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APPENDIX A

REPORT TO JUAN DE FUCA WATER DISTRIBUTION COMMISSION
MEETING OF TUESDAY, JULY 6, 2021

SUBJECT **Proposed Seagirt Improvement District (SID) Conversion**

ISSUE SUMMARY

The Seagirt Improvement District has requested that the Capital Regional District (CRD) take over their community water system, under the Juan de Fuca Water Distribution Service (JDFWDS).

BACKGROUND

The Seagirt Improvement District (SID) was established in 1961 to provide potable drinking water to properties on, and adjacent to, Seagirt Road located in East Sooke. There are approximately 85 properties within SID service area. The SID water system is currently connected to the Juan de Fuca Water Distribution System (JDFWDS) at a bulk meter connection at East Sooke Road and Seagirt Road. The SID is currently responsible for distribution of this water to properties in the SID, including operation, maintenance and administration for all components of the water system on public property. The SID is now considering dissolving and having the water system taken over by the CRD.

SID has requested that its water system be taken over by the CRD due to a number of reasons including:

- The ability of the aging residents to operate an improvement district.
- The ability of the CRD to borrow funds on behalf of the customers in order to undertake necessary infrastructure upgrades.
- Improved firefighting capacity.

A letter from SID is attached (Appendix A) outlining its takeover request and have since passed a resolution regarding the takeover (Appendix B). Both the Province and Island Health are supportive of the conversion of water improvement districts to regional district services. As part of SID's takeover request, CRD staff required an "engineering take over study" (Appendix C) that included an assessment of the existing water system, an outline of the proposed works that would be required for a conversion of the water system, and an estimate of the costs for the design and construction of the proposed works.

The existing SID water system components include:

- Connection (including meter) to the Juan de Fuca water distribution system on East Sooke Road.
- Approximately 1,500 metres of 100 milimetre (mm) distribution main along Seagirt Road within the road allowance. (substandard size)
- 13mm water services to each of the properties within the SID including meter boxes and non-touch read meters. (substandard size and meters)

The engineering study indicates the proposed construction scope of work required to address any infrastructure/liability concerns for the CRD to take over the SID water system is as follows:

- Full replacement of the existing SID water distribution system to 150mm diameter water main.
- 12 new hydrants on the new distribution main.
- 85 new 19mm water services complete with meters and meter boxes.
- 2 Air Valves.
- 9 Isolation Line Valves

Refer to Appendix D for a figure showing the SID and the proposed new infrastructure.

The total estimated costs to take over the SID system, including engineering, construction, CRD administration and operations costs and a 25% contingency is $1,900,000. It is proposed that SID be responsible for the full costs. The CRD's recent discussions with the Province have indicated there could be some grant funding available that the CRD could apply for on behalf of the SID, with a conversion commitment and CRD support. Regardless, the Juan de Fuca Water Distribution Service would not bear any of the costs of the conversion.

For the CRD to take over the SID water system, the CRD and SID must start a service conversion process with the Province, which would be initiated by the Commission and CRD Board direction to proceed with the process, followed by a petition in the SID services area. Then, with the CRD Board's approval, a new CRD service would be established over the existing SID service area in order to finance the infrastructure improvements. The SID would then be dissolved and its assets would become CRD assets under the JDFWDS.

ALTERNATIVES

Alternative 1
That the Juan de Fuca Water Distribution Commission recommends that the Capital Regional District Board direct staff to:

1. Commence a service conversion process with the Province to convert the Seagirt Improvement District (SID) to a Capital Regional District (CRD) service which, when concluded, would result in incorporating the SID water infrastructure into the Juan de Fuca Water Distribution Service; and establishing a new service for the purpose of CRD financing of the infrastructure improvements required as a condition of conversion, and dissolving the SID; and
2. Apply for any available conversion or infrastructure grants on SID's behalf.

Alternative 2
That the Juan de Fuca Water Distribution Commission recommends that the Capital Regional District Board:

Receive the report, Proposed Seagirt Improvement District (SID) Conversion, for information and direct staff not to commence a service conversion process with the Province and advise SID accordingly.

IMPLICATIONS

Financial Implications
Alternative 1 would start the conversion of the SID to a CRD service at an estimated cost to SID of $1,900,000 for initial capital improvements. A conversion/loan authorization process to establish a service area and enable infrastructure financing, and to transfer the existing SID infrastructure into the Juan de Fuca system, would need to take place. Upon completion, a new service area would be established for the sole purpose of financing the construction and requisitioning the ratepayers to service the debt. The former SID ratepayers would pay the full cost of administering the service until the debt was retired, then the CRD service would be dissolved.

JDFWDS would take over the new assets once the upgrades are completed. The infrastructure would be operated as part of the JDFWDS and the former SID customers would receive a JDFWDS bill for water consumed. There may be senior government grants that the CRD could apply for on the SID's behalf to lessen the cost burden. The conversion would have no material impact on the JDFWDS hydraulic capacity or overall regional water demand, as the SID currently receives water service as a customer of the JDFWDS.

Regional Growth Strategy Implications
Section 445 of the *Local Government Act* requires that all bylaws adopted by a regional district board, after the board has adopted a Regional Growth Strategy (RGS), be consistent with the RGS. Since the Seagirt Improvement District is currently a customer of the JDFWDS and is within the JDFWDS service area, there are no RGS implications as there will be no extension beyond the existing JDFWDS service area with the proposed conversion.

Alternative 2 would have no implications and the SID would continue to receive water from the existing connection and supply line at East Sooke Road.

CONCLUSION

The Seagirt Improvement District (SID) is located in the East Sooke Region of the Juan de Fuca Electoral Area that has requested the CRD/Juan de Fuca Water Distribution Service take over its water system. The estimated cost to the SID to be taken over is estimated at $1,900,000 and requires a loan conversion/loan authorization process for service area establishment and financing.

RECOMMENDATIONS

That the Juan de Fuca Water Distribution Commission recommends that the Capital Regional District Board direct staff to:

1. Commence a service conversion process with the Province to convert the Seagirt Improvement District (SID) to a Capital Regional District (CRD) service which, when concluded, would result in incorporating the SID water infrastructure into the Juan de Fuca Water Distribution Service; and establishing a new service for the purpose of CRD financing of the infrastructure improvements required as a condition of conversion, and dissolving the SID; and
2. Apply for any available conversion or infrastructure grants on SID's behalf.

Submitted by:	Joseph Marr, P.Eng., Manager, Water Distribution Engineering and Planning
Concurrence:	Ian Jesney, P.Eng., Senior Manager, Infrastructure Engineering
Concurrence:	Ted Robbins, B.Sc., CTech., General Manager, Integrated Water Services
Concurrence:	Kristen Morley, J.D., General Manager, Corporate Services & Corporate Officer
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENTS

Appendix A: Letter and Attachments from Seagirt Improvement District
Appendix B: Resolution from Seagirt Improvement District
Appendix C: Engineering Takeover Study – Colquitz Engineering
Appendix D: Figure 1 – Required Infrastructure Upgrades

Joseph Marr

Subject: FW: Conversion of the Seagirt Waterworks District
Attachments: 2008 - 2009 Breakage Map.pdf; Colquitz Engineering Report (21-01-22) Rep-SID-Rev1.pdf; Info Letter to Owners (Approved 21-03-03).pdf; Cover letter for voting (Sample).pdf; Voting Survey Letter (Sample).pdf

From: Trustees@seagirtwaterworks.ca [mailto:Trustees@seagirtwaterworks.ca]
Sent: Friday, April 23, 2021 2:16 PM
To: 'Gareth Mogg' <gareth.mogg@gov.bc.ca>; directorjdf <directorjdf@crd.bc.ca>; Ted Robbins <trobbins@crd.bc.ca>
Cc: SWD Trustees <trustees@seagirtwaterworks.ca>
Subject: Conversion of the Seagirt Waterworks District

To: Ministry of Municipal Affairs: Gareth Mogg (gareth.mogg@gov.bc.ca)

To: Capital Regional District: Mike Hicks (directorjdf@crd.bc.ca)
Ted Robbins (trobbins@crd.bc.ca)

Re: Seagirt Waterworks District (SWD)

The purpose of this letter is to inform you of the steps taken by SWD Trustees to convert the improvement district to the Capital Regional District (CRD). Currently the SWD provides water to 84 lots with 153 registered owners. The water is supplied by the CRD and enters the SWD waterline from a CRD waterline on East Sooke Road. The SWD waterline is 60 year-old asbestos-concrete with an estimated life expectancy of 50 years. We have attached a map identifying repairs documented from 2008 to 2009, and there have been many other line failures since.

The initial step undertaken by the current SWD Trustees was to obtain an engineering study for what is required, including an estimate of the costs, to replace the waterline. Colquitz Engineering provided its report with funding secured by Mike Hicks, Regional Director for Juan de Fuca – Capital Regional District, a copy of which is attached.

Following receipt of the Colquitz Report, the SWD Trustees resolved to send an information letter to the SWD property owners. A copy of the information letter is attached. The information letter was sent by Canada Post on March 4, 2021 and was sent by email to the property owners on March 6, 2021.

The property owners were informed of the options open to them, including the replacement of the waterline as outlined in the Colquitz Report, and were invited to address any questions or concerns to the Trustees by email. A virtual information meeting using ZOOM was scheduled for Saturday, March 20, 2021. Two of the Trustees visited every property within the SWD for which we did not have an email address, to offer information and assistance for joining the virtual meeting ahead of time. On the day of the meeting, there were approximately 50 property owners who participated.

On March 30, 2021, a Voting Letter was mailed by Canada Post to all property owners, asking them to choose which option (as set out in the information letter) they would prefer. The property owners were asked to return their votes to the Trustees using a pre-addressed, prepaid, envelope enclosed with the Voting Letter, by April 15, 2021.

On April 16, 2021, the Trustees and one additional property owner counted the votes that had been received. The results of the count is as follows:

Option 1: 3 votes representing 2 properties

Option 2: 2 votes representing 1 property

Option 3: no votes

Option 4: 111 votes representing 63 properties

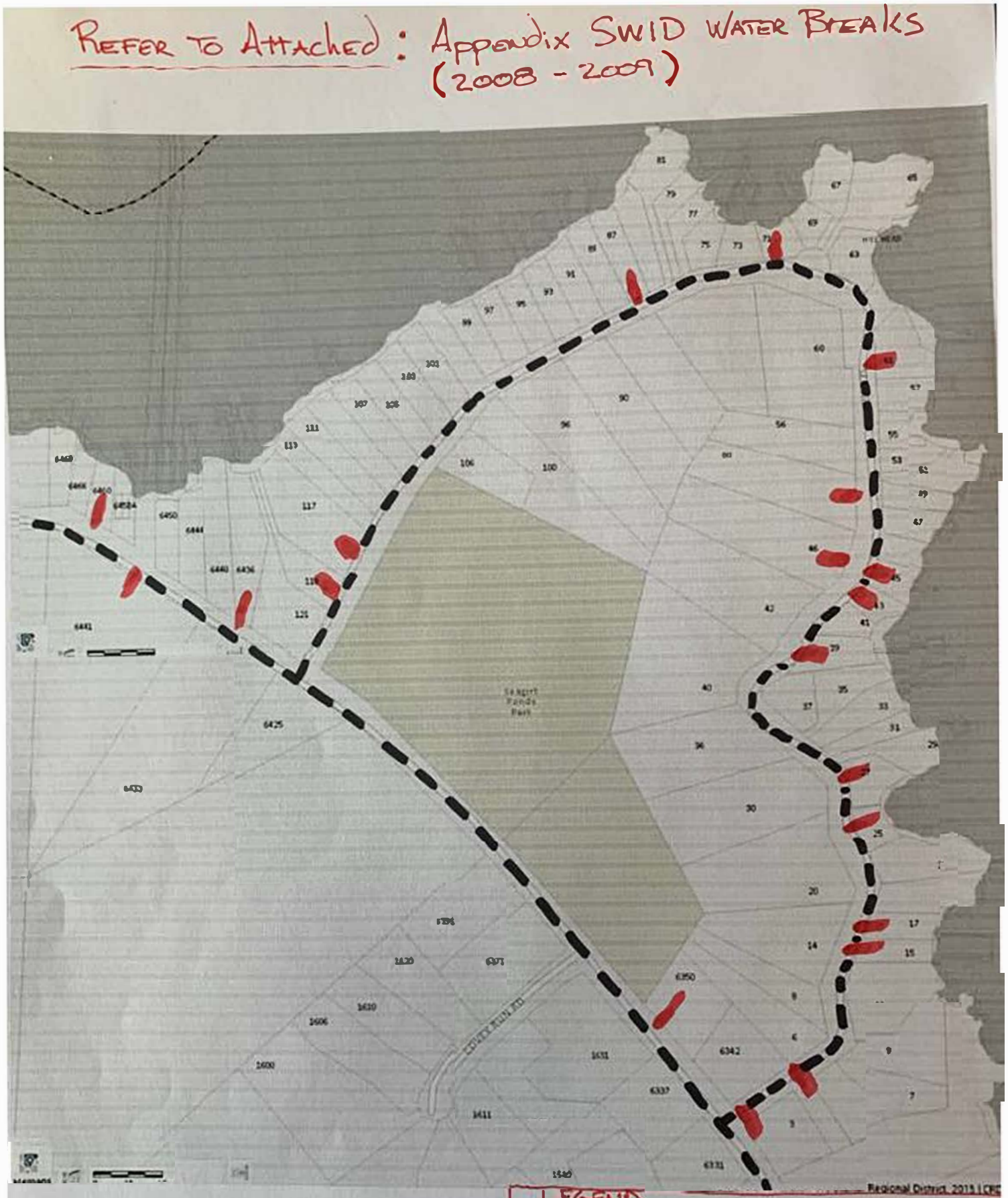
A majority of property owners favour Option 4, which is to have the SWD convert to the CRD and have the CRD undertake construction of the new waterline as proposed in the Colquitz Report, with the understanding that the cost will be borne by the property owners financed by MFA. The cost of the new waterline will be paid by the property owners through their property taxes.

The Trustees wish to proceed with conversion to the CRD, and the construction of the replacement waterline. The Trustees have complied with the guidelines laid out by the Ministry of Municipal Affairs and now look to you for the next steps.

Yours truly,

The Trustees,
Seagirt Waterworks District

REFER TO ATTACHED: Appendix SWID WATER BREAKS (2008 - 2009)



Seagirt Waterworks District
c/o 9 Seagirt Road
Sooke, B.C. V9Z 1A3

«Owner__First_Name» «Owner_Last_Name»
«Owner_Address_1»
«Owner_City», «Owner_Prov» «Owner_Postal_Code»

Re: «ExtendedLegal»

Further to our letter of March 4, 2021, enclosed is the Voting Letter by which each person registered on title to the above-noted property is entitled to vote for one of the four options set forth in the Information Letter to Owners that was approved by the Trustees on March 3rd, 2021.

Copies of the **Information Letter**, as well as the **Colquitz Report**, the **Overview of the Conversion of an Improvement District to a Regional District Service** document, and the **FAQ** can be found on the Seagirt Waterworks website at www.seagirtwaterworks.ca.

Please complete Voting Letter by filling in the information required and return it in the enclosed stamped self-addressed envelope on or before April 15, 2021.

If you have any additional questions, please address them to Trustees@seagirtwaterworks.ca and we will respond as quickly as we are able.

Thank you for your participation in determining the future of our water system.

Best regards,

Tim Henderson, for
The Trustees, Seagirt Waterworks District

/encl.

Information Letter on Waterline Replacement
Options Regarding the Seagirt Waterworks District Waterline

A little History to start :

The Seagirt Water District (SID) was established by Order in Council in 1961. The waterline constructed at that time was a 4 inch concrete and asbestos pipe with an expected lifespan of 50 years.

Over the last 60 years the water system has been managed by volunteer elected Trustees who have overseen the system for the benefit of the water users. During that time the waterline has experienced failures in different locations which have been repaired at the expense of the ratepayers. Contractors repairing the waterline have described it as fragile and in need of replacement.

The Elected Trustees have considered the matter and concluded that ratepayers have four options:

Option 1: Do nothing

This option represents established practice where repairs are made when there is a failure. The very real risk here is that, because the line is past its end of life, it could fail at any time and require replacement at considerable cost and inconvenience to ratepayers.

There would be no ability for any planning such as developing a pathway to engage the CRD to assume ongoing management of the waterline.

Furthermore the existing 4-inch line is below current standards and does not have the capacity to meet single family residential fire flow demands.

Option 2: Replace the old AC with PVC

This option would have SID hire a contractor to locate the old AC pipe, remove and replace it with PVC that would connect with the PVC that has been installed over the past 30 years. The contractor who was involved in repairing the broken AC line has advised that :

i) difficult to locate the PVC now in the ground,
ii) The integrity of the PVC now in the ground is likely compromised,
iii) The PVC now in the ground ie that replaced the broken AC pipe is 4 inches not 6 inches and does not meet current standards,
iv) It would be an expensive patch work fix with no certainty of ongoing integrity,
v) over the last few years there has been new construction along Seagirt Road with heavy equipment going back and forth which has likely damaged the old waterline.

The Trustees have concluded this is not a workable solution and would only delay the inevitable - the need for a new waterline.

Option 3: The SID undertake the work to replace the waterline

The cost of replacement is approximately $2,000,000 and is detailed in a report prepared by Colquitz Engineering dated January 22, 2021, a copy of which can be found on the Seagirt Waterworks website (www.seagirtwaterworks.ca).

To undertake replacement of the waterline the SID would be responsible for:

- Retaining the services of a civil engineering consultant to prepare detailed design and tender documents;
- Overseeing the tender and selection process;
- Overseeing the contractor and construction;
- Obtaining Island Health and CRD approvals;
- Financial administration and oversight.

These costs amount to more than $200,000 and will require time and experience that are likely beyond the capacity of volunteers on behalf of the Improvement District. Once the requisite approvals are obtained the job would be put out for tender. The cost of replacing the waterline would be covered from loans arranged by the SID through a bank or credit union which would be repaid by the ratepayers through taxes.

An example of the potential cost for replacement:

$2,000,000 at 3.03% amortized over 25 years (300 monthly payments) would be $9,515.46 per month or $111.95 per lot.

Please note that under this option, no grant monies are shown because Improvement Districts are not eligible for grants - only the CRD can apply for grants. Furthermore, financing through the Municipal Financing Authority (MFA) at the lowest borrowing rate possible, is not available to an Improvement District.

Under this option the ongoing administration of the SID would continue - holding annual general meetings, electing volunteer trustees, bylaw enforcement, tax collection, meter reading, infrastructure maintenance, billing and collection on behalf of the water users. To work effectively, this system depends on volunteers able and willing to do the work.

Option 4: Have CRD take over the Improvement District

This requires that ratepayers agree to the dissolution of the SID. The advantage here is that the CRD would assume responsibility for the works necessary to replace the waterline.

The waterline replacement would conform to the Colquitz Engineering Report. As the report shows, the new waterline would meet current standards, with a 6 inch diameter pipe, fire hydrants, new meters and meter boxes etc.

Costs will still be carried by ratepayers in the SID, however, the CRD would be eligible to apply for MFA financing which is at a cost considerably less than borrowings from a bank or credit union. Moreover by agreeing to dissolve the SID and have CRD take over and install the new waterline financed by MFA the borrowing costs of each ratepayer will be added to the property tax bill of each property. If the property is the ratepayer's principle residence and the ratepayer is 55 years old or older the property taxes, including the costs of borrowing, can be deferred under the Property Tax Deferral Program

It is important to note that, while the CRD is eligible to apply for grant monies, they have advised that they would not likely be successful in obtaining grants to replace an old waterline. That said it is safe to say that there would be no reason for the CRD not to apply for a grant if available.

Two of the three Trustees recommend Option 4.

Conclusion:

Once the Trustees have had an opportunity to meet with CRD Staff, we will be asking each ratepayer which option is preferred. In the meantime if you have any questions please contact the Trustees at Trustees@seagirtwaterworks.ca. We will likely hold a virtual information meeting for ratepayers on Saturday, March 20 at 2:00 in the afternoon on ZOOM. Registration will be required ahead of time. If you would like to participate, please send an email to Trustees@seagirtwaterworks.ca. If you need assistance to set up or use ZOOM, please contact Tim Henderson at 778-679-9987.

Following the meeting, we will send a letter to each ratepayer with a return envelope asking which option they prefer.

Approved by the Trustees, Seagirt Waterworks District
March 3, 2021

To the Trustees, Seagirt Waterworks District
c/o Tim Henderson, Trustee
9 Seagirt Road
Sooke B.C. V9Z 1A2

The undersigned, being the registered owner(s) on title to the property in the Seagirt Waterworks District having a civic address of

nn Seagirt Road

and/or legal description of

Lot nn, Plan VIPnnnnn, Section 97, Sooke Land District

have received and read the Information Letter to Owners dated March 4, 2021, and hereby vote for our preferred option:

Full name	Signature	Option _____ *Write in your preferred option*
Full name	Signature	Option _____ *Write in your preferred option*
Full name	Signature	Option _____ *Write in your preferred option*
Full name	Signature	Option _____ *Write in your preferred option*

Following is a reminder of the 4 Options fully described in the “Information Letter on Waterline Replacement” of March 4, 2021:

Option 1. Do nothing

Option 2. Dig up and replace asbestos pipe with 4” PVC pipe and connect it to existing PVC already in the ground.

Option 3. Seagirt Waterworks undertake replacing the waterline with 6” PVC pipe in accordance with the Colquitz Report , to be financed by a bank loan to SWD at commercial rates.
Option 4. CRD replaces waterline in accordance with the Colquitz Report, Seagirt Waterworks dissolves, assets and management of SWD converts to CRD, Financed through the Municipal Finance Authority.

Signed this _____ day of _____, 2021

Please return your completed Voting Survey using the stamped self-addressed envelope provided before April 15, 2021.

Seagirt Waterworks District
Resolution of Trustees

WHEREAS the ratepayers of SEAGIRT WATERWORKS DISTRICT (SWD) have been duly informed and have agreed to the transfer of the SWD to a CAPITAL REGIONAL DISTRICT service.

THEREFORE BE IT RESOLVED that the SEAGIRT WATERWORKS DISTRICT Trustees wish to dissolve the Improvement District and transfer the service including, but not limited to all assets and liabilities to a service of the CAPITAL REGIONAL DISTRICT (CRD), at such date that is appropriate to transfer all operations, assets and liabilities to the CRD.

Dated this 16th day of June 2021

Trustee _____
Tim Henderson

Trustee _____
Michael Paine

Trustee _____
David Johner

Report

SEAGIRT IMPROVEMENT DISTRICT

Engineering / Takeover Study

Submitted to:
Capital Regional District
479 Island Highway
Victoria, BC V9B 1H7

Submitted by:
Colquitz Engineering Ltd.
4115 Elwood Avenue
Victoria, BC V8Z 5J9

Date: January 22, 2021
Project Number: 102.012

Contents

Figures

Appendices

1. INTRODUCTION

The Seagirt Improvement District (SID) was established in 1961 to provide potable drinking water to properties on, and adjacent to, Seagirt Road located in East Sooke. The water system was originally serviced by a 50 mm underwater pipeline across Sooke Basin. Subsequently the Capital Regional District (CRD) has provided water service to East Sooke including a 200 mm watermain along East Sooke Road at either end of Seagirt Road, as part of the Juan de Fuca (JDF) distribution system.

The SID water system currently is connected to the CRD system at a bulk meter connection at East Sooke Road and Cornelius Road. The SID is responsible for distribution of this water to properties in the SID, including operation, maintenance and administration for all components of the water system on public property. The SID is now considering dissolving and having the water supply system taken over by the CRD.

The primary purposes of this study are as follows:

- Review the exiting water system and determine what works are required to facilitate takeover by the CRD, and;
- Estimate the costs for the design and construction of the proposed works.

In preparation of this report, we have reviewed background information, completed a field review including discussions with SID trustees, and completed the analysis necessary for determining the required works and estimate the capital costs.

2. SYSTEM DESCRIPTION

2.1 General

The SID encompasses the area shown on Figure 2-1 below.

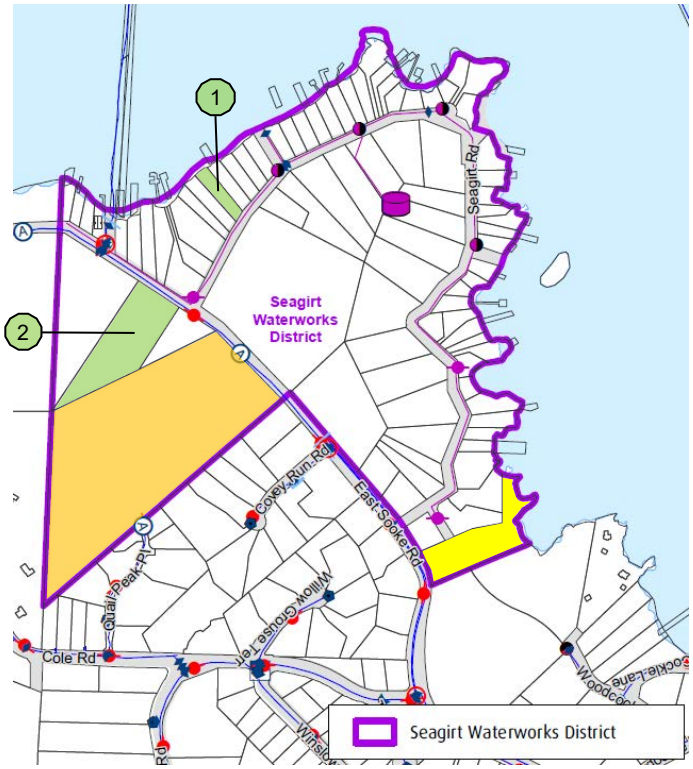


Figure 2-1: SID Water System
(Source – CRD provided map)

In reviewing the drawing *Seagirt Waterworks District, Community Water Supply Systems, February 1981*, (see Appendix A) we note that the SID used to, but no longer includes the properties which are now off of Covey Run Road, Quail Peak Place, and Willow Grouse Terrace. Additionally, the property immediately to the west of Covey Run Road and Quail Peak Place (highlighted in orange on Figure 2-1), was removed from the SID in 2020.

It should be noted that the property highlighted in yellow on Figure 2-1 was not included in the SID. This property currently is not developed and for the purpose of this study, we have assumed that this property is excluded from the study area.

The SID trustees provided us with a list of the 83 properties that are currently billed for water. A count of the properties within the SID boundary is 85. The difference is the following two properties (highlighted in green on Figure 2-1), which we understand are not currently serviced:

1. The property between 107 Seagirt Road and 111 Seagirt Road.
2. 6433 East Sooke Road.

For the purpose of this study, we have assumed all 85 lots will be serviced.

The primary components of the existing SID water system components are as follows:

- Connection (including meter) to the CRD water system at East Sooke Road and Cornelius Road.
- A 100 mm asbestos cement (AC) distribution main. The trustees indicated that there are sections of this main which have been replaced with PVC pipe as repairs have been made over the years.
- Water services to each property, likely 13 mm copper, completed with concrete meter box and meter (not “touch read” meters).
- Isolation valves and stand-pipes.

It should be noted that the SID trustees indicated that the reservoir which was part of the original water system, no longer exists.

2.2 Existing System Evaluation

In evaluating the suitability of the existing system components to be taken over by the CRD, conformity with the CRD’s standards and capacity have been considered.

The existing watermain is AC which is a substandard material type. The CRD is actively replacing AC mains within the JDF distribution system as these mains are nearing the end of their service life, and are subject to breaks and leakage as they age. The existing main is 100 mm in diameter, and does not have adequate capacity for single-family residential fire flow demands.

The existing services are likely 13 mm copper. The modern standard is for services to be a minimum of 19 mm in diameter. The existing meters do not have the CRD standard “touch read”. The existing concrete meter boxes do not match the current standard which calls for a polymer meter box and lid.

The existing stand-pipes do not meet the current standards for fire hydrants.

Based on our evaluation of the existing system, to allow the SID to be taken over and incorporated into the CRD’s JDF distribution system, the entire water system on public property should be replaced. The details for this replacement are described below.

3. PROPOSED WORK

The recommend scope of work that will allow for the SID water system to be taken over by the CRD, is outlined below. The proposed work has been developed taking into consideration the CRD's *Engineering Specifications and Standard Drawings*, and good engineering practice. This scope of work covers the physical works only, and does not include any of the administrative and legal costs involved in the takeover.

3.1 Connections to CRD

It is proposed that there will be two connections to the CRD main on East Sooke Road, at either end of Seagirt Road. This will provide a looped water system, which is beneficial from a fire flow capacity and operations and maintenance perspective.

3.2 Distribution Main

The proposed distribution main will be along the entire length of Seagirt Road, from each of the two connections at the East Sooke Road intersections. The CRD water system on East Sooke Road has a static hydraulic grade line (HGL) of El. 91 m.

The watermain size is determined based on the following pressure criteria, as per the CRD's engineering specifications:

- Minimum of 276 kPa during the peak hour demand scenario (PHD)
- Minimum of 140 kPa during the max day demand plus fire flow scenario (MDD+FF)

For the proposed Seagirt Road water system, the MDD+FF criteria governs. The water demands used in the analysis, calculated as per the CRD's engineering specifications, are as follows:

- MDD of 3.6 L/s calculated based on 73 properties off of Seagirt Road (excludes lots off of East Sooke Road), 3.2 people/property, a per capita demand of 545 L/capita/day, and a peaking factor (MDD versus average day demand) of 2.5.
- FF of 80 L/s (equal to 4800 L/min), which is appropriate for the single-family residential land-use.

To facilitate calculating the required watermain size, the CRD provided flow versus residual pressure curves for the water system near either end of Seagirt Road.

The analysis indicates that the required pipe size is 150 mm in diameter. The resulting minimum watermain pressure is estimated at 480 kPa for this MDD+FF demand scenario (therefore exceeding the minimum pressure requirement of 140 kPa). As per CRD specifications and standards, this proposed watermain will be PVC (DR18) to the AWWA C900 standard. The total length of the proposed watermain is estimated to be 1,490 m.

Soil mapping in the area (*Soils of Southern Vancouver Island, MoE Technical Report 17*) indicates that bedrock is often found at or near the surface. This is consistent with observations during our field review. For this reason, consideration has been given to installing the proposed main in the same trench as the existing main, and therefore minimizing the rock blasting required. This option has been ruled out for the following reasons:

- The limited isolation valves and access points on the existing, and therefore difficulty in providing temporary water services to properties during construction.

- The cost to handle and dispose of the existing AC watermain (as opposed to abandoning it in place).
- The existing watermain alignment appears to be well off the road in places, and constructing the proposed watermain will result in conflicts with trees and other surface features.

For these reasons, the proposed watermain alignment will likely (to be confirmed during detailed design) along the west side of Seagirt Road, the opposite side from the existing watermain.

The connections to the existing 200 mm watermain on East Sooke Road will be tee connections, with isolation valves on each leg.

The existing 100 mm watermain will be abandoned after construction. This includes the existing SID watermain on East Sooke Road from Cornelius Road to Seagirt Road. The existing meter at Cornelius Road will also be abandoned.

3.3 Services

The properties within the SID which have frontages on East Sooke Road will have new services directly off of the existing CRD 200 mm watermain on East Sooke Road. The remaining services will be from the proposed watermain on Seagirt Road.

The proposed water services will be 19 mm in diameter as per CRD standards. Once the newly constructed water system is connected to the CRD's system, new water meter boxes and meters will be installed and the connections to the existing water services at the property line will be made.

3.4 Other System Components

Hydrants

Hydrant(s) are required and are to be provided in accordance with the CRD's specifications. The maximum allowable hydrant spacing in single-family residential areas is 150 m. For the 1,490 m long proposed watermain, we estimate that 12 hydrants will be required. These hydrants can also be used to flush the watermain. Additional flush-outs are not anticipated.

Air Valves

Air valves are typically required at significant high-points in a water system. We anticipated that air valves will be required at the East Sooke Road and Seagirt Road east intersection, and adjacent to 40 Seagirt Road.

Isolation Valves

Isolation valves will be required at the tee connections to the watermain on East Sooke Road (three vales per connection). Additional isolation valves will be located at some of the hydrant tees along the watermain route for unidirectional flushing and for isolation of sections of main in the event a repair is required. We anticipate that there will be six lines valves on the Seagirt Road watermain, providing isolation valves at every other hydrant.

3.5 Summary

In summary, the proposed scope of work required that will allow for the CRD to takeover the SID water system is as follows:

1. Approximately 1,490 m of 150 mm diameter distribution watermain along Seagirt Road connecting to the CRD watermain on East Sooke Road (two connections);
2. 85 water 19 mm water services complete with meter and meter boxes. 73 of these services will be off of the proposed watermain, and 12 off of the existing watermain on East Sooke Road.
3. Twelve fire hydrants.
4. Two air valves.
5. Six isolation line valves on the proposed Seagirt Road watermain and three live valves on each of the connections to the East Sooke Road watermain.

3.6 Procedure

The following outlines the potential process for completion of the work following an agreement from the CRD to proceed with the dissolution of the SID:

1. SID retains the services of a civil engineering consultant to prepare the detailed design and tender documents, obtain Island Health and CRD approvals, and provide construction inspection and contract administration services.
2. Following completion of the detailed design and approval of the design from CRD and Island Health, tender the works for construction.
3. Tender the design and select a contractor to construct the waterworks.
4. The selected contractor constructs the 150 mm Seagirt Road watermain, 73 water services off of the Seagirt Road watermain, fire hydrants, air valve and isolation valves.
5. Pressure testing and bacteriological testing of the new 150 mm watermain.
6. The CRD makes the connections from the 150 mm Seagirt Road watermain to the existing watermain on East Sooke Road, and install the 12 services off of the existing East Sooke Road watermain.
7. The contractor installs service meter boxes and meters, and makes the final connections to the existing services at the property line.

4. COST ESTIMATE

A capital cost estimate for the works as described above is included in Appendix B.

This cost estimate is defined as a “Class C” estimate as described in the *Budget Guidelines for Consulting Engineering Services, 2009, Consulting Engineers of British Columbia and the Association of Professional Engineers and Geoscientists of BC*.

Some notes regarding the cost estimate are as follows:

- The cost estimate is the capital cost for the design and construction of the water works as described above. This estimate does not include any CRD or SID administrative costs.
- An allowance for the archaeology is not included. We contact the Archaeology Branch and they advised, “The Archaeology Branch does not identify a need for archaeological study or Provincial heritage permit(s) at the time of this information request.”.
- It is assumed that 10% of all trench excavation is in bedrock.
- It is assumed that 75% of the trench Seagirt Road watermain is in asphalt.

5. REPORT SUBMISSION

We trust that this report provides meets your requirements at this time. If clarification or further information is required, please contact the undersigned.

Prepared by:

COLQUITZ ENGINEERING LTD.

Jeff Howard, P.Eng.
Water Resources Engineer

Statement of Limitations

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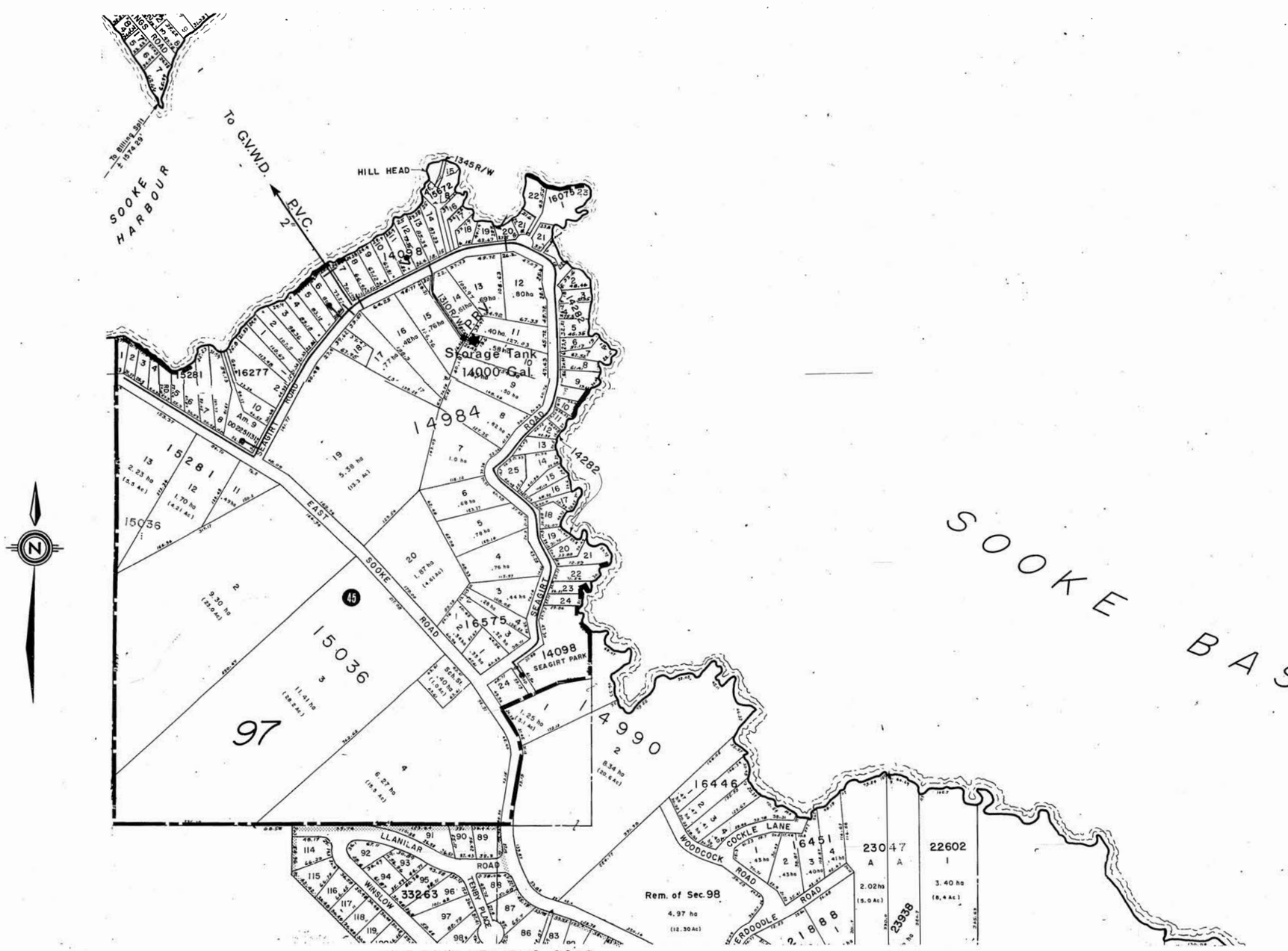
Revision History

Revision #	Date	Status	Revisions	Author
0	January 8, 2021	DRAFT	Submitted for CRD review and comments	J. Howard
1	January 22, 2021	FINAL	Submitted for acceptance	J. Howard

Appendix A

SEAGIRT WATERWORKS DISTRICT DRAWING



MINE ROAD UTILITIES CORP.
(34)

Sooke Land District

Pipe is 4" A.C. Cl. 150
Unless Noted Otherwise

The information provided on this drawing has been obtained from the water distribution authority and/or other agencies. No representation is made as to the accuracy or otherwise of the data shown.

SEAGIRT WATERWORKS DIST.

SYSTEM INFORMATION FROM		REVISIONS		
DESCRIPTION	DATE	No.	DESCRIPTION	DATE
Imp.Dist.	9/2/81			

SURVEYED
DATE
DESIGNED
DRAWN
TRACED
CHECKED
DATE FEB. 1981

COMMUNITY WATER SUPPLY SYSTEMS

BRITISH COLUMBIA
MINISTRY OF ENVIRONMENT
COMMUNITY WATER SUPPLY SECTION
WATER MANAGEMENT BRANCH

VANCOUVER ISLAND REGION

(From C.P.C.N.) LEGEND

Service Area
Pipeline – Const.
" – Prop.
Munic. Bdy.
Valve — Hydrant
Imp. Dist. Bdy.
Air Valve — Standpipe
Pumphouse — Intake
Reservoir — Well

FILE No. 0235293
SCALE 1" = 300'
DWG V–45 i
Imp.Dist. No. 45
INDEX No. 1

D

BCIL - 8222 D - W.I.B.

colquitz engineering

COST ESTIMATE

CAPITAL REGIONAL DISTRICT
102.012

Class 'C' Opinion of Probable Construction Costs
Works as outlined on the report: *SEAGIRT IMPROVEMENT DISTRICT Engineering / Takeover Study, January 22, 2021*

Item	Description	Unit	Estimated Quantity	Unit Rate	TOTAL PRICE $	Comment
1	**Engineering**					
1.01	Topographic survey	L.S.	1	$15,000	$15,000	
1.02	Engineering Design	L.S.	1	$60,000	$60,000	10 plan/profile drawings, 2 plan drawings for service on East Sooke Road, PRV chamber.
1.03	Tender Documents and Tendering	L.S.	1	$5,000	$5,000	
1.04	Layout of the works	L.S.	1	$15,000	$15,000	
1.05	Contract administration and inspection	L.S.	1	$100,000	$100,000	Assume half-time inspection (20 hours per week), and 26 week construction duration.
	Subtotal				**$195,000**	
2	**Waterworks - Contractor**					
2.01	Administration	L.S.	1	1%	$13,110	
2.02	Mobilization/demobilization	L.S.	1	2%	$26,220	
2.03	Traffic Control	L.S.	1	$20,000	$20,000	
2.04	Arborist Services	L.S.	1	$5,000	$5,000	
2.05	150 mm PVC DR18 Watermain	m	1490	$450	$670,500	
2.06	19 mm Short Side Service	each	36	$2,000	$72,000	
2.07	19 mm Long Side Service	each	37	$4,000	$148,000	
2.08	Hydrant	each	12	$7,500	$90,000	
2.09	Air Valves	each	2	$3,000	$6,000	
2.10	Water System Flushing/Testing	L.S.	1	$5,000	$5,000	
2.11	50 mm Asphalt Pavement	m2	1600	$50	$80,000	
2.12	Boulevard Restoration	L.S.	1	$25,000	$25,000	
2.13	Rock Removal	m3	250	$300	$75,000	
2.14	Remove Existing Flushout	L.S.	1	$2,500	$2,500	
2.15	Remove Existing Valves	L.S.	1	$2,500	$2,500	
2.16	Meter, Meter Box, Connect to Existing	each	73	$1,500	$109,500	
	Subtotal				**$1,240,830**	
3	**Waterworks - CRD**					
3.01	19 mm Service off existing	each	12	$5,200	$62,400	
3.02	Connect to existing main (200x150 tee, 3 gate valves)	each	2	$10,000	$20,000	
	Subtotal				**$82,400**	
	SUBTOTAL ITEMS 1 TO 3				**$1,518,230**	
	Contingency			25%	$379,558	
	TOTAL AMOUNT (excl. GST)				**$1,897,800**	

This opinion of probable cost has been based on items shown on the current drawings set and reflects an estimate of the expected low tender price for use in evaluation of tenders. As such, a suitable contingency should be added for use for other purposes. The unit prices, production rates and crew rates reflect Colquitz Engineering's recent experience with similar work, and therefore represent the best prediction of actual costs as of the date prepared. Actual tendered costs will depend on such things as market conditions generally, competitiveness of the tendering process, the time of year, contractors' work loads, any perceived risk exposure associated with the work, and unknown conditions.

COLQUITZ ENGINEERING LTD.