way that considers service needs of the community; manages risks and opportunities; and uses resources wisely. In effect it is way to ensure safe and sustainable services delivered in a predictable, and cost-effective manner.

## KEY FINDINGS:

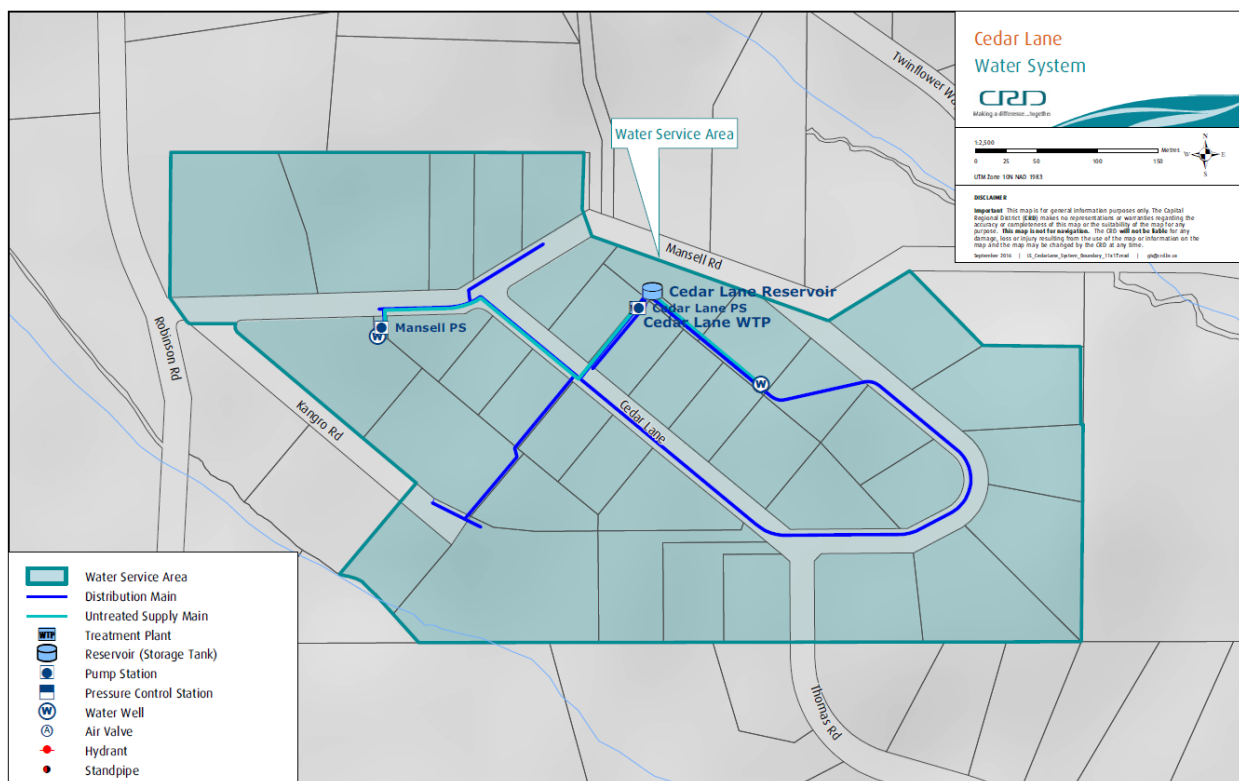
- Total estimated capital infrastructure replacement is \$212,240
- Roughly 24% (\$50,740) of the Cedar Lane assets are overdue for renewal; a further 57% (\$121,500) in 1 – 5 years; and 19% (\$40,000) in 6 plus years.
- Financial planning work is required to address the asset investment while still maintaining sustainable services.
- Recommend resources be attached to improved data and records management to ensure accuracy, and create adequate system maps, working drawings, and system documentation.

Attachment(s): Cedar Lane Water System Asset Management Plan

KC/AX:kc

CRD Salt Spring Island Electoral Area

# Cedar Lane Water System Asset Management Plan



Prepared By:  
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**April 2020**

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REVISION No.	REVISION DESCRIPTION	DATE

## ACKNOWLEDGEMENT

McElhanney would like to acknowledge and express their appreciation to the CRD and North Salt Spring Waterworks District (NSSWD) staff during this assignment. A team effort was required to develop this Asset Management Plan; and it could not have been completed without the invaluable assistance provided by the following key individuals.

- Luke Sturdy, CRD Operations and Maintenance Operator
- Grant Tamboline, Waterworks Supervisor, North Salt Spring Waterworks District



## EXECUTIVE SUMMARY

McElhanney Consulting Services Ltd. (McElhanney) has been retained by the Capital Regional District (CRD) – *Salt Spring Island Electoral Area* to provide an updated asset management plan for the Cedar Lane Water System. The asset management plan is intended to help the CRD optimize allocation of resources, support long term financial plans to fund infrastructure renewal / replacement as required, and further understand associated risks to help ensure that the Cedar Lane Water System meets acceptable levels of service and regulatory requirements.

The asset management plan was developed through review of available system background information, site inspection of each asset, a system capacity assessment for current and future demands; and incorporation of CRD staff comments and concerns.

Based on the data gathered assembling the asset management plan, prioritized capital project recommendations to benefit the Cedar Lane water system have been provided along with recommended timelines for implementation and cost estimates for planning purposes.

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**Appendix A – Cedar Lane Water System Boundary Map**

**Appendix B – Cedar Lane Water System Background Information List**

**Appendix C – Cedar Lane Asset Condition Assessment Table**

**Appendix D – Cedar Lane Asset Photo Observation Sheets**

**Appendix E – Cedar Lane Water System Recommended Capital Projects Table**

# 1. BACKGROUND

## 1.1. INTRODUCTION

---

McElhanney Consulting Services Ltd. (McElhanney) has been retained by the Capital Regional District (CRD) – Salt Spring Island Electoral Area to provide an updated Asset Management Plan (AMP) for the Cedar Lane Water System. The goals of the Cedar Lane Water System AMP are to help the CRD optimize allocation of resources, support the CRD's long term financial plan to fund infrastructure renewal / replacement as required, and further understand associated risks to help ensure that the Cedar Lane Water System meets acceptable levels of service and regulatory requirements.

McElhanney developed the AMP by reviewing available background information, conducting a site inspection of each asset generating a condition assessment; assessed system capacity for current and anticipated future population; and established prioritized recommendations with related cost estimates based on the study findings.

## 1.2. SYSTEM SUMMARY

---

The Cedar Lane Water System is a rural residential development near the northeast side of Salt Spring Island. The Cedar Lane Water system area is near the intersection of Mansell and Robinson Roads. Cedar lane is at an elevation of approximately 50 m above sea level with the topography of the water service area ranging between 40 m and 60 m. The area is comprised of 37 parcels of land of which all parcels are presently connected to the system. See the *Cedar Lane Water System Boundary System Map* in **Appendix A**.

The Cedar Lane Water System is primarily comprised of the following assets:

### CEDAR LANE WATER TREATMENT PLANT, RESERVOIR & PUMP STATION

Water is pumped from the Mansell Wells #1 and #5 to the water treatment plant with a treatment process consisting of cartridge filtration, ultraviolet disinfection, and chlorination secondary disinfection. The water is then pumped to the Cedar Lane Reservoir. The Cedar Lane Reservoir has a capacity of 136 m<sup>3</sup> (30,000 IG), which is adjacent to the water treatment plant.

### CEDAR LANE DISTRIBUTION SYSTEM

Approximately 1.2 km of water distribution pipe with the vast majority being asbestos cement pipe was installed between 1970 and 1973. The distribution also includes fire hydrants, standpipes, gate valves; and water service connections complete with water meters.

### MANSELL PUMP STATION AND WELL #1

The Mansell pump station sends water from the Mansell Well #1 to the water treatment plant. Groundwater from the well is pre-treated with cartridge filtration, then mixed with water from Mansell Well #5 at the Cedar Lane water treatment plant. Mansell Well #1 is part of the Mansell Pump Station asset.

### MANSELL WELL #5

Water is pump from Mansell Well #5 directly to the Cedar Lane water treatment plant where it is mixed with water from Mansell Well #1 and then the well water co-treated.

### 1.3. LEVEL OF SERVICE

---

The level-of-service that a water system should provide can be broken down into a few key areas as follows:

- Regulatory Compliance;
- Capacity of the System (existing and future); and,
- Customer Expectations / Risk tolerance.

The regulatory compliance level-of-service is mandatory and must be achieved to meet minimum public health and safety standards for safe drinking water and safe operation of the system. Regulatory compliance regulations, guidelines and standards for the Cedar Lane Water System are listed in **Section 1.5** for reference.

The capacity of the system relates to the supply, production and delivery of the drinking water to the service area. There are a number of factors that can influence the level-of-service including, how much water people consume, age of the system (reduced efficiency), growth of the service area, climate change, etc. Capacity for the Cedar Lane Water System is discussed in **Section 2.2**.

Customer expectation and risk tolerance is related to how well customers expect the system to perform over the long-term. This can include improved water quality requirements, water storage volumes (for domestic use and fire protection), system conveyance and pressures, system reliability and fire protection (flow, capacity, hydrants, etc.). Risk tolerance also relates to how much preventative maintenance should be performed on the system, when assets should be upgraded or replaced, system redundancy, and seismic resiliency.

The CRD has defined customer expectation and risk tolerance for the Cedar Lane Water System as follows:

- Water quality meets regulatory compliance and safe water drinking guidelines;
- Fire flows/capacities are not supported; however, some hydrants are present;
- Storage capacity is adequate for existing usage, however, does not meet requirements for peak demand, or fire flows;
- Flushing of watermain occurs once per year for maintenance of the system, including exercising valves and hydrants;
- Pipe sizing is adequate for existing usage, but does not meet minimum requires as per Fire Underwriters Society;
- There is no system wide leak detection program;
- There is no back up power at critical infrastructure;
- There is no minimum requirement for pressure or flow for individual services; and,
- Maintenance program is a combination of preventative and reactive (discussed in more detail below), with the goal leaning more towards cost savings, rather than system resiliency.

## 1.4. 2011 CEDAR LANE WATER SYSTEM ASSET MANAGEMENT PLAN

The Cedar Lane Water System was first developed in 1970. The CRD undertook a feasibility study in 2000 towards ownership of the system and then established the 'CRD Cedar Lane Water Service' in 2007.

In 2011, the CRD developed a Cedar Lane Water System AMP to re-evaluate the system and recommend improvements. The following table summarizes the 2011 Cedar Lane Water System AMP recommendations, confirms if the recommendations are currently still valid and if they have been addressed.

**TABLE 1 2011 CEDAR LANE WATER SYSTEM AMP EVALUATION AND IMPROVEMENTS SUMMARY**

Item #	Category	Asset Name	2011 AMP Evaluation / Recommendation	Still Valid ?	Addressed as of 2018 ?
1	Water Source	PST MANSELL	"In general, the water source is slightly undersized to meet the current maximum day water demands based on recent metering of consumption and production rates."	YES	NO
2	Water Source	PST MANSELL	"The report suggested groundwater sources would more likely be found within the GSC fault zone near North End Road and Stark Road and if Cedar Land wanted to remain on groundwater, then undertake a reconnaissance mapping program along the Bullock Lake valley."	YES	NO
3	General	WTP CEDAR LANE	"The existing system is over 40 years old, with much of the infrastructure showing its age. The 2010 Annual Water Quality Report for the Cedar Lane Water system indicates that the system continues to produce safe drinking water. However, the water quality does approach and sometime exceeds the aesthetic limits for manganese."	YES	NO
4	Disinfection and Treatment	WTP CEDAR LANE	"Both production wells used for the Cedar Lane water system receive filtration, chlorine and UV disinfection. The disinfection and treatment systems were installed in 2009. These systems are in good condition and no upgrades are required for the current sources. However, additional treatment is recommended to reduce the	YES	YES (WTP was upgraded in 2013)

Item #	Category	Asset Name	2011 AMP Evaluation / Recommendation	Still Valid ?	Addressed as of 2018 ?
			manganese to improve the aesthetics of the water.”		
5	Storage	WTP CEDAR LANE	“The existing storage capacity of 136 m <sup>3</sup> with the new steel tanks is sufficient for the Cedar Lane water service area using CRD design criteria. The storage has enough capacity to provide fire protection for the community if the downstream distribution system had the capacity to convey the fire flow volume, hydropneumatic system could not provide fire flow and the reservoir could not provide enough pressure. There are issues with manganese precipitating out into the system, including the reservoir, which needs to be removed.”	YES	NO (Storage capacity is considered to be adequate provided fire flows are not required)
6	Distribution System	DISTRIBUTION CEDAR LANE	“The existing distribution system currently meets the domestic needs of the community and does not have significant leakage. The water system is not designed to provide fire protection. The mains are asbestos cement and PVC and reported to have been constructed in the early 1970s, making them almost 40 years old.”	YES	NO (distribution capacity is considered to be adequate provided fire flows are not required)
7	Distribution System	DISTRIBUTION CEDAR LANE	“Replacement of the distribution system may be necessary over the next 15 to 20 years if leakage and main breaks begin to increase. Destructive testing of a sample may provide insight into the condition of the pipe and how long it may last. The system contains a few dead-end mains that should be flushed during the summer months to ensure chlorine residual and water quality are maintained.”	YES	NO See recommendations
8	Distribution System	DISTRIBUTION CEDAR LANE	“The other distribution components as listed in <b>Section 2.5</b> will be replaced as part of a main replacement program. Many of these components are as old as the mains. The valves need to show on a map and valves in operations should be exercised regularly. The	YES	NO

Item #	Category	Asset Name	2011 AMP Evaluation / Recommendation	Still Valid ?	Addressed as of 2018 ?
			valves that do not work should be identified and only replaced if they are critical to the operation of the distribution system."		
9	Distribution System	DISTRIBUTION CEDAR LANE	"The watermains would need to be upgraded to a minimum 150 mm in order to provide fire protection."	YES	NO See recommendations

Further discussion on the "Still Valid" 2011 AMP system evaluation and recommendations that have not been addressed as of 2018 are covered in **Section 3**.

## 1.5. REGULATORY COMPLIANCE

The operation and maintenance of a water utility should be compliant with Provincial and Federal legislation, regulations, guidelines and standards as listed below, but not limited to:

- Guidelines for Canadian Drinking Water Quality, Health Canada
- Drinking Water Protection Act and Regulations, British Columbia
- British Columbia Water Sustainability Act and Groundwater Protection Regulation
- Island Health Authority
- Worksafe BC

## 1.6. MAINTENANCE PROGRAM

The Cedar Lane Water System currently relies on a combination of preventative maintenance for larger serviceable items and reactive maintenance for smaller non-serviceable items, but not limited to:

- Currently using Preventative Maintenance Practices, with maintenance activities (PM's) scheduled in the Strategic Asset Plan (SAP);
- Smaller replaceable assets rely on reactive maintenance (fix it when it breaks), which is common industry practice;
- A shift to more predictive maintenance practices for critical assets may provide a more reliable system; however, this practice would increase costs, and may not be deemed necessary for a system of this size;
- Currently, some spare parts are not stored on Salt Spring Island and are kept in a pool of spare parts to be shared with other services within the CRD in an effort to reduce costs. Maintaining an inventory of critical spare parts on-hand may provide a more reliable system; however, maintaining such inventory would increase costs; and,
- The lifecycle plan for major assets (i.e. water treatment plant, reservoir, pump stations, etc.) will be to maintain and operate until it becomes cost-prohibited to do so. This lifecycle point will be anticipated through maintenance reviews and updated AMPs, at which time options for replacement/upgrade will be evaluated.

## 2. SYSTEM FINDINGS

### 2.1. ASSET ASSESSMENTS

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McElhanney undertook an investigation which included review of available CRD system information and conducted site condition assessments for each asset with CRD staff.

#### 2.1.1. SYSTEM BACKGROUND INFORMATION REVIEW

McElhanney reviewed Cedar Lane Water System information made available by the CRD which primarily consisted of the documents listed in **Appendix B**. Relevant information was used to further understand the system and confirm asset components.

#### 2.1.2. CONDITION ASSESSMENTS

Site assessments were completed to determine asset physical condition, establish criticality, and estimated remaining service life. The five (5) system assets have been defined as follows:

- **CEDAR LANE WTP** - The water treatment plant, reservoir, and pump station are located on 123 Cedar Lane.
- **CEDAR LANE DISTRIBUTION** - Approximately 1.2 km of water distribution pipe and appurtenances located throughout the water system area.
- **PST MANSELL** - Pump station and Well #1 are located at 123 Mansell Road.
- **WELL MANSELL #5** - Well #5 and pump station are located at 235 Cedar Lane.

The site assessments occurred over a two-day period on September 13<sup>th</sup> & 14<sup>th</sup> 2018. CRD staff attended the reviews to provide site access and offer relevant background information. CRD Operations staff input on the assessments is covered in Section **2.1.7**.

Assets were assessed primarily focusing on mechanical, civil, health & safety, electrical, and structural aspects. Assessments were based on the following criteria:

#### 2.1.3. ASSET PHYSICAL CONDITION GRADING SYSTEM

Asset physical conditions were graded based on the level of maintenance now required and on expected renewal / rehabilitation requirements:

1. **Very Good** – Asset is physically sound, performing its function as originally intended. Generally new or recently rehabilitated. Only planned maintenance required.
2. **Good** – Asset is physically sound, performing its function as originally intended. Required maintenance costs as within acceptable standards but increasing. Asset has been used for some time but is within mid stage of expected life.
3. **Fair** – Asset is showing signs of deterioration, performing at a lower level than originally intended. Some components are becoming physically deficient. Required maintenance costs exceed acceptable standards and increasing. Asset within the later stages of expected life.
4. **Poor** – Asset is showing significant signs of deterioration, performance is much lower than originally intended. Majority of asset is physically deficient. Required maintenance costs significantly exceed acceptable standards. Asset is approaching end of expected life.



5. **Very Poor** – Asset is physically unsound and/or not performing as originally intended. Asset has higher probability of failure or failure is imminent. Maintenance costs are unacceptable. Replacement / major refurbishment required.

#### 2.1.4. ASSET CRITICALITY GRADING SYSTEM

Asset criticality grades were established focusing on system interruption risk and health and safety issues. The grades are based on the following criteria:

1. **Non-Critical Asset** – Failure would not result in an immediate problem.
2. **Asset Standby Equipment Available** – Asset failure would result in replacement/repairs which could be completed relatively quickly.
3. **No Asset Equipment Redundancy** – Asset failure could result in moderately prolonged service interruption. Asset standby equipment not readily available.
4. **No Equipment Redundancy & Failure of equipment not monitored by alarm** - Asset failure could cause prolonged system interruption. Significant time and cost to get system back online.
5. **No Equipment Redundancy & Failure of equipment not monitored by alarm and/or immediate Health & Safety Concerns** - Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online. Asset essential to health and safety requirements.

#### 2.1.5. ASSET DATA CONFIDENCE GRADING SYSTEM

Assets were graded based on available data and records including but not limited to; documented procedures, investigations, analyses, reports, and drawings. Data confidence grades are based on the following criteria:

- A. **Highly Reliable** - Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete. Accuracy estimated +/- 2%.
- B. **Reliable** - Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, i.e. some data is old, missing, and / or extrapolated. Dataset is complete. Accuracy estimated +/- 10%.
- C. **Uncertain** - Data is based on sound records, procedures, investigations and analysis which is incomplete, unsupported, and/or extrapolated. Dataset is substantially complete but up to 50% is extrapolated. Accuracy estimated +/- 25%.
- D. **Very Uncertain** - Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most of the data is estimated or extrapolated. Accuracy estimated +/- 40%.
- E. **Unknown** - Very little or no data available.

### 2.1.6. ASSET SYSTEM CAPACITY GRADING SYSTEM

A capacity analysis was conducted for existing and future system requirements based on anticipated growth projections. The asset capacity analysis findings are discussed further in **Section 2.2**. Assets were graded based on capacity to meet current and long-term demands. Capacity Grades are based on the following criteria:

- A. **Excellent** - The asset has the capacity to meet long-term demand up to 10 years.
- B. **Good** - The asset has the capacity to meet medium-term demand up to 5 years.
- C. **Moderate** - The asset has the capacity to meet short-term growth demands.
- D. **Borderline** - The asset has the capacity to meet short-term growth demands but experiences some shortfalls.
- F. **Fail** - The asset capacity is not meeting its current demand and experiencing frequent shortfalls.

### 2.1.7. ASSET SERVICE LIFE

Estimated remaining service life of each asset and/or essential components were taken into consideration for the condition assessment with known installation dates.

Asset assessment data have been compiled into the *Asset Condition Assessment Table* found in **Appendix C**. The tables summarize the assessment findings and are grouped into mechanical, civil, health and safety, electrical, and structural components. The table provides additional information such as asset equipment description, general comments, location, gradings, service life, recommendations related to asset capital projects for improvements / upgrades, along with estimated costs. Capital project recommendations and cost estimates are discussed further in **Section 3**. *Photo Observation Sheets* found in **Appendix D** provide additional photographic details of select assets.

### 2.1.8. CRD AND NSSWD INPUT

CRD and NSSWD operator comments and concerns were collected and incorporated into the AMP recommendations. Comments and concerns received for the Cedar Lane Water System are listed below:

- “Need spare pressure pump and sub-drive unit.”
- “Need to decommission two (2) out-of-service fire hydrants.”
- “The reservoir needs to be cleaned and inspected, as this has never been done before.”
- “Need filtration for manganese issues.”

## 2.2. SYSTEM CAPACITY ANALYSIS

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### Existing and Future Demand

The Cedar Lane water service area is comprised of 37 properties of which all 37 properties are connected to the system. Between 2014 and 2017, total water produced has varied between 3,356 m<sup>3</sup>/year and 3,865 m<sup>3</sup>/year. Water consumption by users has also varied over the same four years from 3,609 m<sup>3</sup>/year to 3,705 m<sup>3</sup>/year.

The measured Maximum Day Demand in 2011 was 17.4 m<sup>3</sup>/day or 470 l/day per service connection. This is significantly lower than the CRD design criteria for Maximum Day Demand of 2,680 l/day per service connection. This is likely due the residence knowledge that the wells have a limited capacity

While population on Salt Spring is anticipated to grow by approximately 2.5% per year, it is also predicted that water consumption per person will continue to decrease. Currently 100% of the properties in the water district are serviced. Unless the boundaries of the water district are expanded or significant subdivision occurs within the district boundaries, we would anticipate that future demand will remain at current levels or perhaps decrease slightly.

## Water Supply

The Cedar Lane water system extracts groundwater via two wells located at two separate locations; Well #1 on Mansell Road between 121 and 145 Mansell Road; and Well #5 in the south corner 235 Cedar Lane. The peak volume of water withdrawn from both wells, between 2013 and 2017, was 4,106 m<sup>3</sup>.

The combined well capacity is reported to be about 36 m<sup>3</sup>/day (8,000 igpd) based on previous pump testing. However, past summer operations have experienced problems when the combined yield from both wells exceeds 16 m<sup>3</sup>/day (3,500 igpd).

## Water Treatment Plant & Pump Station

The rated design flow for the water treatment plant is 0.67 m<sup>3</sup>/hour or 16 m<sup>3</sup>/day. The water treatment system has been designed to treat the raw water at the flow rate provided by the wells. The water treatment system has adequate capacity for the existing flow. If an additional well is added to the system or higher flow pumps installed in the existing wells, then the ability of the system to treat the higher flows would need to be reviewed.

## Water Storage

The system has a 136.2 m<sup>3</sup> (30,000 igal) steel-bolted reservoir tank located on 123 Cedar Lane. The storage tank was installed in 2010 and is located at an approximate elevation of 60 m. The water service area has a single pressure zone, fed with a booster pump and hydro-pneumatic tanks.

Water reservoir capacity is comprised of three components: balancing storage, fire storage and emergency storage. Balancing storage should be a minimum of 25% of maximum day demand. Fire storage is dependent on the properties being protected, but for rural residential should be a minimum of 60 l/s for 1.5 hours or a total of 324 m<sup>3</sup>. Emergency storage is 25% of the balancing + fire storage.

Balancing storage requirements for the reservoir is 4.4 m<sup>3</sup> and fire storage 324 m<sup>3</sup>. Emergency storage is 82 m<sup>3</sup>. Making the total storage required 410.4 m<sup>3</sup>. The reservoir has adequate storage for domestic requirement but is inadequate for fire protection.

## Water Distribution

The water distribution system consists of 1.3 km of distribution main. Most of the mains are 100 mm asbestos cement pipe. Approximately 500 m are 150 mm asbestos cement pipe and 465 m are 50 mm PVC. The system is very linear with only relatively short branches off the main.

The 100 mm mains do not meet design guidelines and are under size for fire flow as the friction head loss at fire flow would be excessive. At domestic flow rates, the friction head loss is lower and provides adequate flow and pressure.

## Summary

As it is anticipated that future demand will remain at current levels or perhaps decrease slightly, future system capacity analyses were not evaluated. The following table provides a brief summary of the system capacity findings based on fire flow requirements not being required.

**TABLE 2 CEDAR LANE WATER SYSTEM CAPACITY ANALYSIS SUMMARY TABLE**

Asset Name	System Components	System Capacity	System Capacity Grades (Defined in Section 2.1.6)
WTP CEDAR LANE	Water Supply From Mansell Wells #1 and #5	16 m <sup>3</sup> /day combined well capacity over dry summer	C
WTP CEDAR LANE	Water Treatment Plant and Pump Station	16 m <sup>3</sup> /day	A
WTP CEDAR LANE	Water Storage	136 m <sup>3</sup>	C
WTP CEDAR LANE & WELL MANSELL #5	Well abstraction From Mansell Wells #1 and #5	16 m <sup>3</sup> /day combined well capacity over dry summer	C
DISTRIBUTION CEDAR LANE	Water Distribution	Measured MDD in 2011 was 17.4 m <sup>3</sup> /day or 470 L/day per service connection	C

### Evaluation Design Criteria

The system capacity analysis referenced the following list of design criteria and guidelines:

- Design Guidelines for Rural Residential Community Water System, BC
- CRD Juan de Fuca Water Distribution Engineering Specifications
- Master Municipal Construction Document Design (MMCD) Guidelines
- Fire Underwriters Survey (FUS) – Water Supply for Public Fire Protection
- American Water Works Association (AWWA) Standards
- Recommended Standards for Water Works, Health Research Inc.

# 3. RECOMMENDATIONS

Prioritized capital project recommendations with recommended timelines and estimated costs have been developed for the Cedar Lane Water System to support the CRD’s asset management goals. The recommendations along with supporting data have been detailed in the *Cedar Lane Water System Recommended Capital Projects Table* in **Appendix E**. Itemized recommendations are referenced to the *Condition Assessment Table* in **Appendix D** for further information and have been sorted by timeline prioritization. Prioritization, cost estimates, and evaluation source are further described below.

## 3.1. GOVERNING PRINCIPLES

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The capital project recommendations are prioritized based on the Cedar Lane Water System asset management plan governing principles which have been developed to align with the CRD’s water system level of service and asset management strategic goals. The governing principles, along with recommended timeline for project completion have been defined as follows:

- 1. Mandated Projects (IMMEDIATE: to be completed immediately to within one (1) year)**  
These are projects that are mandated by senior level of government. Projects required to adhere to regulatory compliance is an example of this.
- 2. Health and Safety Issues (IMMEDIATE: to be completed immediately to within one (1) year)**  
These are projects, that if not completed, could impact health, safety and property.
- 3. Community Priority (SHORT TERM: to be completed within one to five years)**  
These are projects that have been identified as a higher priority to benefit the community.
- 4. Operating Efficiencies / Costs (SHORT TERM: to be completed within one to five years)**  
These are projects that are intended to help reduce higher than usual operations and maintenance costs, and / or improve system functionality
- 5. Economic Support (LONG TERM: to be completed after six (6) plus years)**  
These are projects that are not immediately necessary but may be provided through community funding and grants.
- 6. Sustainability (LONG TERM: to be completed after six (6) plus years)**  
These are projects related to asset life cycle planning. All systems deteriorate over time; as such they will require maintenance and replacement.

## 3.2. COST ESTIMATES

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Estimated costs have been provided as an order of magnitude approximation for planning purposes. There are several limitations with preliminary budgetary estimates due to many variables and unknowns for work without detailed cost estimations, and assembling quotes, especially where the work may take place many years from now. CRD costs such as procurement, staff time, contingencies and additional operations and maintenance should be considered along with a detailed evaluation of any design, permitting, and construction costs. Timing and extent of asset upgrades and/or replacements is highly dependent on how well existing equipment is maintained in the interim and the owner following regularly scheduled AMP reassessments which are recommended to be completed every 5 years. For the Purposes of this exercise, cost estimates are generally intended to only include, engineering / design / planning, equipment procurement, and construction with a relatively small contingency (approx. 10%).

### 3.3. EVALUATION SOURCE

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The evaluation source for each asset capital project recommendation are listed in the *Cedar Lane Water System Recommended Capital Projects Table*. Each of the evaluation sources listed below have been detailed throughout this report:

- Asset condition assessment;
- Review of current and future asset capacity requirements;
- Review of previous system AMP recommendations and current status; and,
- Incorporation of system comments and concerns from CRD staff.

## 4. FINANCIAL PLANNING

It was identified at the outset of this AMP that there were insufficient funds available to complete Financial Planning for implementation of the AMP recommendations. As such, Financial Planning will be completed by the Manager of Engineering, Salt Spring Island Electoral Area, in cooperation with CRD's Operations and Financial departments.

## 5. IMPROVEMENT PLAN

To help ensure future asset management plans and re-assessments on the CRD Salt Spring Island Electoral Area's water systems are executed effectively and efficiently, the following suggestions are provided for consideration:

- Provide additional details in future asset management plan request-for-proposals on service delivery expectations, report formatting, additional system background information, and avoid setting limitations on man-hours.
- Provide CRD staff NAMS training if the CRD wish to utilize this asset management system moving forward.
- Provide more time and opportunity for Operations staff to communicate issues, concerns, histories, and system details during asset management plan updates.
- Allocate additional time and resources to CRD staff to assemble, update, and keep track of all documentation relating the water system which could assist in future asset management planning exercises.
- Provide resources for more detailed Condition Assessments of critical equipment including, but not limited to, take-down, asset inspections, and non-destructive testing.
- Provide resources to provide more thorough review maintenance records.
- Provide resources to complete financial planning for recommended works; and,
- Provide resources to update / create adequate system maps, working drawings, and record documentation.



## 6. CLOSURE

We thank you for the opportunity to work on advancing the CRD Salt Spring Island Electoral Area's asset management planning and strategy for the Cedar Lane Water System and sincerely look forward to working with you in the near future

This report has been prepared by **McELHANNEY CONSULTING SERVICES LTD.**

Prepared by:

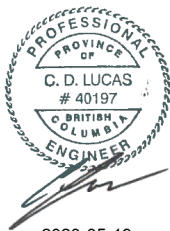


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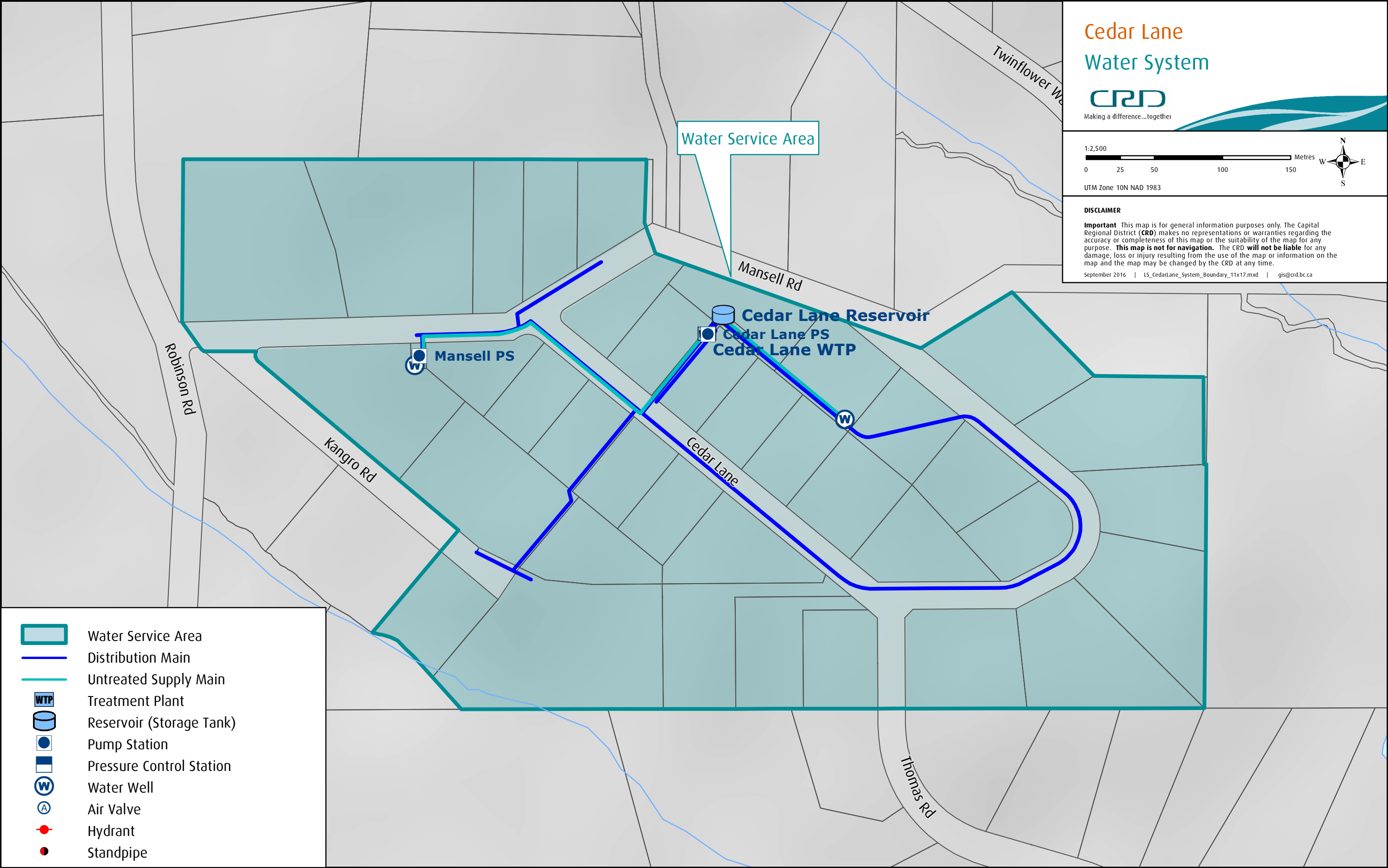


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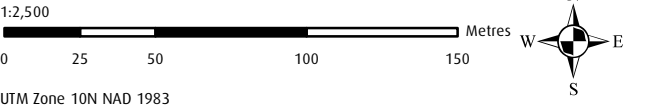


# APPENDIX A

## CEDAR LANE WATER SYSTEM BOUNDARY MAP



Cedar Lane  
Water System



**DISCLAIMER**  
**Important** This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of this map or the suitability of the map for any purpose. **This map is not for navigation.** The CRD **will not be liable** for any damage, loss or injury resulting from the use of the map or information on the map and the map may be changed by the CRD at any time.  
September 2016 | LS\_CedarLane\_System\_Boundary\_11x17.mxd | gis@crd.bc.ca

- Water Service Area
- Distribution Main
- Untreated Supply Main
- Treatment Plant
- Reservoir (Storage Tank)
- Pump Station
- Pressure Control Station
- Water Well
- Air Valve
- Hydrant
- Standpipe

# APPENDIX B

## CEDAR LANE WATER SYSTEM BACKGROUND INFORMATION LIST

## **CEDAR LANE WATER SYSTEM DOCUMENTS**

- 1** CEDAR LANE SYSTEM BOUNDARY AND LAYOUT
- 2** SAMP - UPDATED MAY 2013
- 3** CEDAR LANE WATER SERVICE - 2017 ANNUAL REPORT - JUNE 5, 2018
- 4** CEDAR LANE WATER SYSTEM DETAILS
- 5** CEDAR LANE WATER TREATMENT PLANT
- 6** CEDAR LANE RESERVOIR & PUMPHOUSE
- 7** CEDAR LANE AND MANSELL ROAD WATERMAIN

# APPENDIX C

## CEDAR LANE WATER SYSTEM ASSET CONDITION ASSESSMENT TABLE

Item No.	Water System	Asset Name	Component	Object types	Equipment Identifier			Equipment Location		Asset Grading				Asset Service Life			Capital Project Recommendations and Cost Estimate	
					Equipment Description	Quantity	Comments	Location	System Description	Physical Condition	Criticality	Data Confidence	Capacity Adaptation	Date Installed	Service Life	Anticipated Replacement / Refurbishment Date	Recommended Upgrade / Replacement / Investigation Capital Projects	Estimated cost (in 2019 dollars)
WTP CEDAR LANE - 123 Cedar Lane																		
1	Cedar Lane	WTP CEDAR LANE	Mechanical	WTP	WTP, Water Treatment Plant, mechanical	1	Water Treatment Plant (WTP) - the WTP treats ground water from wells #1 and #5. The treatment process consists of cartridge filtration, ultraviolet disinfection, and chlorination. The combined well capacity is estimated up to 16 m3/day (0.2 l/sec) over dry summer period. The system cannot provide fire water flow.  Regular maintenance taking place, as needed. There are no turbidity meters on the influent line to the WTP. There is no emergency power supply at the WTP. There are no spare parts on inventory; purchase is based on need. A spare chlorine dosing pump, pressure pump, and sub drive unit are needed. Process upgrade to address manganese removal is required. No washroom facilities at the WTP.	Pump Building	The WTP consists of the following components:  Cartridge filtration  One UV disinfection unit  Storage and chemical dosing system with a single chlorine injection pump; chlorine monitoring equipment with a single chlorine recirculation pump  PLC control system for fully automatic operation  Single effluent booster pumps	3	3	A	A	2009	20	2029	Process upgrade to address manganese removal is required.  Provide spare pressure pump and sub-drive unit	\$20,000  \$25,000
2	Cedar Lane	RES CEDAR LANE	Mechanical	RES	RES, Reservoir, Steel-bolted, Epoxy-coated	1	The tank has never been cleaned. Some sediment is visible at the bottom. Tank cleaning and inspection are required. Security fence around the water tank is needed. No leaks were identified.	Reservoir	136 m3 (30,000 lgal) bolted steel water tank at an elevation of approximately 60 masl.	1	4	A	C	2010	50	2060	Tank cleaning and inspection are required.	\$10,000
3	Cedar Lane	WTP CEDAR LANE	Civil	WEL	WEL, Well #1, Groundwater		Additional Comment: Raw water from WELL Mansell #1 blends in with raw water from WELL Mansell #5. Raw water is treated at WTP Cedar Lane	Well #1				A	C					
4	Cedar Lane	WTP CEDAR LANE	Health & Safety	SHO	SHO, Eyewash Station, Drench hose & backflow, Guardian	1	Regular maintenance provided. Operation staff suggest new eyewash station that doesn't provide direct flowing water.	Pump Building	Drench hose eyewash station with backflow preventor	1	1	A	N/A	2009	50	2059	Install useful eyewash station	\$2,000
5	Cedar Lane	WTP CEDAR LANE	Electrical	ELC	ELC, Main Elec Service, 200 Amp Combination Main panel 120/240 single phase	1		Pump Building	Electrical service and BC Hydro meter and TVSS	2	5	A	A	2009	30	2039		
6	Cedar Lane	WTP CEDAR LANE	Electrical	SCA	SCA, SCADA, Scada Control Cabinet	1	Local Control, Reservoir Level and Scada Communication	Pump Building	Local Pump Control and Communications	2	5	A	N/A	2011	30	2041		
7	Cedar Lane	WTP CEDAR LANE	Electrical	VFD	VFD, Constant Pressure Controller	1	Franklin SubDrive 150. No standby duty SubDrive or booster pump	Pump Building	Pump starter	2	2	A	A	2009	15	2024		
8	Cedar Lane	WTP CEDAR LANE	Electrical	STA	STA, Starter, Well #5 Pump, Eaton Cutler-Hammer	1		Pump Building	Well Pump Starter	2	5	A	A	2009	15	2024		
9	Cedar Lane	WTP CEDAR LANE	Electrical	HVAC	HVAC, 2 KW Fan Forced Unit Heater	1		Pump Building	Electric Heat	2	1	A	N/A	2009	15	2024		
10	Cedar Lane	WTP CEDAR LANE	Electrical	LIT	LIT, Light, Beghelli 2 Lamp T8 fluorescent	2		Pump Building	Lighting	2	1	A	N/A	2009	10	2019		
11	Cedar Lane	WTP CEDAR LANE	Electrical	LIT	LIT, Light, Beghelli 2 Lamp T8 fluorescent	1		Pump Building, Chlorine room	Lighting	2	1	A	N/A	2009	10	2019		
12	Cedar Lane	WTP CEDAR LANE	Electrical	ELC	ELC, CL2 receptacle and Heat Trace receptacle	2	Heat Trace needs to be secured and insulated to be effective.	Pump Building, Chlorine room	Receptacles	2	3	A	A	2009	10	2019	Heat Trace needs to be secured and insulated to be effective.	\$200
13	Cedar Lane	RES CEDAR LANE	Electrical	FLO	FLO, Level Transducer	1		Reservoir	Level Sensing	2	5	A	C	2009	15	2024		
14	Cedar Lane	RES CEDAR LANE	Electrical	FLO	FLO, Float Switches	2		Reservoir	Backup Level Sensing	2	5	A	C	2009	15	2024		
15	Cedar Lane	PST CEDAR LANE	Structural	SIT	SIT, Site is sloping with gravel surfacing.	1	Ongoing maintenance is being performed by CRD personnel. Ground cover is maintained on a regular basis.	Pump Building	Overall site	1	1	A	N/A	2009	50	2059		
16	Cedar Lane	PST CEDAR LANE	Structural	DWY	DWY, Driveway, Gravel	1	Gravel driveway is well maintained and accessible.	Pump Building	Driveway is gravelled and sloped up from Cedar Lane.	1	1	A	N/A	2009	50	2059		
17	Cedar Lane	PST CEDAR LANE	Structural	PKG	PKG, Parking Lot, Gravel	1	Gravel driveway is well maintained and accessible.	Pump Building	Parking is part of the driveway. Overflow parking is on the side of Cedar Lane.	1	1	A	N/A	2009	50	2059		
18	Cedar Lane	PST CEDAR LANE	Structural	SER	SER, Service, Water System	1	N/A	Pump Building	All services are related to the water system.	1	1	A	N/A	2009	50	2059		
19	Cedar Lane	PST CEDAR LANE	Structural	FEN	FEN, Fence, Perimeter	0	There is no chainlink perimeter fencing around the site. Fencing is required to secure the site from vandalism.	Pump Building	Onsite protective fencing			A	N/A	2009	25	2034	Fencing is required to secure the site from vandalism.	\$20,000
20	Cedar Lane	PST CEDAR LANE	Structural	STR	STR, Structure, Concrete Foundation, Reinforced, Slab-on-grade	6.0 m²	No issues were noted with foundations.	Pump Building	Foundation	1	1	A	A	2009	50	2059		
21	Cedar Lane	PST CEDAR LANE	Structural	STR	STR, Structure, Wood frame, wood truss	6.0 m²	PST Cedar Lane is attached to the WTP Cedar Lane building. PST Cedar Lane is a single storey wood frame structure on a concrete slab on grade foundation system.  No issues were noted with structure.	Pump Building	Structure	1	1	A	A	2009	50	2059		



Item No.	Water System	Asset Name	Component	Object types	Equipment Identifier			Equipment Location		Asset Grading				Asset Service Life			Capital Project Recommendations and Cost Estimate	
					Equipment Description	Quantity	Comments	Location	System Description	Physical Condition	Criticality	Data Confidence	Capacity Adaptation	Date Installed	Service Life	Anticipated Replacement / Refurbishment Date	Recommended Upgrade / Replacement / Investigation Capital Projects	Estimated cost (in 2019 dollars)
22	Cedar Lane	PST CEDAR LANE	Structural	STR	STR, Structure, Cladding, horizontal cedar siding	6.0 m <sup>2</sup>	Exterior walls are covered in horizontal cedar siding.  All exterior finishes require restaining to protect finishes and prevent premature deterioration of the finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	Pump Building	Structure cladding	3	1	A	A	2009	25	2034	All exterior finishes require restaining to protect finishes and prevent premature deterioration of the finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	\$5,000
23	Cedar Lane	PST CEDAR LANE	Structural	STR	STR, Structure, Residential door, insulated, metal door and hardware	6.0 m <sup>2</sup>	No issues were noted with door.	Pump Building	Structure exterior opening	1	1	A	A	2009	25	2034		
24	Cedar Lane	PST CEDAR LANE	Structural	STR	STR, Structure, Roof, asphalt shingle, gutters	6.0 m <sup>2</sup>	Building is located in a treed area that drops an extensive amount of debris. Clean debris from roof and gutters on a regular basis.	Pump Building	Structure roof	2	1	A	A	2009	25	2034		
25	Cedar Lane	PST CEDAR LANE	Structural	STR	STR, Structure interior partitions, wood-framed	6.0 m <sup>2</sup>	No issues were noted with interior partitions.	Pump Building	Structure interior partition	1	1	A	A	2009	25	2034		
26	Cedar Lane	PST CEDAR LANE	Structural	STR	STR, Structure, Interior walls and ceiling, painted plywood sheathing. Floor is an exposed concrete slab.	6.0 m <sup>2</sup>	No issues noted with interior finishes.	Pump Building	Structure interior finishes	1	1	A	A	2009	15	2024		
27	Cedar Lane	PST CEDAR LANE	Structural	STR	STR, Structure, Vertical movement, concrete entry pad outside the main entry.	1	No issues were noted with stair / landing.	Pump Building	Vertical movement	1	1	A	A	2009	25	2034		
28	Cedar Lane	PST CEDAR LANE	Structural	HVAC	HVAC, Heater, electric unit heaters and baseboard heaters.	1	Heating is provided by electric unit heaters and baseboard heaters. There is no emergency generator to operate emergency systems in case of a power outage.  See electrical for comments.	Pump Building	Structure electrical	1	1	A	N/A	2009	25	2034		
29	Cedar Lane	PST CEDAR LANE	Structural	EXT	EXT, Fire Extinguisher	1	Fire extinguisher is serviced on a regular basis.	Pump Building	Structure safety	1	1	A	N/A	2009	25	2034		
30	Cedar Lane	RES CEDAR LANE	Structural	SIT	SIT, Site	1	Ongoing maintenance is being performed by CRD personnel.  Ground cover is maintained on a regular basis.	Reservoir	Site is sloping with a flat area created at the top of the site for the tank and foundation.	1	1	A	N/A	2009	50	2059		
31	Cedar Lane	RES CEDAR LANE	Structural	DWY	DWY, Driveway, Gravel	1	Driveway is gravelled and sloped up from Cedar Lane. Driveway is well maintained and accessible.	Reservoir	Onsite driveway	1	1	A	N/A	2009	50	2059		
32	Cedar Lane	RES CEDAR LANE	Structural	PKG	PKG, Parking, Gravel	1	Parking is part of the driveway. Overflow parking is on the side of Cedar Lane. Driveway is well maintained and accessible.	Reservoir	Parking lot	1	1	A	N/A	2009	50	2059		
33	Cedar Lane	RES CEDAR LANE	Structural	SER	SER, Service, Water Service	1	N/A	Reservoir	Onsite services	1	1	A	C	2009	50	2059		
34	Cedar Lane	RES CEDAR LANE	Structural	FEN	FEN, Fence, Perimeter	1	Perimeter fencing is required to secure the water reservoir from vandalism.	Reservoir	Onsite protective fencing	5	1	A	N/A	2009	25	2019	Perimeter fencing is required to secure the water reservoir from vandalism.	\$20,000
35	Cedar Lane	RES CEDAR LANE	Structural	STR	STR, Structure, Foundation, reinforced concrete	1	No foundation issues were noted.	Reservoir	Foundation	1	1	A	C	2009	50	2059		
36	Cedar Lane	RES CEDAR LANE	Structural	RES	RES, Reservoir, Tank, steel-bolted	1	RES Cedar Lane reservoir is a packaged metal tank on a concrete foundation system.  No structural issues were noted.	Reservoir	Structure	1	1	A	C	2009	50	2059		
37	Cedar Lane	RES CEDAR LANE	Structural	RES	RES, Reservoir, Tank Cladding, prefinished sheet metal.	1	No cladding issues were noted.	Reservoir	Structure cladding	1	1	A	C	2009	25	2034		
38	Cedar Lane	RES CEDAR LANE	Structural	RES	RES, Reservoir, Exterior Opening, Tank lid	1	No issues noted with exterior openings. Tank lid is secured from vandalism.	Reservoir	Structure exterior opening	1	1	A	C	2009	25	2034		
39	Cedar Lane	RES CEDAR LANE	Structural	RES	RES, Reservoir, Roof, prefinished steel	1	No issues were noted with the roof of the tank.	Reservoir	Structure roof	1	1	A	C	2009	25	2034		
40	Cedar Lane	RES CEDAR LANE	Structural	LAD	LAD, Vertical Movement, Ladder, exterior metal ladder system	1	No issues were noted with the ladder.	Reservoir	Vertical movement	1	1	A	C	2009	25	2034		
41	Cedar Lane	RES CEDAR LANE	Structural	RAI	RAI, Railing, Exterior, ladder enclosure and upper railing, metal	1	The metal ladder enclosure and upper railing are part of the packaged tank.  Fall prevention at the ladder enclosure is by way of a metal enclosure around the ladder and upper hatch. No issues were noted with the safety of the tank.	Reservoir	Structure railing outside	1	1	A	C	2009	25	2034		
42	Cedar Lane	WTP CEDAR LANE	Structural	SIT	SIT, Site is sloping with gravel surfacing.	1	Ongoing maintenance is being performed by CRD personnel.  Ground cover is maintained on a regular basis.	Pump Building	Overall site	1	1	A	N/A	2009	50	2059		
43	Cedar Lane	WTP CEDAR LANE	Structural	DWY	DWY, Driveway, Gravel	1	Driveway is gravelled and sloped up from Cedar Lane. Gravel driveway is well maintained and accessible.	Pump Building	Onsite driveway	1	1	A	N/A	2009	50	2059		
44	Cedar Lane	WTP CEDAR LANE	Structural	PKG	PKG, Parking, Gravel	1	Parking is part of the driveway. Overflow parking is on the side of Cedar Lane. Gravel driveway is well maintained and accessible.	Pump Building	Parking lot	1	1	A	N/A	2009	50	2059		
45	Cedar Lane	WTP CEDAR LANE	Structural	SER	SER, Service, Water Service	1	N/A	Pump Building	Onsite services	1	1	A	A	2009	50	2059		
46	Cedar Lane	WTP CEDAR LANE	Structural	FEN	FEN, Fence, Perimeter	0	There is no chainlink perimeter fencing around the site. Fencing is required to secure the site from vandalism.	Pump Building	Onsite protective fencing	5	1	A	N/A	2009	25	2034	Fencing is required to secure the site from vandalism.	Refer to Item 34
47	Cedar Lane	WTP CEDAR LANE	Structural	STR	STR, Structure, Concrete Foundation, Reinforced, Slab-on-grade	3.0 m <sup>2</sup>	No issues were noted with foundations.	Pump Building	Foundation	1	1	A	A	2009	50	2059		
48	Cedar Lane	WTP CEDAR LANE	Structural	STR	STR, Structure, Building, wood framed wall and roof system	3.0 m <sup>2</sup>	WTP Cedar Lane is attached to the PST Cedar Lane building. WTP Cedar Lane is a single storey wood frame structure on a concrete slab on grade foundation system.  No issues were noted with structure.	Pump Building	Structure	1	1	A	A	2009	50	2059		
49	Cedar Lane	WTP CEDAR LANE	Structural	STR	STR, Structure, Cladding, horizontal cedar siding.	3.0 m <sup>2</sup>	Exterior walls are covered in horizontal cedar siding.  All exterior finishes require restaining to protect finishes and prevent premature deterioration of the finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	Pump Building	Structure cladding	3	1	A	A	2009	25	2034	All exterior finishes require restaining to protect finishes and prevent premature deterioration of the finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	\$2,000



Item No.	Water System	Asset Name	Component	Object types	Equipment Identifier			Equipment Location		Asset Grading				Asset Service Life			Capital Project Recommendations and Cost Estimate	
					Equipment Description	Quantity	Comments	Location	System Description	Physical Condition	Criticality	Data Confidence	Capacity Adaptation	Date Installed	Service Life	Anticipated Replacement / Refurbishment Date	Recommended Upgrade / Replacement / Investigation Capital Projects	Estimated cost (in 2019 dollars)
50	Cedar Lane	WTP CEDAR LANE	Structural	STR	STR, Structure, Exterior Opening, Door, wood , secured with a padlock	3.0 m <sup>2</sup>	No issues were noted with door.	Pump Building	Structure exterior opening	2	1	A	A	2009	25	2034		
51	Cedar Lane	WTP CEDAR LANE	Structural	STR	STR, Structure, Roof, asphalt shingle roofing system with gutters	3.0 m <sup>2</sup>	The roof system is sloped with asphalt shingle roofing and metal gutters. Building is located in a treed area that drops an extensive amount of debris. Clean debris from roof and gutters on a regular basis.	Pump Building	Structure roof	2	1	A	A	2009	25	2034		
52	Cedar Lane	WTP CEDAR LANE	Structural	STR	STR, Structure, Interior partitions, wood framed.	3.0 m <sup>2</sup>	No issues were noted with interior partitions.	Pump Building	Structure interior partition	1	1	A	A	2009	25	2034		
53	Cedar Lane	WTP CEDAR LANE	Structural	STR	STR, Structure, Interior Finishes, Walls and ceiling, painted plywood sheathing. Floor is an exposed concrete slab.	3.0 m <sup>2</sup>	No issues noted with interior finishes.	Pump Building	Structure interior finishes	1	1	A	A	2009	15	2024		
54	Cedar Lane	WTP CEDAR LANE	Structural	HVAC	HVAC, Ventilation System	0	There is no exhaust system in the chlorine room. An exhaust system is required to remove dangerous gases before maintenance personnel enter the space.	Pump Building	Structure mechanical	5	1	A	N/A	2009	25	2034	An exhaust system is required to remove dangerous gases before maintenance personnel enter the space.	\$3,000
55	Cedar Lane	WTP CEDAR LANE	Structural	HVAC	HVAC, unit heaters, baseboard heaters, electric	1	Heating is provided by electric unit heaters and baseboard heaters. There is no emergency generator to operate emergency systems in case of a power outage. See electrical for comments.	Pump Building	Structure electrical	1	1	A	N/A	2009	25	2034		
<div><div><div>Asset Physical Condition Grading System:</div><div>1. <b>Very Good:</b> Asset is physically sound, performing its function as originally intended. Generally new or recently rehabilitated. Only planned maintenance required</div><div>2. <b>Good:</b> Asset is physically sound, performing its function as originally intended. Required maintenance costs as within acceptable standards but increasing. Asset has been used for some time but is within mid stage of expected life.</div><div>3. <b>Fair:</b> Asset is showing signs of deterioration, performing at a lower level that originally intended. Some components are becoming physically deficient. Required maintenance costs exceed acceptable standards and increasing. Asset within the later stages of expected life.</div><div>4. <b>Poor:</b> Asset is showing significant signs of deterioration, performance much lower than originally intended. Majority of asset is physically deficient. Required maintenance costs significantly exceed acceptable standards. Asset is approaching end of expected life</div><div>5. <b>Very Poor:</b> Asset is physically unsound and/or not performing as originally intended. Asset has higher probability of failure or failure is imminent. Maintenance costs are unacceptable. Replacement / major refurbishment required</div></div><div><div>Asset Criticality Grading System:</div><div>1. <b>Non-critical:</b> Asset failure would not result in immediate problem.</div><div>2. <b>Asset Standby Equipment Available:</b> Asset failure would result in replacement/repairs which could be completed relatively quickly.</div><div>3. <b>No equipment redundancy:</b> Asset failure could result in moderately prolonged service interruption. Asset standby equipment not readily available.</div><div>4. <b>No Equipment Redundancy &amp; Failure of equipment not monitored by alarm:</b> Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online</div><div>5. <b>No Equipment Redundancy &amp; Failure of equipment not monitored by alarm and/or immediate Health &amp; Safety Concerns:</b> Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online. Asset essential to health and safety requirements.</div></div><div><div>Data Confidence Grading System</div><div>A - <b>Highly Reliable:</b> Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete. Accuracy estimated +- 2%</div><div>B - <b>Reliable:</b> Data based on sound records, procedures , investigations and analysis, documented properly but has minor shortcomings, i.e. some data is old, missing, extrapolated. Dataset is complete. Accuracy estimated +- 10%</div><div>C - <b>Uncertain:</b> Data is based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated. Dataset is substantially complete but up to 50% is extrapolated. Accuracy estimated +- 25%</div><div>D - <b>Very Uncertain:</b> Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy estimated +- 40%</div><div>E - <b>Unknown:</b> None or very little data held</div></div><div><div>System Capacity Grading System</div><div>A - <b>Excellent:</b> The asset has the capacity to meet long-term demand up to 10 years</div><div>B - <b>Good:</b> The asset has the capacity to meet medium-term demand up to 5 years</div><div>C - <b>Moderate:</b> The asset has the capacity to meet short-term growth demands.</div><div>D - <b>Borderline:</b> The asset has the capacity to meet short-term growth demands but experiences some shortfalls.</div><div>E - <b>Fail:</b> The asset capacity is not meeting its current demand and experiencing frequent shortfalls.</div></div></div>																		
PST MANSELL - 123 Mansell Rd																		
56	Cedar Lane	PST MANSELL	Mechanical	WEL	WEL, Well #1, Groundwater	1	UV disinfection and chlorination are disconnected.	Well Building	Ground water from well #1 is pre-treated with cartridge filtration then mixed with water supply from well #5 located by the water treatment plant at Cedar Lane and co-treated.	3	3	B	C	2009	15	2024		
57	Cedar Lane	PST MANSELL	Civil	WEL	WEL, Well, Groundwater	0	Operations staff noted that they need another well. Need more water production.	Well Building	Well, Groundwater			B	C			2019	Operations staff noted that they need another well. Need more water production. Investigation to locate new underground water source.	\$60,000
58	Cedar Lane	PST MANSELL	Health & Safety	SHO	SHO, Eyewash Station, Self-contained, fend-all, Porta Stream II	1	No comment	Pump Building, Chlorine room	Drench hose eyewash station with backflow preventor	1	1	B	N/A	2018	50	2068		
59	Cedar Lane	PST MANSELL	Health & Safety	ACC	ACC, Access Lid, Wooden, Shingles	1	Access lid difficult to lift / awkward. Recommend to remove structure and rebuild a useable structure to surround the well. Minimum to replace roof with new roof that incorporates an easier lift.	Well Building	Wooden structure to house well.	4	1	B	C	2009	15	2019	Recommend to remove structure and rebuild a useable structure to surround the well. Minimum to replace roof with new roof that incorporates an easier lift.	\$20,000
60	Cedar Lane	PST MANSELL	Electrical	ELC	ELC, Electrical Service, 60 Amp Combination Main panel 120/240 single phase	1		Pump Building	Electrical service and BC Hydro meter and TVSS	2	5	B	C	2009	30	2039		
61	Cedar Lane	PST MANSELL	Electrical	SCADA	SCADA, Scada Control Cabinet	1	Local Control and Scada Communication	Pump Building	Local Pump Control and Communications	2	5	B	C	2011	30	2041		
62	Cedar Lane	PST MANSELL	Electrical	STA	STA, Starter, Well Pump 1, Eaton Cutler-Hammer Well Starter	1		Pump Building	Pump starter	2	5	B	C	2009	15	2024		
63	Cedar Lane	PST MANSELL	Electrical	HVAC	HVAC, Fan, Heater, 2 KW Fan Forced Unit Heater	2		Pump Building	Electric Heat	2	1	B	C	2009	15	2024		
64	Cedar Lane	PST MANSELL	Electrical	LIT	LIT, Lighting, Beghelli 2 Lamp T8 fluorescent	2		Pump Building	Lighting	2	1	B	N/A	2009	10	2019		
65	Cedar Lane	PST MANSELL	Electrical	LIT	LIT, Lighting, Beghelli 2 Lamp T8 fluorescent	1	Room no longer used for CL2 Injection	Pump Building, Chlorine room	Lighting	2	1	B	N/A	2009	10	2019		
66	Cedar Lane	PST MANSELL	Electrical	ELC	ELC, Receptacle, CL2 receptacle	2	Room no longer used for CL2 Injection	Pump Building, Chlorine room	Receptacles	2	3	B	C	2009	10	2019		
67	Cedar Lane	PST MANSELL	Electrical	TMT	TMT, Treatment, UV Treatment, Hallett	1	Hallett UV Filter no longer used or funtional and should be removed. No standby duty starter and well pump.	Pump Building		5	1	B	C	2009	10	2019	Hallett UV Filter no longer used or funtional and should be removed.	\$2,000
68	Cedar Lane	WELL MANSELL #1	Electrical	FLO	FLO, Level Transducer	1		Well Building	Level Sensing	2	5	B	C	2009	15	2019		
69	Cedar Lane	WELL MANSELL #1	Electrical	ELC	ELC, Well Pump Protection, Franklin Pumplec	1		Well Building	Pump Motor protection and Disconnect	2	5	B	C	2009	15	2024		
70	Cedar Lane	WELL MANSELL #1	Electrical	ELC	ELC, Heat Trace	1	Heat Trace needs to be secured and insulated to be effective.	Well Building	Freeze protection	3	1	B	C	2009	15	2019	Heat Trace needs to be secured and insulated to be effective.	\$600
71	Cedar Lane	PST MANSELL	Structural	SIT	SIT, Site	1	Site is flat with grass and gravel surfacing. Ongoing maintenance is being performed by CRD personnel. Clear organic materials from around the enclosure to prevent moisture damage of the wood finishes.	Pump Building	Site is flat with grass and gravel surfacing	2	1	B	N/A	2009	50	2059		
72	Cedar Lane	PST MANSELL	Structural	DWY	DWY, Driveway, Gravel	1	Gravel driveway is well maintained and accessible.	Pump Building	Onsite driveway	1	1	B	N/A	2009	50	2059		
73	Cedar Lane	PST MANSELL	Structural	PKG	PKG, Parking, Gravel	1	Parking is part of the driveway. Overflow parking is on the side of Mansell Road. Gravel driveway is well maintained and accessible.	Pump Building	Parking lot	1	1	B	N/A	2009	50	2059		



Item No.	Water System	Asset Name	Component	Object types	Equipment Identifier			Equipment Location		Asset Grading				Asset Service Life			Capital Project Recommendations and Cost Estimate	
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74	Cedar Lane	PST MANSELL	Structural	FEN	FEN, Fence, Perimeter	0	There is no chainlink perimeter fencing around the site. Fencing is required to secure the site from vandalism.	Pump Building	Onsite protective fencing	5	1	B	N/A	2009	25	2034	Fencing is required to secure the site from vandalism.	\$20,000
75	Cedar Lane	PST MANSELL	Structural	STR	STR, Structure, Foundation, reinforced concrete, slab-on-grade	5.0 m <sup>2</sup>	No issues were noted with foundation.	Pump Building	Foundation	2	1	B	C	2009	50	2059		
76	Cedar Lane	PST MANSELL	Structural	STR	STR, Structure, Building, wood framed wall and roof system.	5.0 m <sup>2</sup>	The enclosure is a 1.2 m high wood frame structure on a concrete slab on grade foundation system. The roof is on hinges to allow for maintenance. Roof hatches require stays to keep open hatches from falling down when maintenance personnel are inside enclosure.	Pump Building	Structure	1	1	B	C	2009	50	2059	Roof hatches require stays to keep open hatches from falling down when maintenance personnel are inside enclosure. Refer to Health & Safety for costing.	Refer to Item 59
77	Cedar Lane	PST MANSELL	Structural	STR	STR, Structure, Cladding, painted plywood siding, no rainscreen system	5.0 m <sup>2</sup>	All of the exterior finishes require painting. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	Pump Building	Structure cladding	2	1	B	C	2009	25	2034	All of the exterior finishes require painting. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	\$2,000
78	Cedar Lane	PST MANSELL	Structural	STR	STR, Structure, Exterior Openings, Access door, wood	5.0 m <sup>2</sup>	Exterior walls are covered in painted plywood siding. No issues noted with exterior openings.	Pump Building	Structure exterior opening	2	1	B	C	2009	25	2034		
79	Cedar Lane	PST MANSELL	Structural	STR	STR, Structure, Roof, metal, no gutters.	5.0 m <sup>2</sup>	Pumphouse - Moss control and debris removal is required at the roof. Replace metal roofing as it is damaged. Well structure - The roof system is sloped roof hatches with metal roofing.	Pump Building	Structure roof	3	1	B	C	2009	25	2019	Pumphouse - Moss control and debris removal is required at the roof. Replace metal roofing as it is damaged.	\$1,000
80	Cedar Lane	PST MANSELL	Structural	STR	STR, Structure, Interior partitions, wood framed.	5.0 m <sup>2</sup>	No issues noted with interior finishes.	Pump Building	Structure interior finishes	1	1	B	C	2009	15	2024		
<div><div><div>Asset Physical Condition Rating:</div><div><div>1. <b>Very Good:</b> Asset is physically sound, performing its function as originally intended. Generally a new or recently rehabilitated. Only planned maintenance required</div><div>2. <b>Good:</b> Asset is physically sound, performing its fntion as originally intended. Required maintenance costs as within acceptable standards but increasing. Asset has been used for some time but is within mid stage of expected life.</div><div>3. <b>Fair:</b> Asset is showing signs of deterioration, performing at a lower level that originally intended. Some components are becoming physically deficient. Required maintenance costs exceed acceptable standards and increasing. Asset within the later stages of expected life.</div><div>4. <b>Poor:</b> Asset is showing significant signs of deterioration, performance much lower than originally intended. Majority of asset is physically deficient. Required maintenance costs significantly exceed acceptable standards. Asset is approaching end of expected life</div><div>5. <b>Very Poor:</b> Asset is physically unsound and/or not performing as originally intended. Asset has higher probability of failure or failure is imminent. Maintenance coasts are unacceptable. Replacement / major refurbishment required</div></div><div><div>Asset Criticality Rating:</div><div><div>1. <b>Non-critical:</b> Asset failure would not result in immediate problem.</div><div>2. <b>Asset Standby Equipment Available:</b> Asset failure would result in replacement/repairs which could be completed relatively quickly.</div><div>3. <b>No equipment redundancy:</b> Asset failure could result in moderately prolonged service interruption. Asset standby equipment not readily available.</div><div>4. <b>No Equipment Redundancy &amp; Failure of equipment not monitored by alarm:</b> Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online</div><div>5. <b>No Equipment Redundancy &amp; Failure of equipment not monitored by alarm and/or immediate Health &amp; Safety Concerns:</b> Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online. Asset essential to health and safety requirements.</div></div><div><div>Data Confidence Grading System</div><div><div>A - <b>Highly Reliable:</b> Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete. Accuracy estimated +- 2%</div><div>B - <b>Reliable:</b> Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, i.e. some data is old, missing, extrapolated. Dataset is complete. Accuracy estimated +- 10%</div><div>C - <b>Uncertain:</b> Data is based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated. Dataset is substantially complete but up to 50% is extrapolated. Accuracy estimated +- 25%</div><div>D - <b>Very Uncertain:</b> Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy estimated +- 40%</div><div>E - <b>Unknown:</b> None or very little data held</div></div><div><div>Capacity Adaptation Ranking System</div><div><div>A - <b>Excellent:</b> The asset has the capacity to meet long-term demand up to 10 years</div><div>B - <b>Good:</b> The asset has the capacity to meet medium-term demand up to 5 years</div><div>C - <b>Moderate:</b> The asset has the capacity to meet short-term growth demands.</div><div>D - <b>Borderline:</b> The asset has the capacity to meet short-term growth demands but experiences some shortfalls.</div><div>E - <b>Fail:</b> The asset capacity is not meeting its current demand and experiencing frequent shortfalls.</div></div></div></div></div></div></div>																		
WELL MANSELL #5 - 235 Cedar Lane																		
81	Cedar Lane	WELL MANSELL #5	Electrical	FLO	FLO, Level Transducer	1		Well	Level Sensing	2	5	B	C	2009	15	2024		
82	Cedar Lane	WELL MANSELL #5	Electrical	HVAC	HVAC, Baseboard Heater	1	Not connected, Baseboard heater cannot be connected to the well pump circuit, provide Baseboard circuit and wiring from WTP building	Well Building	Freeze protection	2	1	B	N/A	2009	15	2019	Not connected, Baseboard heater cannot be connected to the well pump circuit, Provide baseboard circuit and wiring from WTP building	\$1,000
83	Cedar Lane	WELL MANSELL #5	Electrical	ELC	ELC, Well Pump Protection, Franklin Pumtpec & Disconnect Switch	1		Well Building	Pump Motor protection and Disconnect	2	5	B	C	2009	15	2024		
84	Cedar Lane	WELL MANSELL #5	Mechanical	WEL	WEL, Well #5, Groundwater	1		Well	Ground water from well #1 is pre-treated with cartridge filtration then mixed with water supply from well #5 located by the water treatment plant at Cedar Lane and co-treated.			B	C					
85	Cedar Lane	WELL MANSELL #5	Structural	SIT	SIT, Site, Gravel, Flat	1	Site is flat with a gravel surfacing. Ongoing maintenance is being performed by CRD personnel. Ground cover is maintained on a regular basis.	Well Building	Overall site	5	1	B	C	2009	50	2059		
86	Cedar Lane	WELL MANSELL #5	Structural	DWY	DWY, Pathway, Gravel	1	Access path is well maintained and accessible.	Well Building	Onsite driveway	2	1	B	C	2009	50	2059		
87	Cedar Lane	WELL MANSELL #5	Structural	FEN	FEN, Fence, Perimeter	0	There is no chainlink perimeter fencing around the site. CRD staff indicated that fencing was not required.	Well Building	Onsite protective fencing			B	N/A	2009	25	2034		
88	Cedar Lane	WELL MANSELL #5	Structural	STR	STR, Structure, Foundation is a reinforced concrete foundation and slab on grade system.	1.2 m <sup>2</sup>	No foudation issues were noted.	Well Building	Foundation	3	1	B	C	2009	50	2059		
89	Cedar Lane	WELL MANSELL #5	Structural	STR	STR, Structure, Building, wood framed wall and roof system	1.2 m <sup>2</sup>	WELL Mansell #5 is a single storey wood frame structure on a concrete slab on grade foundation system. No issues were noted with structure.	Well Building	Structure	1	1	B	C	2009	50	2059		
90	Cedar Lane	WELL MANSELL #5	Structural	STR	STR, Structure, Cladding, unfinished plywood sheathing.	1.2 m <sup>2</sup>	Exterior walls are covered in unfinished plywood sheathing. All exterior finishes require painting to protect from deterioration of finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	Well Building	Structure cladding	1	1	B	C	2009	25	2019	All exterior finishes require painting to protect from deterioration of finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	\$1,500
91	Cedar Lane	WELL MANSELL #5	Structural	STR	STR, Structure, Exterior Opening, Door, residential grade, insulated metal.	1.2 m <sup>2</sup>	No issues noted with exterior openings.	Well Building	Structure exterior opening	1	1	B	C	2009	25	2034		
92	Cedar Lane	WELL MANSELL #5	Structural	STR	STR, Structure, Roof, asphalt shingle with no gutters.	1.2 m <sup>2</sup>	The roof system is sloped with asphalt shingle roofing and no gutters. Roof requires moss management and clearing of debris.	Well Building	Structure roof	1	1	B	C	2009	25	2034	Roof requires moss management and clearing of debris.	\$1,000
93	Cedar Lane	WELL MANSELL #5	Structural	STR	STR, Structure, Interior Finishes, Walls and ceiling, unfinished plywood sheathing. Floor is an exposed concrete slab.	1.2 m <sup>2</sup>	Paint out plywood finishes to prevent further damage of finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	Well Building	Structure interior finishes	1	1	B	C	2009	15	2019	Paint out plywood finishes to prevent further damage of finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	\$1,000
94	Cedar Lane	WELL MANSELL #5	Structural	HVAC	HVAC, Heating	0	There is no heating or electrical for building use. Electrical is for pumps only. See electrical for comments.	Well Building	Structure electrical			B	N/A					
95	Cedar Lane	WELL MANSELL #5	Structural	EXT	EXT, Fire Extinguisher	0	There is no safety equipment installed. Install fire extinguisher.	Well Building	Structure safety			B	N/A			2019	Install fire extinguisher.	\$200






Item No.	Water System	Asset Name	Component	Object types	Equipment Identifier			Equipment Location		Asset Grading				Asset Service Life			Capital Project Recommendations and Cost Estimate	
					Equipment Description	Quantity	Comments	Location	System Description	Physical Condition	Criticality	Data Confidence	Capacity Adaptation	Date Installed	Service Life	Anticipated Replacement / Refurbishment Date	Recommended Upgrade / Replacement / Investigation Capital Projects	Estimated cost (in 2019 dollars)
		Asset Physical Condition Rating:	1. <b>Very Good:</b> Asset is physically sound, performing its function as originally intended. Generally a new or recently rehabilitated. Only planned maintenance required			Asset Criticality Rating:	1. <b>Non-critical:</b> Asset failure would not result in immediate problem.		Data Confidence Grading System	A - <b>Highly Reliable:</b> Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete. Accuracy estimated +- 2%				Capacity Adaptation Ranking System	A - <b>Excellent:</b> The asset has the capacity to meet long-term demand up to 10 years			
2. <b>Good:</b> Asset is physically sound, performing its funtion as originally intended. Required maintenance costs as within acceptable standards but increasing. Asset has been used for some time but is within mid stage of expected life.			2. <b>Asset Standby Equipment Available:</b> Asset failure would result in replacement/repairs which could be completed relatively quickly.		B - <b>Reliable:</b> Data based on sound records, procedures , investigations and analysis, documented properly but has minor shortcomings, i.e. some data is old, missing, extrapolated. Dataset is complete. Accuracy estimated +- 10%					B - <b>Good:</b> The asset has the capacity to meet medium-term demand up to 5 years								
3. <b>Fair:</b> Asset is showing signs of deterioration, performing at a lower level that originally intended. Some components are becoming physically deficient. Required maintenance costs exceed acceptable standards and increasing. Asset within the later stages of expected life.			3. <b>No equipment redundancy:</b> Asset failure could result in moderately prolonged service interruption. Asset standby equipment not readily available.		C - <b>Uncertain:</b> Data is based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated. Dataset is substantially complete but up to 50% is extrapolated. Accuracy estimated +- 25%					C - <b>Moderate:</b> The asset has the capacity to meet short-term growth demands.								
4. <b>Poor:</b> Asset is showing significant signs of deterioration, performance much lower than originally intended. Majority of asset is physically deficient. Required maintenance costs significantly exceed acceptable standards. Asset is approaching end of expected life			4. <b>No Equipment Redundancy &amp; Failure of equipment not monitored by alarm:</b> Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online		D - <b>Very Uncertain:</b> Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy estimated +- 40%					D - <b>Borderline:</b> The asset has the capacity to meet short-term growth demands but experiences some shortfalls.								
5. <b>Very Poor:</b> Asset is physically unsound and/or not performing as originally intended. Asset has higher probability of failure or failure is imminent. Maintenance coasts are unacceptable. Replacement / major refurbishment required			5. <b>No Equipment Redundancy &amp; Failure of equipment not monitored by alarm and/or immediate Health &amp; Safety Concerns:</b> Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online. Asset essential to health and safety requirements.		E - <b>Unknown:</b> None or very little data held					E - <b>Fail:</b> The asset capacity is not meeting its current demand and experiencing frequent shortfalls.								
DISTRIBUTION CEDAR LANE																		
96	Cedar Lane	DISTRIBUTION CEDAR LANE	Civil	WM	WM, 100mm, AC	733 m	- Watermain flushed annually.	Local Water Service	Distribution watermain	3	5	A	E	1970	50	2020		
97	Cedar Lane	DISTRIBUTION CEDAR LANE	Civil	WM	WM, 150mm, AC	76 m	- Watermain flushed annually.	Local Water Service	Distribution watermain	3	5	A	E	1970	50	2020		
98	Cedar Lane	DISTRIBUTION CEDAR LANE	Civil	WM	WM, 50mm, PVC	465 m	- Watermain flushed annually.	Local Water Service	Distribution watermain	3	5	A	C	1973	50	2023		
99	Cedar Lane	DISTRIBUTION CEDAR LANE	Civil	HYD	HYD, Fire Hydrant	3	- Hydrants should be exercised annually. Operation staff should confirm that the 2 out-of-service hydrants are decommissioned.	Local Water Service	Fire hydrant	1	1	A	B	1970	50	2020	-Hydrants should be exercised annually. Operation staff should confirm that the 2 out-of-service hydrants are decommissioned.	\$2,000
100	Cedar Lane	DISTRIBUTION CEDAR LANE	Civil	STP	STP, Standpipe	2	- Not observed	Local Water Service	Standpipe	1	1	C	B	1970	50	2020		
		Asset Physical Condition Rating:	1. <b>Very Good:</b> Asset is physically sound, performing its function as originally intended. Generally a new or recently rehabilitated. Only planned maintenance required			Asset Criticality Rating:	1. <b>Non-critical:</b> Asset failure would not result in immediate problem.		Data Confidence Grading System	A - <b>Highly Reliable:</b> Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete. Accuracy estimated +- 2%				Capacity Adaptation Ranking System	A - <b>Excellent:</b> The asset has the capacity to meet long-term demand up to 10 years			
2. <b>Good:</b> Asset is physically sound, performing its funtion as originally intended. Required maintenance costs as within acceptable standards but increasing. Asset has been used for some time but is within mid stage of expected life.			2. <b>Asset Standby Equipment Available:</b> Asset failure would result in replacement/repairs which could be completed relatively quickly.		B - <b>Reliable:</b> Data based on sound records, procedures , investigations and analysis, documented properly but has minor shortcomings, i.e. some data is old, missing, extrapolated. Dataset is complete. Accuracy estimated +- 10%					B - <b>Good:</b> The asset has the capacity to meet medium-term demand up to 5 years								
3. <b>Fair:</b> Asset is showing signs of deterioration, performing at a lower level that originally intended. Some components are becoming physically deficient. Required maintenance costs exceed acceptable standards and increasing. Asset within the later stages of expected life.			3. <b>No equipment redundancy:</b> Asset failure could result in moderately prolonged service interruption. Asset standby equipment not readily available.		C - <b>Uncertain:</b> Data is based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated. Dataset is substantially complete but up to 50% is extrapolated. Accuracy estimated +- 25%					C - <b>Moderate:</b> The asset has the capacity to meet short-term growth demands.								
4. <b>Poor:</b> Asset is showing significant signs of deterioration, performance much lower than originally intended. Majority of asset is physically deficient. Required maintenance costs significantly exceed acceptable standards. Asset is approaching end of expected life			4. <b>No Equipment Redundancy &amp; Failure of equipment not monitored by alarm:</b> Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online		D - <b>Very Uncertain:</b> Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy estimated +- 40%					D - <b>Borderline:</b> The asset has the capacity to meet short-term growth demands but experiences some shortfalls.								
5. <b>Very Poor:</b> Asset is physically unsound and/or not performing as originally intended. Asset has higher probability of failure or failure is imminent. Maintenance coasts are unacceptable. Replacement / major refurbishment required			5. <b>No Equipment Redundancy &amp; Failure of equipment not monitored by alarm and/or immediate Health &amp; Safety Concerns:</b> Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online. Asset essential to health and safety requirements.		E - <b>Unknown:</b> None or very little data held					E - <b>Fail:</b> The asset capacity is not meeting its current demand and experiencing frequent shortfalls.								

# APPENDIX D

## CEDAR LANE ASSET PHOTO OBSERVATION SHEETS




Local Water Service
<b>CEDAR LANE LOCAL WATER SERVICE</b>

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Mechanical</b>	<b>123 Cedar Lane</b>


	Description:
	Cedar Lane WTP
	Description:
	Cedar Lane WTP
	Description:
	Cedar Lane WTP
	Observation:
	View of the water treatment plant with 30,000 lgal (136 m <sup>3</sup> ) water reservoir in the background.
	Observation:
	Interior of the water treatment plant with UV disinfection (right-hand side), booster pump (left-hand side), and cartridge filtration (in the middle).
	Observation:
	Interior of the water treatment plant with UV disinfection (left-hand side) and chlorine recycle loop and analyzer (right-hand side).




Asset	Component	Location
WTP Cedar Lane	Mechanical	123 Cedar Lane

	Description:
	Cedar Lane WTP
	Observation:
	Description:
	Cedar Lane WTP
	Observation:
	Description:
	Cedar Lane WTP
	Observation:
	Single chlorine recycle pump.



Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Civil</b>	<b>123 Cedar Lane</b>

	Description:
	Drench Hose Eyewash Station
	Observation: Replace eyewash station with saline-based eyewash station (plastic setup).
	CRD Personnel Observation: Operational staff noted the eyewash station is not sensitive to washing eyes.

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Electrical</b>	<b>123 Cedar Lane</b>




	Description:
	Scada Process Control Panel and Communication
	Observation: No issues noted
	CRD Personnel Observation: No issues noted

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Electrical</b>	<b>123 Cedar Lane</b>

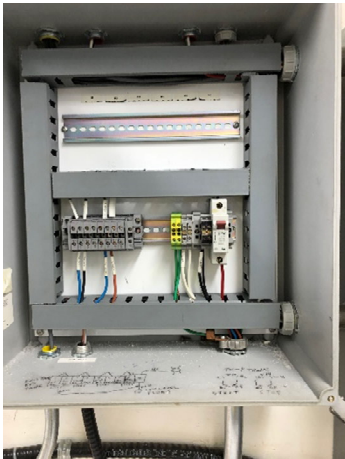

	Description:
	Electrical Main Service Panel
	Observation:
	No issues noted
	CRD Personnel Observation:
	No issues noted
	Description:
	Main Electrical Service and BC Hydro meter
	Observation:
	No issues noted
	CRD Personnel Observation:
	No issues noted



Asset	Component	Location
WTP Cedar Lane	Electrical	123 Cedar Lane

	Description:
	Water Zone Pressure Booster VFD
	Observation:
	No issues noted
	CRD Personnel Observation:
	Description:
	Well Pump Starter
	Observation:
	No issues noted
	CRD Personnel Observation:
	Description:
	UV Filter
	Observation:
	No issues noted
	CRD Personnel Observation:

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Electrical</b>	<b>123 Cedar Lane</b>

	Description:
	Terminal Box
	Observation:
	No issues noted
	CRD Personnel Observation:
	Description:
	Circulation Pump Disconnect Switch
	Observation:
	No issues noted
	CRD Personnel Observation:
	No issues noted



Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Structural</b>	<b>123 Cedar Lane</b>


	Description:
	WTP Cedar Lane (Left) with PST Cedar Lane (right).
	Observation: Water treatment is behind small wooden door. All exterior finishes require staining to prevent deterioration of finishes and supporting structure.
	Description:
	Rear of building at treatment room.
	Observation: Roof requires clearing of debris. All exterior finishes require staining to prevent deterioration of finishes and supporting structure.
	Description:
	Inside of Water Treatment Building.
	Observation: Install an exhaust fan to remove harmful gases related to the chlorine system.
	CRD Personnel Observation:
	No issues noted



Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Structural</b>	<b>123 Cedar Lane</b>

	Description:
	WTP Cedar Lane (Left) with PST Cedar Lane (right).
	Observation: Pump station is behind the metal clad door. All exterior finishes require staining to prevent deterioration of finishes and supporting structure.
	Description:
	Inside of Pump Station Building
	Observation: Heating is with electric unit heater. No issues noted.
	CRD Personnel Observation:
	No issues noted


Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Mechanical</b>	<b>123 Cedar Lane</b>

	Description:
	Cedar Lane WTP
	Observation: GW Well #5 head located inside a wooden shed next to the WTP.


Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Mechanical</b>	<b>123 Cedar Lane</b>

	Description:
	Cedar Lane WTP
	Observation:
	Well #1 and well #5 water mains tie-in point.

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Electrical</b>	<b>123 Cedar Lane</b>

	Description:
	Well Level Transducer and Well Pump connection
	Observation:
	No issues noted
CRD Personnel Observation:	
No issues noted	

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Electrical</b>	<b>123 Cedar Lane</b>


	Description:
	Well disconnect switch
	Observation:
	<p>Well pump branch circuit can only connect to well pump motor.</p> <p>If electric heat is required a separate branch circuit needs to be provided from the WTP building.</p>
CRD Personnel Observation:	
No issues noted	

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Mechanical</b>	<b>123 Cedar Lane</b>

	Description:
	Cedar Lane Reservoir
	Observation:
	View of the 30,000 Imp. gallon (136 m <sup>3</sup> ) bolted steel water tank at an elevation of approximately 60 masl with top access.
	Description:
Cedar Lane Reservoir	
	Observation:
	Bolted steel water tank



Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Electrical</b>	<b>123 Cedar Lane</b>

	Description:
	Reservoir Level Sensing
	Observation:
	Level Transducer and Floats No issues noted
CRD Personnel Observation:	
No issues noted	

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Structural</b>	<b>123 Cedar Lane</b>

	Description:
	RES Cedar Lane packaged reservoir tank.
	Observation:
	Grounds are well maintained. Fencing is required around the entire site.
CRD Personnel Observation:	
No issues noted	

Asset	Component	Location
<b>WTP Cedar Lane</b>	<b>Structural</b>	<b>123 Cedar Lane</b>

	Description:
	Security hatch at ladder.
	Observation:
	Hatch is locked. No issues noted.
	CRD Personnel Observation:
	No issues noted




Asset	Component	Location
<b>PST Mansell</b>	<b>Mechanical</b>	<b>123 Mansell Rd</b>

	Description:
	Mansell GW Well
	Description:
	Mansell GW Well
	Description:
	Mansell GW Well
	Observation:
	GW well head #1 enclosed inside a wooden shed.
	Observation:
	Interior of the former water treatment plant located next to the well #1. Ground water is pre-treated with cartridge filtration then mixed with water supply from the well #5 located by the water treatment plant at Cedar Lane and co-treated. UV disinfection and chlorination are disconnected.
	Observation:
	Emergency eye wash.

Asset	Component	Location
<b>PST Mansell</b>	<b>Mechanical</b>	<b>123 Mansell Rd</b>


	Description:
	Mansell GW Well
	Observation:  View of the former water treatment plant on the right-hand side and chlorine room on the left-hand side.

Asset	Component	Location
<b>PST Mansell</b>	<b>Civil</b>	<b>123 Mansell Rd</b>

	Description:
	Eyewash Station
	Observation:
	No issues noted
	CRD Personnel Observation:
	No issues noted


Asset	Component	Location
<b>PST Mansell</b>	<b>Electrical</b>	<b>123 Mansell Rd</b>
		Description:
		Site Main Incoming Electrical Service
		Observation:
		No issues noted
		Description:
		Main Service and BC Hydro meter
		Observation:
		No issues noted
		Description:
		Well Pump Starter
		Observation:
		No issues noted
		CRD Personnel Observation:
		No issues noted
		No issues noted

Asset	Component	Location
<b>PST Mansell</b>	<b>Electrical</b>	<b>123 Mansell Rd</b>

	Description:
	Scada and communications
	Observation:
	No issues noted
	CRD Personnel Observation:
	No issues noted
	Description:
	Well Pump Protection
	Observation:
	No issues noted
	CRD Personnel Observation:
	No issues noted



Asset	Component	Location
<b>PST Mansell</b>	<b>Structural</b>	<b>123 Mansell Road</b>


	Description:
	Front of pumphouse.
	Observation: Grounds are well maintained. Tree trimming is required to prevent damage to roof and siding. CRD Personnel Observation: No issues noted
	Description:
	Rear corner of pumphouse.
	Observation: Repainting is required for all exterior finishes. Backfilling is required to prevent further erosion at the concrete slab. CRD Personnel Observation: No issues noted
	Description:
	Rear of pumphouse.
	Observation: Moss control and debris removal is required at the roof. CRD Personnel Observation: No issues noted

Asset	Sub-Asset	Component	Location
<b>PST Mansell</b>	<b>PST Mansell</b>	<b>Structural</b>	<b>123 Mansell Road</b>



	Description:
	Interior of pumphouse.
	Observation: Packaged eyewash station does not provide deluge shower capabilities.
	Description:
	Interior of pumphouse.
	Observation: Heating is with electric unit heater and electric baseboard heaters. Fire extinguisher and packaged eyewash station are serviced on a regular basis.
	CRD Personnel Observation:
	No issues noted



Asset	Component	Location
<b>PST Mansell</b>	<b>Civil</b>	<b>123 Mansell Rd</b>




	Description:
	WELL Mansell #1 Building
	Observation:
	Remove existing wooden lid and retrofit new lid with easier access / shocks / cover-stay mechanism. If there is budget for a new building structure, remove structure and reinstate new structure.
CRD Personnel Observation:	
Wooden rod / access is difficult to lift.	

Asset	Component	Location
<b>PST Mansell</b>	<b>Structural</b>	<b>123 Mansell Road</b>

	Description:
	Well structure with roof lid open.
	Observation:
	Enclosure requires painting. Roof hatches require stays to keep them open when maintenance personnel are in enclosure.
CRD Personnel Observation:	
No issues noted	
	Description:
	Roof of enclosure.
	Observation:
	Roofing is damaged and requires replacement.
CRD Personnel Observation:	
No issues noted	



Asset	Component	Location
<b>WELL Mansell #5</b>	<b>Structural</b>	<b>235 Cedar Lane</b>

	Description:
	Front of Well building.
	Observation: Grounds are maintained on a regular basis by CRD personnel.
	Description:
	Rear of building.
	Observation: Roof requires clearing of debris. All exterior finishes require staining to prevent deterioration of finishes and supporting structure.
	CRD Personnel Observation:
	No issues noted
	Description:
	Inside of building.
	Observation: All interior finishes require painting to prevent water damage to finishes and supporting structure. Baseboard heater is not connected to an electrical source.
	CRD Personnel Observation:
	No issues noted



Asset	Component	Location
Distribution Cedar Lane	Civil	Cedar Lane Area

	Description:
	Fire Hydrant
	Observation:
	Fire hydrant appears to be in good condition.
	CRD Personnel Observation:
	No issues noted

# APPENDIX E

## CEDAR LANE WATER SYSTEM RECOMMENDED CAPITAL PROJECTS TABLE

**CRD Salt Spring Island Electoral Area**  
**CEDAR LANE WATER SYSTEM RECOMMENDED CAPITAL PROJECTS**

Item No.	Condition Assessment Table Item No.	Asset Name	Evaluation Source	Description of Recommended Capital Project	Relevant Governing Principles	Timeline	Estimated Costs (in 2019 dollars)
1	1	WTP Cedar lane	Condition Assessment CRD Staff Comments 2011 AMP	Process upgrade to address manganese removal is required.	2, 4	Immediate to < 1 year	\$20,000
2	2	WTP Cedar lane	Condition Assessment CRD Staff Comments	Tank cleaning and inspection are required.	1, 2, 3, 4	Immediate to < 1 year	\$10,000
3	12	WTP Cedar lane	Condition Assessment	Heat Trace needs to be secured and insulated to be effective.	4	Immediate to < 1 year	\$200
4	54	WTP Cedar lane	Condition Assessment	An exhaust system is required to remove dangerous gases before maintenance personnel enter the space.	2, 4	Immediate to < 1 year	\$3,000
5	70	Well Mansell #1	Condition Assessment	Heat Trace needs to be secured and insulated to be effective.	4	Immediate to < 1 year	\$600
6	79	PST Mansell	Condition Assessment	Pumphouse - Moss control and debris removal is required at the roof. Replace metal roofing as it is damaged.	2, 4, 6	Immediate to < 1 year	\$1,000
7	92	Well Mansell #5	Condition Assessment	Roof requires moss management and clearing of debris.	2, 4, 6	Immediate to < 1 year	\$1,000
8	95	Well Mansell #5	Condition Assessment	Install fire extinguisher	2	Immediate to < 1 year	\$200
9	99	Distribution Cedar Lane	Condition Assessment CRD Staff Comments	Hydrants should be exercised annually. Operation staff should confirm that the 2 out-of-service hydrants are decommissioned.	4, 6	Immediate to < 1 year	\$2,000
10	1	WTP Cedar lane	Condition Assessment CRD Staff Comments	Provide spare pressure pump and sub-drive unit	3, 6	1 - 5 years	\$25,000
11	4	WTP Cedar lane	Condition Assessment	Install useful eyewash station	2	1 - 5 years	\$2,000
12	22	PST Cedar Lane	Condition Assessment	All exterior finishes require restaining to protect finishes and prevent premature deterioration of the finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	5, 6	1 - 5 years	\$5,000
13	49	WTP Cedar lane	Condition Assessment	All exterior finishes require restaining to protect finishes and prevent premature deterioration of the finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	5, 6	1 - 5 years	\$2,000
14	57	PST Mansell	Condition Assessment CRD Staff Comment 2011 AMP	Operations staff noted that they need another well. Need more water production. Investigation to locate new underground water source.	2, 4, 5, 6	1 - 5 years	\$60,000
15	67	PST Mansell	Condition Assessment	Hallett UV Filter no longer used or functional and should be removed.	6	1 - 5 years	\$2,000
16	77	PST Mansell	Condition Assessment	All of the exterior finishes require painting. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	5, 6	1 - 5 years	\$2,000
17	82	Well Mansell #5	Condition Assessment	Not connected, Baseboard heater cannot be connected to the well pump circuit, Provide baseboard circuit and wiring from WTP building	4	1 - 5 years	\$1,000
18	90	Well Mansell #5	Condition Assessment	All exterior finishes require painting to protect from deterioration of finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	5, 6	1 - 5 years	\$1,500
19	93	Well Mansell #5	Condition Assessment	Paint out plywood finishes to prevent further damage of finishes and supporting structure. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	5, 6	1 - 5 years	\$1,000
20	19	PST Cedar Lane	Condition Assessment	Fencing is required to secure the site from vandalism.	2, 5	1 - 5 years	\$20,000
21	34	RES Cedar Lane	Condition Assessment	Perimeter fencing is required to secure the water reservoir from vandalism.	2, 5	1 - 5 years	Refer to Item No. 23
22	46	WTP Cedar lane	Condition Assessment	Fencing is required to secure the site from vandalism.	2, 5	6 + years	Refer to Item No. 23
23	59	PST Mansell	Condition Assessment	Recommend to remove structure and rebuild a useable structure to surround the well. Minimum to replace roof with new roof that incorporates an easier lift.	2, 5, 6	6 + years	\$20,000
24	74	PST Mansell	Condition Assessment	Fencing is required to secure the site from vandalism.	2, 5	6 + years	\$20,000
25	76	PST Mansell	Condition Assessment	Roof hatches require stays to keep open hatches from falling down when maintenance personnel are inside enclosure. Refer to Health & Safety for costing.	2, 5, 6	6 + years	Refer to Item No. 26