



COLUMBIA SHUSWAP REGIONAL DISTRICT

Regular Board Meeting

LATE ITEMS AGENDA

Date: Thursday, June 20, 2019
Time: 8:30 AM
Location: CSR D Boardroom
555 Harbourfront Drive NE, Salmon Arm

Pages

***3. 9:15 AM Board Photo**

***4. Board Recognition of Staff**

***4.1 Introduction of New Staff**

Crystal Robichaud, Administrative Clerk, Corporate Administration

Ken Gobeil, Senior Planner, Development Services

Marie Capewell, Accounting Technician, Financial Services

***4.2 Presentation of Local Government Administration Certificate to Phaedra Turner, Team Leader, Administration Services, Operations Management**

***4.3 Presentation in Recognition of 25 years service (May 29, 2019) to Marianne Mertens, Clerical Assistant, Development Services**

***5. Board Presentation to Lori Gervais, Payroll Administrator/HR Assistant**

Gift presentation - staff resignation.

10. Reports

***10.6 Revelstoke and Area Economic Development Commission Meeting Minutes (May 8, 2019)**

1

11. Business General

***11.2 Policy F-30 Electoral Area Grant in Aid Funding**

5

Report from Jodi Pierce, Manager, Financial Services, dated June 4, 2019.
Amendment to Grant in Aid policy.

Motion

THAT: the Board endorse the amendment to Policy No. F-30 “CSRD Electoral Area Grant in Aid Funding” and approve its inclusion into the CSRD Policy manual, this 20th day of June, 2019.

***11.5 Alternative Approval Process – North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Area Establishment**

18

Report from Jennifer Sham, Assistant Deputy Corporate Officer, dated June 4, 2019.

*Elector Response Form included on Late Agenda, for reference.

Motion

THAT: for the purpose of obtaining approval for the North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019, using the Alternative Approval Process, eight hundred eighty five (885) be used as the fair determination of 10% of the eligible number of electors within the service area (Electoral Areas C and F, excluding Seymour Arm), this 20th day of June, 2019.

Motion

THAT: the North & South Shuswap Community Arts, Recreation and Culture Programs Alternative Approval Process Elector Response Form be approved by the Board in the form attached to this report, subject to the North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019, being approved by the Inspector of Municipalities by Tuesday, July 2, 2019, this 20th day of June, 2019.

Motion

THAT: the deadline for receipt of submissions of Elector Response Forms for the Alternative Approval Process conducted for the North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019, be 4:00 PM, Wednesday, August 21, 2019, this 20th day of June, 2019.

***11.8 Newsome Creek Feasibility Study – Property Erosion at Caen Road**

33

Report from Derek Sutherland, Team Leader, Protective Services, Operations Management, dated June 17, 2019. Newsome Creek Feasibility Study - Property Erosion at Caen Road in Sorrento, BC.

CSRD Flooding Policy No. W-5 attached for reference.

Motion

THAT: the Newsome Creek Erosion Mitigation Options report prepared by Kerr Wood Leidal Consulting Engineers dated June 7, 2019 be received by the Board for information this 20th day of June, 2019.

- *11.8.1 Verbal Report - Chair Martin, Director Demenok, Chief Administrative Officer re: Ministerial Meeting June 13, 2019 re: Newsome Creek Mitigation**

12. Business By Area

***12.1 Grant-in-Aid Requests**

80

Report from Jodi Pierce, Manager, Financial Services, dated June 18, 2019.

Motion

THAT: the Board approve the following allocations from the 2019 electoral Grant-in-Aids:

Area A

\$10,000 Little Mittens Animal Rescue Association (operating expenses)

Area C

\$8,000 Sorrento Memorial Hall (tables and chairs)

\$25,000 South Shuswap Canada Day Society (Canada Day event)

\$1,950 South Shuswap Transportation Society (start-up costs)

Area D

\$1,900 Falkland & District Community Association (Family Day event)

Area F

\$1,100 Anglemont Volunteer Fire Department (pancake breakfast and open house)

***12.5 Infrastructure Planning Grant – Nicholson Groundwater Aquifer**

83

Report from Ben Van Nostrand, Team Leader, Environmental Health Services, dated June 14, 2019. Board endorsement for an Infrastructure Planning Grant application for the Nicholson Groundwater Aquifer.

Motion

THAT: the Board empower the authorized signatories to apply for an Infrastructure Planning Grant for the community of Nicholson from the Ministry of Municipal Affairs and Housing in the amount of \$10,000 to develop a community water system infrastructure feasibility study, this 20th day of June, 2019.

**Revelstoke and Area
Minutes of the Economic Development Commission
Wednesday, May 8, 2019 at 4:00 p.m.
in the Revelstoke Business Information Centre,
301 Victoria Road West**

PRESENT: Council Mayor Sulz
 Members Roberta Bobicki, Brett Renaud, Nathan Weston, Ken Norrie,
 Erin Kerwin, Lisa Longinotto, Steve Cross, Mark Baron, Shaun
 Aquiline, David Brooks-Hill, Tracey Buckley
 Staff Ingrid Bron, Director, Community Economic Development
 Brooke Burke, Recording Secretary
 Guest Kevin Dorrius
ABSENT: Craig Tennock, Alex Cooper

1. CALL TO ORDER

Meeting was called to order by chair, Roberta Bobicki at 4:00 pm.

2. ADOPTION OF AGENDA

Moved by Tracey Buckley

Seconded by Mark Baron

THAT agenda be adopted as presented.

CARRIED

3. ADOPTION OF THE MINUTES

Moved by Brett Renaud

Seconded by Shaun Aquiline

THAT the minutes from April 3, 2019 be adopted as presented.

CARRIED

4. BUSINESS ARISING FROM THE MINUTES

New Business – 7.1 – Maximizing value and term of lease arrangements on City property – No update at this time.

New Business – 7.2 – Request timeline on development permit status – No further updates available.

5. ACTIVITY REPORT

5.1 April 2019 Activity Report

Report was reviewed by commission and the following was discussed:

Economic Development Commission Minutes, May 8, 2019

- Resort Development Strategy (RDS) is now completed and will go to council on May 28. Reviewed the amount for 2019 is \$747,000 and is now a budget line with the provincial government. Reviewed that a larger percentage is now able to be put towards arts & culture under the new strategy.
- Confirmed additional funding has been awarded towards the City's tech strategy. Will be working on an RFP to be sent out. A working group will be formed instead of the traditional committee. There are other groups in the community that will feed into this strategy and that is who will be targeted. Anyone has interest in this working group to contact Ingrid.
- Wayfinding RFP had gone out and a decision has been made on the contractor. Ingrid is meeting with them tomorrow to go over a contract and discuss further action. A working group will be formed for this process with the contractor working with various groups. Ingrid will ask the contractor to attend the next Commission meeting to discuss and get any input from the members.
- Briefly reviewed the upcoming collective impact conference in June. All members from the Commission have been invited to attend.
- Recent filming in town had hired 70 locals during the time they were here. Episode will air this summer and the City will have a celebration of sort to showcase this.
- When can Telus data be used/shared? Waiting for more details from Telus to be sorted and once that is done then more information could be used. Ingrid will have stories created to help to get the word out to the community and further, this way it gives more of a perspective to people and really know the impacts.

6. OLD BUSINESS

6.1 Caribou Consultations

Mayor Sulz opened with his recent trip to the SILGA conference. He referred to the signing of the Section 11 agreement between the federal and provincial governments. This could have a major impact with backcountry closures that would then effect mills closing, ski and snowmobile industry and the trickledown effect could be a massive destruction of our community. He spoke on asking the provincial government for the affected communities to sit at the table to discuss herd management. Mayor Sulz and Sicamous Mayor Rysz will be traveling to Victoria to speak with government officials about the dire situation that closing the backcountry would have on many communities. It was noted that if the closure

Economic Development Commission Minutes, May 8, 2019

does happen it is very difficult to get it open again. Talk about needing to manage the predators in the area to help with the caribou survival. Concern from Commission members about the federal government holding all the power, no matter what is presented to them. It is hoped the federal government will not close the backcountry as they did come to the province to ask for assistance with the matter. We as a community need to keep speaking up to the government. Mayor Sulz referred back to 1995 and the hard work that went into that agreement.

Ingrid introduced Kevin Dorrius from Community Futures and the role they would like to take on. Kevin spoke that CF has access to all the documents that were created back in 1995, as they played a role back then too. He noted CF is willing to take a lead to move forward and doing an economic impact study based on Revelstoke, as it seems the information from the province is more broad based. Need to have an unbiased look at the situation as it is more complex than it seems on the surface.

Reference was made to a letter Mike Copperthwaite, CEO of RCFC sent to the editor where he produced actual statistics on the protected lands for the caribou. Question was asked on what can we do more? Hard to say when the scientists don't even know exactly why the decline. We as a community need to identify best practices in this process and need to get that message to the province. The sense is if we can produce this information before the end of May the hope is the federal government will not take any action in closing any areas.

Ingrid asked the Commission what they would like her to do next. Supporting a best practices or process showing the impacts on the back country area. Wanting to sit at the table to assist in managing the herds with the province is the message council wants to send. General discussion.

7. **NEW BUSINESS**

None.

8. **FOR INFORMATION**

8.1 Stats

Stats include for information to Commission.

8.2 Correspondence

Letter included as information.

Economic Development Commission Minutes, May 8, 2019

8.3 Up Coming Events

Timber Days – May 18th

Night Market at Trading Post – May 19th

Metal Mind Forge, Après Business event with Chamber – May 30th

8.3 Roundtable

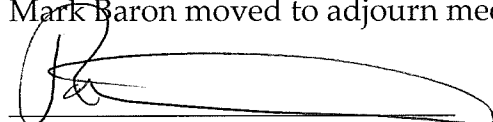
The following was discussed:

- Asked about potentially hiring local building inspectors versus out of town. Mayor Sulz addressed this by reporting the City has approached various local contractors about becoming an inspector but none have shown any interest. Council has been very proactive and has been doing whatever it takes to attract employees, the public doesn't always see this though. Noted the City has hired consultants to cover for 2 planners currently on medical leave.
- Revelstoke Golf Club has 140 new members.
- Columbia River Treaty talks have started between Canada and the US.
- EZ Rock hosting a fundraiser with the Revelstoke Hospital Foundation for a new heart rate monitor for babies and moms.
- Hold up on Big Eddy lots, is this because of no current planner? No there are other reasons for this.
- Revelstoke is one of the only communities that does not have an online building permit system. Is this something the City could look to have? Mayor Sulz added the City would like to streamline inspections and the permit process and welcomes input from contractors on what type of software to investigate. It was noted that the City needs to update their technology which would improve efficiency in this department.
- Updates to the OCP will be done and the City will be hiring a contractor to do this. Updates will start on specific neighborhoods first.
- Tourism Management diploma course currently has 9 people enrolled with OK College.
- A feasibility study will be done for a possible new boat launch this year to help increase the water access in the community.

ADJOURNMENT

Next meeting will be June 12, 2019.

Mark Baron moved to adjourn meeting at 5:51 pm.



Roberta Bobicki, Chair



BOARD REPORT

TO: Chair and Directors

File No: Policy F-30

SUBJECT: CSR D Policy F-30 Electoral Area Grant in Aid Funding

DESCRIPTION: Report from Jodi Pierce, Manager, Financial Services, dated June 4, 2019.
Amendment to Grant in Aid policy.

RECOMMENDATION #1: THAT: the Board endorse the amendment to Policy No. F-30 "CSR D Electoral Area Grant in Aid Funding" and approve its inclusion into the CSR D Policy manual, this 20th day of June, 2019.

SHORT SUMMARY:

At the May 16, 2019 CSR D Board meeting, there was discussion around changing the grant in aid funding policy. Directors requested that the Policy be changed to include additional information around the community benefits, other funding and recognition of the CSR D. Staff took the opportunity to have a more fulsome look at the existing policy and has made additional changes.

VOTING:	Unweighted Corporate	<input checked="" type="checkbox"/>	LGA Part 14 (Unweighted)	<input type="checkbox"/>	Weighted Corporate	<input type="checkbox"/>	Stakeholder (Weighted)	<input type="checkbox"/>
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BACKGROUND:

The Board had directed staff to amend the Policy F-30 Electoral Grant in Aid Funding to reflect some identified issues as per the short summary. While making those changes, staff reviewed other grant in aid policies from other organizations around the Province and enhanced the policy to provide further clarity for potential recipients and elected officials. These changes include: identification of the process; criteria and required documentation sections have been further expanded; information relating to recipient organizations was clarified; and, a section entitled "Other Information" has been included.

Additionally, during staff research into other grant in aid application processes, it was determined that many organizations have a grant-in-aid reporting form which we have adopted as part of the post-application documentation and certification process.

POLICY:

Amendments to Policy F-30 will provide further clarity, consistency and transparency to Electoral Area Grant in Aid Funding.

FINANCIAL:

There are no significant financial consequences.

IMPLEMENTATION:

The updated policy will be included in the CSR D Policy Manual once approved by the Board.

COMMUNICATIONS:

The updated policy, new application form and post-application reporting form will be posted to the CSRD website.

DESIRED OUTCOMES:

That the Board approve the amended Policy F-30 Electoral Area Grant in Aid Funding.

BOARD'S OPTIONS:

1. *Endorse the Recommendation.*
2. *Deny the Recommendation.*
3. *Defer.*
4. *Any other action deemed appropriate by the Board.*

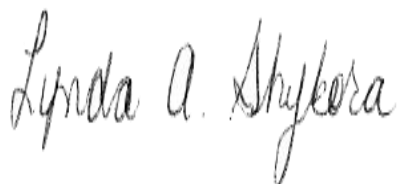
LIST NAME OF REPORT(S) / DOCUMENT(S) AVAILABLE FROM STAFF:

1. N/A

Report Approval Details

Document Title:	2019-06-20_Board_FIN Policy F-30 Grant in Aid Funding.docx
Attachments:	<ul style="list-style-type: none">- CSRD Policy F-30 Electoral Area Grants-in-Aid - May 2019.pdf- Grant Aid Application Form new 2019.pdf- GIA Reporting Form.docx
Final Approval Date:	Jun 5, 2019

This report and all of its attachments were approved and signed as outlined below:



Lynda Shykora - Jun 5, 2019 - 11:48 AM



Charles Hamilton - Jun 5, 2019 - 1:23 PM



POLICY

ELECTORAL AREA GRANT-IN-AID FUNDING

PURPOSE AND INTENT

The Electoral Areas of the Columbia Shuswap Regional District provide Grant-in-aid funding in order to assist non-profit societies/organizations and registered charitable organizations that provide community or regional benefit and enrichment to enhance the quality of life for residents.

This policy is intended to provide a process to enable the Electoral Area Directors to make fair and equitable recommendations to the CSR Board on behalf of their respective areas in the granting of funds to the community. The goal of this policy is to establish open, transparent, consistent, and accountable guidelines for the evaluation and distribution of Electoral Areas' Grant-in-aid funds, respecting the limited financial resources available for this purpose. The maximum budget allocation for the Grant-in-aid funds is established within the Local Government Act and is subject to lesser amounts at the discretion of the Electoral Area Director.

Not all societies or organizations meeting the basic criteria will automatically receive a grant, funding is not guaranteed from year to year, and organizations are encouraged to work towards financial independence.

POLICY

Requests for Grant-in-aid funds must meet all requirements of the *Local Government Act* and be approved by the CSR Board of Directors either in the form of a line item in an adopted Five Year Financial Plan or through a separate resolution.

1. The Process:

- Grant-in-aid applications must be submitted to the Manager, Financial Services or Designate by the 1st day of the month in order to be considered for that month's Board meeting, with the exception of December, in which case, applications must be received by November 20th.
- The Manager, Financial Services or Designate will forward all complete and eligible applications to the Electoral Area Director for support.
- Supported applications go to the monthly Board meeting for approval of a Grant-in-aid resolution by the entire CSR Board, providing adequate funds remain within the current Five Year Financial Plan.
- Un-supported applications will receive correspondence from the Manager, Financial Services or Designate advising of the lack of support.
- Recipient organizations who have been approved for funding will receive a cheque and congratulatory letter within 4 weeks of the date the application was approved by the Board.

2. Criteria:

- The Grant-in-aid request for funds must be within the current year's budgeted allocation.
- The application must show a demonstrated need for the service/project within the community and the financial need of the Recipient organization.
- The Grant-in-aid request for funds will not be used for purposes that are the responsibility of senior levels of government, as this would represent a downloading of senior government costs to local residents.
- Grant-in-aid funds will not be provided for:
 - Personal benefit, individual, industrial, commercial or business undertakings;
 - Religious organizations serving primarily their membership and/or their direct religious purpose;
 - Ethno cultural organizations serving primarily their membership and/or their own ethnic promotion;
 - Annual fundraising campaigns;
 - Endowment funds;
 - Debt retirement, interest payments or accumulating reserves;
 - Purposes for which the Board identifies as potentially exposing the CSRD to risk of an unacceptable liability.

3. Recipient Organization must:

- Have a contact representative within the Regional District.
- Provide a benefit to persons residing within the Regional District.
- Be non-partisan, non-denominational and non-profit.
- Have a bank account in the society/organizations' name.
- The organization must extend its service to the general public and shall not exclude anyone by reason of religion, ethnicity, gender, age, sexual orientation, language, disability, or income, except in instances where it can be proven that the exclusion of some groups is required for effective service delivery to the target group.
- Applicants are generally required to provide a local component of funding, either through fundraising, membership, donation or work-in-kind.
- Preference of Grant-in-aid funding will be given to the following:
 - Applications that demonstrate a significant benefit to a large segment of the Electoral Area,
 - Organizations that have a demonstrated financial need,
 - Organizations that seek funding from a variety of sources,
 - Applications that promote volunteer participation and citizen involvement,
 - Exercise co-ordination, co-operation and collaboration with other groups to prevent duplication of projects, programs, services or special events.

4. Documentation to include:

The Grant-in-aid application must be fully complete, provide sufficient documentation to justify the Grant-in-aid, and include:

- Details on how the organization contributes to the general interests and advantage of the Electoral Areas. Those applications that have a measurable benefit to the communities outside the Electoral Areas must provide details of the benefit.
- A statement of purpose of the organization and purpose for which the grant funding is being requested.
- If the organization is an association or society, a list of the current officers and directors.
- A budget for the project, program, event or services.
- Information on what all sources of funding have been sought and received.
- If the funding request is greater than \$2,000, an Income Statement (profit and loss) for the most recent fiscal year end, a Balance sheet for the most current fiscal year end and a comprehensive budget for the current year activities of the applicant. These documents may be requested by the Board, the Area Director or the Manager of Financial Services for any grant-in-aid application. This policy makes no provisions for audited financial statements
- A statement on how the recipient organizations' plans to acknowledge the Grant-in-aid funds contributed by the CSRD (see other information below).

5. Post-application documentation and certification

Grant-in-aid funds are not to be utilized for any purpose other than that which is identified in the Grant-in-aid application. Approved Grant-in-aid applications receiving funding in excess of \$2,000 must provide the following documentation within the earlier of: 1 year of the payment of the Grant-in-aid by the CSRD to the recipient organization, upon completion of the project or upon a subsequent grant application:

- Copies of the paid invoice(s) where applicable,
- Financial Statements for the fiscal year in which the funds were spent,
- Photographs of project where applicable,
- Letter of certification, signed by the authorized signatory for the recipient organization that the grant-in-aid was utilized for the purpose for which the funds were sought.

If the project is not complete within one year of receipt of the Grant-in-aid, an extension letter must be provided to the CSRD indicating why the project has been delayed and the new timeline for the project.

Unspent Grant-in-aid funds must be returned to the CSRD. Failure to comply with the documentation and certification requirements will render the recipient organization ineligible to receive further Grant-in-aid funds.

6. Other information

The Columbia Shuswap Regional District is subject to Provincial Freedom of Information and Privacy and Protection Act and cannot guarantee the information provided can or will be held in confidence.

Approved recipients must acknowledge the CSRD as a sponsor in any program publications or marketing, however, the project, program, service or special event cannot be represented as a project, program, service or special event of the CSRD nor may the recipient organization hold itself out as an agent of the CSRD in any way. Organizations that wish to acknowledge the CSRD by using the CSRD logo, must submit a request at <https://www.csr.bc.ca/inside-csr/stay-connected/logo-request-form>

No Grant-in-aid applications will go before the Board for approval in the three (3) regular Board Meetings prior to a local government election. In the event of a by-election, only those grant-in-aid applications applicable to the Electoral Area will be suspended until after the by-election.

It should be noted that the Electoral Areas' Grant-in-Aid process is very competitive and applicants should submit the best and most complete applications possible.

May 1991
July 1999
August 21, 2014
June 16, 2016
June 20, 2019

PO Box 978, 555 Harbourfront Drive NE, Salmon Arm, BC V1E 4P1
T: 250.832.8194 | F: 250.832.3375 | TF: 1.888.248.2773 | www.csr.bc.ca

- 1. Name of Organization:** _____
- 2. Amount of Grant-in-Aid received:** _____
- 3. Describe the project, program, service or special event for which the Organization received the Grant-in-aid funding:**
- 4. Total project expenses:** (include copies of paid invoices) _____
- 5. Describe how the project, program, service or special event's anticipated objectives and timelines were met or not met:** (attach photographs where applicable)
- 6. Describe how this project, service or special event will continue to be sustainable past the grant time period:**

ON BEHALF OF THE ORGANIZATION, I/WE HEREBY DECLARE
THAT THE GRANT-IN-AID FUNDING WAS UTILIZED FOR THE PURPOSE FOR
WHICH THE FUNDS WERE SOUGHT
DATED AT _____, BC, THIS _____ DAY OF _____, 20____

NAME _____

SIGNATURE



COLUMBIA SHUSWAP REGIONAL DISTRICT

PO Box 978, 555 Harbourfront Drive NE, Salmon Arm, BC V1E 4P1
T: 250.832.8194 | F: 250.832.3375 | TF: 1.888.248.2773 | www.csr.bc.ca

APPLICATION FOR GRANT-IN-AID

1. **DATE:** _____

2. **NAME OF ORGANIZATION:** _____

Society/Organization must have a bank account in its name, payments will not be made to individuals.

3. **ADDRESS:** _____

4. a) **Date organization established in the Regional District:** _____

b) **For a Registered Society in Province of BC:**

Registration No. _____ Date: _____

c) **For a Registered Charitable Organization with Federal Government:**

Registration No. _____ Date: _____

5. **President:** _____

Phone: _____ **Email:** _____

Address: _____

6. **Secretary:** _____

Phone: _____ **Email:** _____

Address: _____

7. **Board of Directors:**

a. _____ d. _____

b. _____ e. _____

c. _____ f. _____

8. **Executive Director or contact person:** _____

Phone: _____ **Email:** _____

APPLICATION FOR GRANT IN AID - CSRD

9. Organizations objectives:**10. Purpose to which grant funding will be expended:****11. Electoral Area(s) Served:**

- | | |
|--|--|
| <input type="checkbox"/> Area A/Rural Golden | <input type="checkbox"/> Area B/Rural Revelstoke |
| <input type="checkbox"/> Area C/South Shuswap | <input type="checkbox"/> Area D/Rural Salmon Arm |
| <input type="checkbox"/> Area E/Rural Sicamous | <input type="checkbox"/> Area F/North Shuswap |

12. Does your project have a measurable benefit outside of the rural areas? Y / N**13. If you answered “Yes” to answer 6, please provide details of the benefit:****14. How will this project benefit residents of the Electoral Area(s) served?****15. Explain how the project will be available to the community at large:****16. Budget (attach copy):** _____**17. Grant request:** _____ **Minimum required:** _____

APPLICATION FOR GRANT IN AID - CSRD

- 18. Has your organization received grants in previous years from the Regional District? If so, please indicate year, type of grant, and amount (most recent three years):**

YEAR	TYPE OF GRANT	AMOUNT

- 19. If your organization received grant-in-aid funding from the CSRD in the past year, have you complied with the CSRD post-application documentation requirements? Y/N**

(See CSRD "Grant-in-Aid Reporting Form" attached)

- 20. List all grants received from Senior Governments (Provincial/Federal), Local Governments, Crown Agencies, and other funding agencies, for the past three years:**

YEAR	TYPE OF GRANT	AMOUNT

- 21. List all other sources of funding for this project, e.g. membership fees, bottle drives, casinos, etc. Please include any pending or anticipated grant applications:**

- 22. Details of community support for objectives:**

- 23. How will the CSRD be recognized for its contribution to this project?**

APPLICATION FOR GRANT IN AID - CSRD

24. Please state size of membership in your organization: _____

25. For applications in excess of \$2,000, please attach the following supporting documentation:

- a. The organization's most recent Financial Statements.
- b. The organization's projected Statement of Revenues and Expenditures for the upcoming calendar year or twelve month fiscal period, together with comparatives for the previous calendar year or twelve month fiscal period.

<p>ON BEHALF OF THE ORGANIZATION, I/WE HEREBY DECLARE</p> <p>THAT ALL THE INFORMATION PRESENTED AND/OR PROVIDED WITH THIS</p> <p>APPLICATION IS TRUE AND CORRECT</p> <p>DATED AT _____, BC, THIS _____ DAY OF _____, 20_____</p> <p>_____ NAME</p> <p>_____ SIGNATURE</p>

Please forward completed applications to:

Jodi Pierce, Manager, Financial Services
PO Box 978, Salmon Arm BC, V1E 4P1
jpierce@csrd.bc.ca

ONLY NON-PROFIT ORGANIZATION ARE ELIGIBLE FOR GRANT-IN-AID FUNDING



COLUMBIA SHUSWAP REGIONAL DISTRICT

PO Box 978, 555 Harbourfront Drive NE, Salmon Arm, BC V1E 4P1
T: 250.832.8194 | F: 250.832.3375 | TF: 1.888.248.2773 | www.csr.d.bc.ca

GRANT-IN-AID APPLICATION INSTRUCTIONS

General

- The application must be fully completed and provide sufficient documentation to justify the Grant-in-aid requested.
- The application must provide evidence of how the applicant benefits the community generally, and how the assistance being requested from the CSR D would benefit the community specifically.
- The application form must be signed by a duly authorized individual on behalf of the organization, and submitted to the Manager, Financial Services.

Organizational Information

Please ensure that the name and contact information for the Organization is complete and accurate, as we will need to know who to contact for more information, and payment of approved grants will be made to the Organization as named on the Grant-in-Aid application. The “Executive Director or contact person” is the individual within your organization who is familiar with the application and is the person who we will contact should we require further information or clarification.

Project Description

In this section you will describe the nature of the project for which you are requesting Grant-in-Aid funding, and how it will benefit the community. Please ensure you identify all areas which will benefit from this project, including CSR D rural and municipal areas, and any areas outside of the CSR D.

Financial Information

In order to evaluate the need for financial assistance, we need to ask for financial information that justifies the Grant-in-Aid being requested. We require a detailed project budget which identifies all sources of funding for the project. This section also requests details of all grants received from both the CSR D and other funding agencies for the past three years. For applications in excess of \$2,000 we will require financial statements and a projected budget for the Organization, as outlined in item 25 – applications submitted without this supporting documentation will be considered incomplete.

ELECTORAL AREAS

A GOLDEN-COLUMBIA
B REVELSTOKE-COLUMBIA

C SOUTH SHUSWAP
D FALKLAND-SALMON VALLEY

E SICAMOUS-MALAKWA
F NORTH SHUSWAP-SEYMOUR ARM

MUNICIPALITIES

GOLDEN
REVELSTOKE

SALMON ARM
SICAMOUS



BOARD REPORT

TO: Chair and Directors

File No: BL5798, 2019

SUBJECT: Alternative Approval Process – North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Area Establishment

DESCRIPTION: Report from Jennifer Sham, Assistant Deputy Corporate Officer, dated June 4, 2019.

RECOMMENDATION #1: THAT: for the purpose of obtaining approval for the North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019, using the Alternative Approval Process, eight hundred eighty five (885) be used as the fair determination of 10% of the eligible number of electors within the service area (Electoral Areas C and F, excluding Seymour Arm), this 20th day of June, 2019.

RECOMMENDATION #2: THAT: the North & South Shuswap Community Arts, Recreation and Culture Programs Alternative Approval Process Elector Response Form be approved by the Board in the form attached to this report, subject to the North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019, being approved by the Inspector of Municipalities by Tuesday, July 2, 2019, this 20th day of June, 2019.

RECOMMENDATION #3: THAT: the deadline for receipt of submissions of Elector Response Forms for the Alternative Approval Process conducted for the North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019, be 4:00 PM, Wednesday, August 21, 2019, this 20th day of June, 2019.

SHORT SUMMARY:

The Community Charter sets out specific requirements for conducting an Alternative Approval Process (AAP). The Board must 1) establish the deadline for receipt of elector responses; 2) establish elector response forms; and, 3) make a fair determination of the total number of electors of the area to which the approval process applies. The three staff recommendations above meet the AAP requirements for the proposed North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019.

VOTING:	Unweighted Corporate	<input checked="" type="checkbox"/>	LGA Part 14 (Unweighted)	<input type="checkbox"/>	Weighted Corporate	<input type="checkbox"/>	Stakeholder (Weighted)	<input type="checkbox"/>
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BACKGROUND:

At the May 16, 2019 Board meeting, the following resolutions were adopted:

THAT: "North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019" be read a first, second and third time this 16th day of May, 2019.

THAT: the Board endorse the alternative approval process in accordance with Section 345(1)(a) of the Local Government Act as the method to obtain the assent of the electors for the establishment of a North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service identified in Bylaw No. 5798, 2019.

THAT: the Board provide that the participating area approval relative to the North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service is to be obtained for the entire service area (on an area-wide basis).

The North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019 has been submitted to the Inspector of Municipalities for approval. An Alternative Approval Process cannot proceed until the Inspector's approval is received.

In an AAP, eligible electors (those electors who meet the same requirements for participation as in an election or referendum) register their opposition to the initiative by completing an Elector Response Form and submitting it to the Corporate Officer before the deadline, rather than attending a voting place and casting a ballot. Faxed or emailed submissions of the form are not accepted.

Pursuant to the Local Government Act and the Community Charter, the requirements of an eligible elector are:

- 18 years of age or older;
- Canadian citizen;
- resident of BC for at least 6 months immediately preceding July 12, 2019;
- resident of OR registered owner of real property within the proposed North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area of the Columbia Shuswap Regional District for at least 30 days immediately prior to July 12, 2019; and,
- not otherwise disqualified by law from voting.

Approval is received if less than 10% of the eligible electors within the proposed service area sign and submit an Elector Response Form by the AAP deadline.

Section 86 of the *Community Charter* sets out specific requirements for conducting an AAP. The Board must:

- (a) Establish the deadline for receipt of elector responses. The deadline can be no sooner than 30 days after the second publication in the local newspaper.
- (b) Establish elector response forms. The forms must include: (i) a general description of the proposed bylaw, (ii) a description of the area to which the approval process applies, (iii) the deadline for elector responses, (iv) a statement that the Board may proceed with service establishment unless at least 10% of the electors of the area submit elector response forms by the deadline, (v) a statement that the responses must be in the form approved by the Board, where the forms are available and that

only eligible electors are entitled to sign; (vi) the number of elector responses required to prevent the Board from proceeding with adoption without conducting an assent voting opportunity (referendum).

(c) make a fair determination of the total number of electors of the area to which the approval process applies.

Deadline for Submission

The Board must establish the deadline during which qualified electors are required to submit the Elector Response Forms if electors are opposed to adopting Bylaw No. 5798, 2019.

The deadline for submission of elector response forms may be no sooner than 30 days after the second publication in the local newspaper. If the Inspector of Municipalities has approved Bylaw No. 5798, 2019 by July 2, 2019 it is proposed that the Statutory Notice of Alternate Approval Process be published for two consecutive weeks (the weeks of July 12 and July 19, 2019, with the last statutory Notice being published by Friday, July 19, 2019. By setting the deadline for submission of elector response forms as Wednesday, August 21, 2019, electors will have no less than 30 days from the last newspaper publication to sign the submission form and submit it to the CSRD Corporate Officer. Any Elector Response Forms received after the deadline has passed cannot be counted.

Although an elector response form is not considered the same as the ballot used in a general local election, bi-election or in assent voting; local government corporate officers have a duty to keep the forms secure during the AAP. Local governments must also ensure the elector response forms and the personal information they contain are retained in accordance with the Freedom of Information and Protection of Privacy Act.

After the AAP deadline has passed, the local government's corporate officer must determine and certify whether the valid elector response forms submitted met or exceeded the 10% threshold established for the AAP. This determination of the corporate officer is final and conclusive. When 10% or more of the eligible electors sign and submit response forms, local governments cannot proceed with the proposed matter without first holding an assent voting opportunity (referendum). Proceeding to an assent vote would require that voting occur no later than 80 days after the deadline established for electors to submit the elector response forms during the Alternative Approval Process (November 8, 2019).

Elector Response Form

A draft Elector Response Form is attached to this report for the Board's approval.

Electors are required to submit a completed Elector Response Form to the CSRD by either mail or hand delivery, by the deadline date of 4:00 PM, Wednesday, August 21, 2019. Faxed or emailed forms are not accepted.

Elector Response Forms will be made available on the CSRD website and at the CSRD throughout the AAP process.

All Elector Response Forms submitted by electors will be reviewed by staff to ensure residency requirements and compliance with other requirements stated on the Response Form.

Fair Determination of the Number of Electors

Section 86(3) of the Community Charter requires that the Board make a fair determination of the total number of electors within the area to which the Alternative Approval Process applies.

With respect to determination of the number of electors within the proposed service area, a fair estimate was arrived at using Statistics Canada Census data from the last census (2016). The following is an estimate of the total number of Canadian Citizens who are 18 years of age or older (eligible electors), within Electoral Areas C and F (excluding Seymour Arm):

Area C

Total Population = 7,921

Canadian Citizens, 18 years of age or older = 6715

10% = 671

Area F

Total Population = 2,454

Canadian Citizens, 18 years of age or older = 2,235

Minus Number of Residents 18 years of age or older in Seymour Arm (95) = 2,140

10% = 214

10% of the population who are Canadian Citizens and 18 years of age or older within the proposed service area = 885

Based on the fair determination of the Number of Electors, if less than 885 Elector Response Forms are signed and submitted before the AAP deadline (10% of the eligible electors within Electoral Areas C and F, excluding Seymour Arm), the Board will be in a position to consider adoption of North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019.

A description of the proposed service area on Schedule A of the attached Bylaw No. 5798.

POLICY:

Community Charter and Local Government Act.

There are legislative requirements to consult with the public. Sections 86 *and* 94 of the Community Charter state that notice of the approval process must be posted in the public notice posting places and published in a newspaper that is distributed at least weekly in the areas affected and must be published once per week for 2 consecutive weeks.

The advertised notice must include:

- a general description of the bylaw, agreement, or other matter;
- a statement that the local government may proceed unless more than 10% of the electors sign an elector response form;
- a description of the area to which the alternative approval process applies;
- the deadline by which elector response forms must be submitted;
- an estimate of the number of electors in the area to which the alternative approval process applies that would constitute 10% of the total electors; and,
- a statement that: elector response must be given in the form established by the local government; the forms are available at the local government offices; and the only persons entitled to sign the forms are the electors of the area to which the AAP applies.

FINANCIAL:

The cost estimate for advertising of statutory public notices for the Alternative Approval Process is approximately \$2,500. The statutory public notice is a publication of Notice of the AAP and a synopsis of the bylaws, in two (2) consecutive issues of the newspaper circulating in each of the proposed service areas. There is one area newspaper (Shuswap Market News) circulating in Electoral Areas C and F. Additionally, staff will endeavour to advertise in The Kicker and the South Shuswap Scoop, with an estimated cost of \$500.

In terms of the service, the annual costs for this service will be recovered through the collection of taxes levied against the value of land and improvements for those properties within the boundaries of the service area. The Service Area Establishment Bylaw proposes the following customized cost apportionment formula amongst the service area participants for the year 2020:

Electoral Area C = 87%

Electoral Area F, excluding Seymour Arm = 13%

Further, commencing in 2021 and annually thereafter, the apportionment shall be adjusted based upon the enrolment of registrants from the service area in arts, recreational and cultural programs for the year prior, submitted to the Columbia Shuswap Regional District on an annual basis.

COMMUNICATIONS:

Once the CSRD is notified that Bylaw No. 5798, 2019 has been approved by the Inspector of Municipalities, the required statutory advertising of public notices will be published in local newspapers, CSRD website, and social media. Further, a press release will be issued, and periodic reminders of the deadline to submit will be posted on the CSRD website and social media.

Details of the Alternative Approval Process and the Elector Response Forms will be made available on the CSRD website and the CSRD office. After the submission deadline of August 21, 2019, it is expected that the results of the Alternative Approval Process will be reported at the September 19, 2019 Board meeting, and the bylaw scheduled for adoption.

DESIRED OUTCOMES:

That the Board endorse the staff recommendations so that staff is in a position to advance the Alternative Approval Process upon receipt of Ministerial approval of the service establishment bylaw.

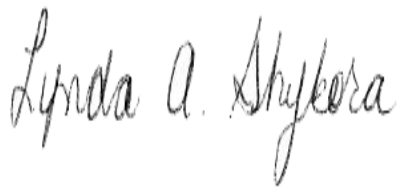
BOARD'S OPTIONS:

1. *Endorse the Recommendations.*
2. *Deny the Recommendations.*
3. *Defer.*
4. *Any other action deemed appropriate by the Board.*

Report Approval Details

Document Title:	2019-06-20_Board_CA_NSSCARCP_AAP.docx
Attachments:	- Elector Response Form_NSSCARCP.pdf
Final Approval Date:	Jun 12, 2019

This report and all of its attachments were approved and signed as outlined below:



Lynda Shykora - Jun 12, 2019 - 10:22 AM

No Signature - Task assigned to Charles Hamilton was completed by assistant Lynda Shykora

Charles Hamilton - Jun 12, 2019 - 10:23 AM

COLUMBIA SHUSWAP REGIONAL DISTRICT

BYLAW NO. 5798, 2019

A bylaw to establish a service area for the purpose of providing a financial contribution to community organizations that provide arts, recreation and cultural activities in the North & South Shuswap

WHEREAS a regional district may, under section 332(1) of the *Local Government Act*, operate any service that the Board considers necessary or desirable for all or part of the regional district, subject to certain limitations and conditions;

AND WHEREAS in order to operate a service, a regional district board must first adopt an establishing bylaw for the service in accordance with section 338(1) of the *Local Government Act*;

AND WHEREAS the Board of the Columbia Shuswap Regional District wishes to establish a service for the purpose of providing an annual contribution to registered non-profit organizations that provide programming for arts, recreational and cultural activities that may be accessed and used for the benefit of those within Electoral Areas C and F;

AND WHEREAS the Directors of Electoral Area C and Electoral Area F have consented, in writing, to the service;

AND WHEREAS the Board of the Columbia Shuswap Regional District has obtained the approval of the service area electors in accordance with the Local Government Act and the Community Charter;

NOW THEREFORE in an open meeting assembled, the Board of Directors of the Columbia Shuswap Regional District enacts as follows:

SERVICE

1. The Regional District hereby establishes, within Electoral Area C and a portion of Electoral Area F, a service area for the purpose of providing, by way of an annual grant, financial contributions to registered non-profits organizations that provide arts, recreation and cultural programs in the service area, to be known as the "North & South Shuswap Arts, Recreation and Culture Programs Financial Contribution Service Area".

SERVICE AREA

2. The service area established by this bylaw is the entirety of Electoral Area C and a portion of Electoral Area F shown outlined on Schedule 'A' attached hereto and forming part of this bylaw.

PARTICIPATING AREA

3. The participating area in the named service is the entirety of Electoral Area C and a portion of Electoral Area F.

REQUISITION

4. The maximum amount that may be requisitioned for the service provided under Section 1 of this bylaw shall not exceed \$300,000.00 or \$.08/\$1,000 of net taxable value of land and improvements annually within the service area.

5. The requisition of money to be collected by property value taxes imposed in accordance with Division 3 of Part 11 of the *Local Government Act* is to be apportioned among the Participating Area as follows, for the year 2020:
- 87% from Electoral Area "C"; and
 - 13% from those properties in Electoral Area "F", as identified on the attached Schedule A.
6. Further, commencing in 2021 and annually thereafter, the apportionment shall be adjusted based upon the enrolment of registrants from the service area in arts, recreational and cultural programs for the year prior, submitted to the Columbia Shuswap Regional District on an annual basis.

COST RECOVERY

7. The annual costs for the North & South Shuswap Arts, Recreation and Culture Programs Financial Contribution Agreement Service shall be recovered by one or more of the following:
- requisition of money to be collected by a property value tax on the net taxable value of land and improvements within the service area imposed in accordance with the Local Government Act;
 - revenues raised by other means authorized under this or another Act;
 - revenues received by way of agreement, enterprise, gift, grant or otherwise.
8. No borrowing shall be incurred for the purposes of this service.

FORCE AND EFFECT

9. This bylaw will come into force and effect on December 31, 2019.

CITATION

10. This bylaw may be cited as "North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019".

READ a first time this _____ 16th _____ day of _____ May _____, 2019.

READ a second time this _____ 16th _____ day of _____ May _____, 2019.

READ a third time this _____ 16th _____ day of _____ May _____, 2019.

APPROVED by the Inspector of Municipalities this _____ day of _____, 2019.

RECEIVED elector approval this _____ day of _____, 2019.

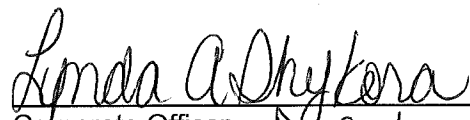
ADOPTED this _____ day of _____, 2019.

CORPORATE OFFICER

CHAIR

Bylaw No. 5798, 2019

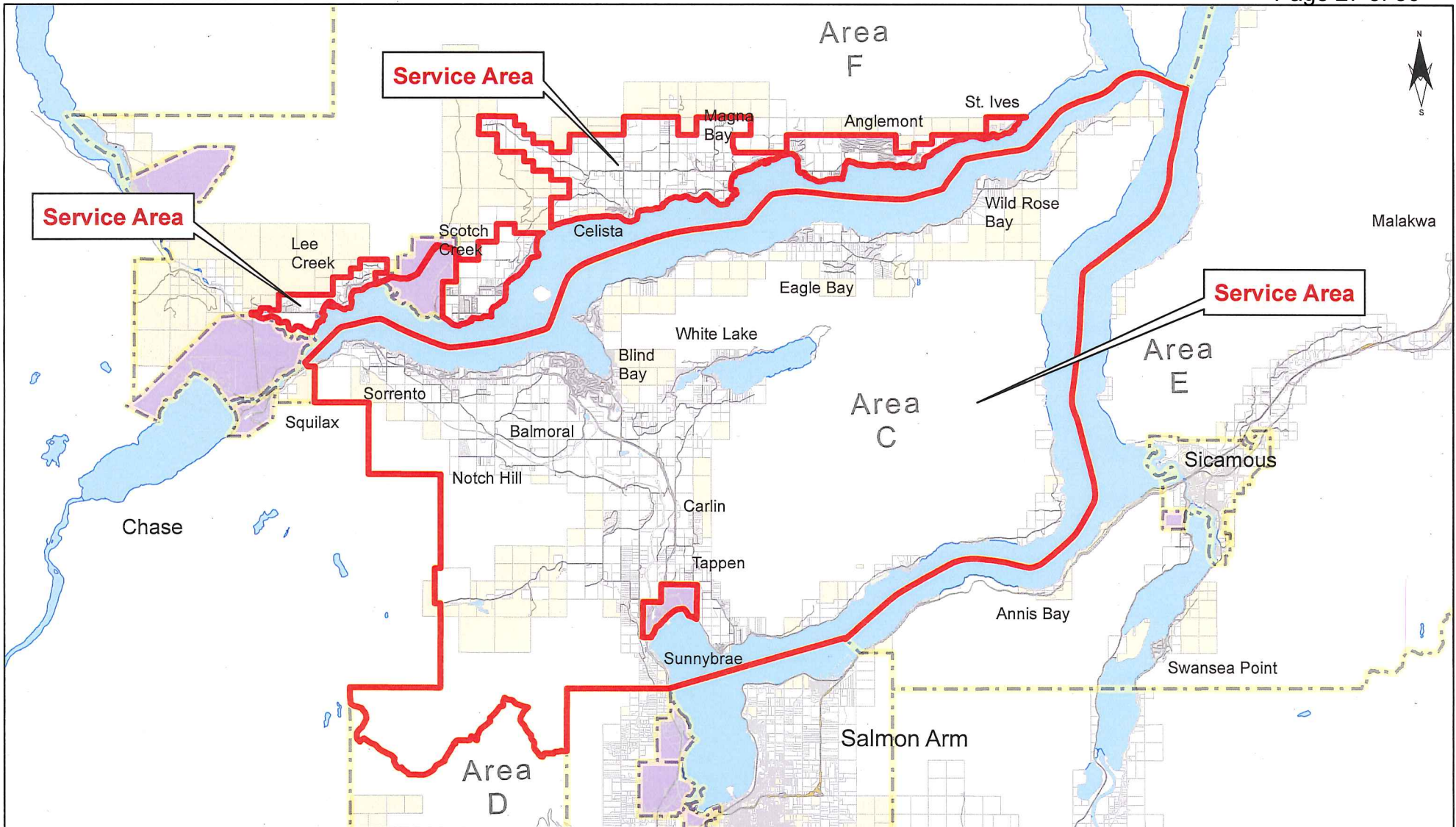
CERTIFIED a true copy of
Bylaw No. 5798, 2019 as read a third time.



Corporate Officer, Deputy

CERTIFIED a true copy of
Bylaw No. 5798, 2019 as adopted.

Corporate Officer

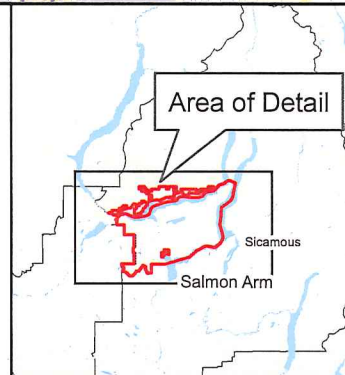


Schedule A

North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019

0 10 km
Scale: 1:250,000

Established by Service Area
Bylaw No. 5798, 2019



Legend

- Service Area
- CSRD Boundary
- Parcel Boundary
- Crown Land
- Native Land
- Road
- Water



Columbia Shuswap Regional District
555 Harbourfront Drive NE
Salmon Arm, BC V1E 4P1

Date: May 8, 2019
Nad 83 CNT Datum
UTM Zone 11

The information on this map was compiled by the CSRD for regulatory and internal reference purposes only. No representation or warranty is made as to the accuracy of the information.



ALTERNATIVE APPROVAL PROCESS ELECTOR RESPONSE FORM

ELECTORAL AREAS C & F

**North & South Shuswap Community Arts, Recreation, and Culture Programs
Financial Contribution Service Area Establishment Bylaw No. 5798, 2019**

Pursuant to Section 269 of the *Local Government Act*, the Regional Board of the Columbia Shuswap Regional District is proposing to seek approval of the electors by alternative approval process in accordance with Section 86 of the *Community Charter*.

By completing this elector response form, I am certifying that I am **OPPOSED** to the adoption of "North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area Establishment Bylaw No. 5798, 2019" that establishes a service to allow the CSRD to contribute annually to registered non-profit groups (ie societies and associations) that provide arts, recreation and cultural programs to residents within Electoral Area C and a portion of Electoral Area F.

Pursuant to the Local Government Act and the Community Charter, I certify that I meet the following requirements:

- 18 years of age or older;
- Canadian citizen;
- resident of BC for at least 6 months immediately preceding July 12, 2019;
- resident of OR registered owner of real property within the proposed North & South Shuswap Community Arts, Recreation and Culture Programs Financial Contribution Service Area in Electoral Area C or F of the Columbia Shuswap Regional District for at least 30 days immediately prior to July 12, 2019; and,
- not otherwise disqualified by law from voting.

FULL NAME OF ELECTOR (Print Clearly)	
ELECTORAL AREA	<input type="checkbox"/> Electoral Area C <input type="checkbox"/> Electoral Area F
ELECTOR'S RESIDENTIAL STREET ADDRESS	
	, BC

Choose One:

☐

I am a resident elector

OR

☐

I am a non-resident property elector who lives in another BC community and owns property within the proposed service area in the Electoral Area noted above located at:

_____, BC (civic address)

Are there other owners of this property? YES ☐ NO ☐

If Yes, ATTACH written consent from majority of other owners

ELECTOR'S SIGNATURE		DATE	
--------------------------------	--	-------------	--

Section 86(6) of the Community Charter requires that electors submit their response on the form established by the Columbia Shuswap Regional District or an accurate copy of that form. If this form is altered in any way (including by writing or printing on the back of it) it will be rejected.

Unless Alternative Approval Electoral Response Forms petitioning against the adoption of this bylaw have been received from at least 10% (885) of the eligible electors within the proposed service area within Electoral Area C and F of the Columbia Shuswap Regional District, Bylaw No. 5798, 2019 will be deemed to have received approval of the electors.

For this elector response form to be counted, it **MUST** be received by the Columbia Shuswap Regional District (CSRD) Deputy/Corporate Officer no later than 4:00 PM on Wednesday, August 21, 2019. **Postmarks will not be accepted as the date of submission.**

The CSRD Board may proceed with the adoption of Bylaw No. 5798, 2019 unless at least 885 electors sign and submit a completed copy of this elector response form to the Deputy/Corporate Officer, Columbia Shuswap Regional District office by the deadline of **4:00 PM on Wednesday, August 21, 2019.**

Submit this completed Elector Response Form to:

Deputy/Corporate Officer
Columbia Shuswap Regional District
Box 978
555 Harbourfront Drive NE
Salmon Arm, BC V1E 4P1

Faxed or Emailed Submissions of the Elector Response Form will NOT be accepted.

Section 86(6) of the Community Charter requires that electors submit their response on the form established by the Columbia Shuswap Regional District or an accurate copy of that form. If this form is altered in any way (including by writing or printing on the back of it) it will be rejected.



ELECTOR QUALIFICATIONS

In order to sign an elector response form, a person **must** either be a resident of Electoral Area C or F within the proposed service area,

OR

be a non-resident property elector who owns property in Electoral Area C or F within the proposed service area **AND** lives elsewhere in BC. Qualifications are defined in the *Local Government Act*:

Resident Electors are individuals who are entitled to sign an elector response form during this Alternative Approval Process are those **living within** either Electoral Area C or F **AND** meeting the following qualifications:

1. Age 18 or older; and
2. A Canadian Citizen; and
3. A resident of British Columbia for at least 6 months; and
4. A resident of Electoral Area C or F within the proposed service area for at least 30 days; and
5. Not disqualified by the *Local Government Act* or any other enactment from voting.

Non-Resident Property Electors are individuals who are entitled to sign an elector response form during this Alternative Approval Process are those **owning property within** either Electoral Area C or F within the proposed service area **AND** meeting the following qualifications:

1. Not a resident elector; and
2. Age 18 or older; and
3. A Canadian Citizen; and
4. **A resident of British Columbia for at least 6 months;** and
5. A person who is the registered owner of real property in Electoral Area C or F within the proposed service area for at least 30 days; and
6. Not disqualified by the *Local Government Act* or any other enactment from voting; and
7. Not holding the property in trust for a corporation or another trust.

A person may only sign as a non-resident elector for one parcel within the area to which this Alternative Approval Process applies regardless of the number of parcels they have interest in.

Where there is more than one person registered as the owner of real property, either as joint tenants or tenants in common, only one of those persons may sign this Elector Response Form with the written consent of the majority of the other owners (consent form on reverse).

Please note: Corporations or businesses are not entitled to sign elector response forms



Columbia Shuswap Regional District

NON-RESIDENT PROPERTY ELECTOR CONSENT FORM

We, together with the person registering, constitute a majority of registered owners of the real property noted below and hereby give consent to:

(name of non-resident property elector)

residing at _____, **BC**
(residential address) to be registered as the Non-Resident Property Elector for the jointly owned property legally described as:

_____,
(legal description of property)

and located at _____, **BC**.
(street address or location)

name

signature

name

signature

name

signature

name

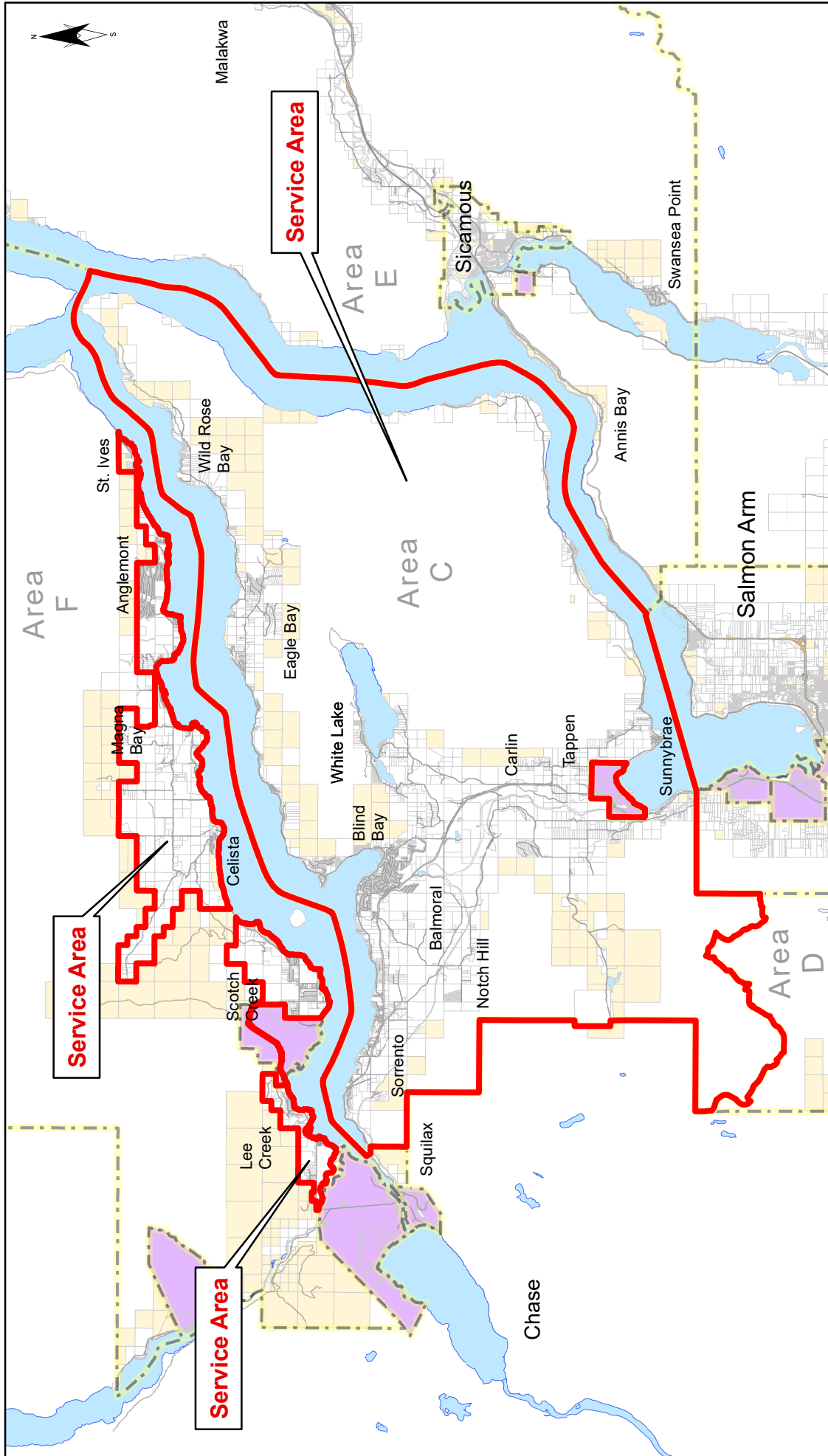
signature

name

signature

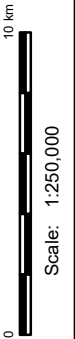
NOTE:

- (a) The person registering as the Non-Resident Property Elector must be one of the registered owners of the property.
- (b) The person registering must be one of the individuals granting consent.



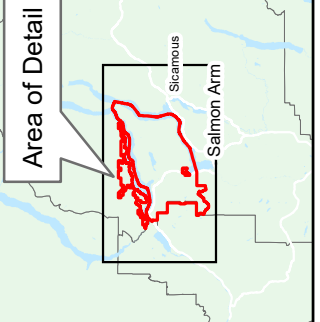
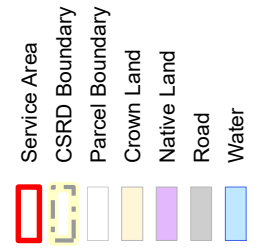
Schedule A

**North & South Shuswap
Community Arts, Recreation
and Culture Programs
Financial Contribution
Service Area Establishment
Bylaw No. 5798, 2019**



Established by Service Area
Bylaw No. 5798, 2019

Legend



Columbia Shuswap Regional District
555 Harbourfront Drive NE
Salmon Arm, BC V1E 4P1

Date: May 8, 2019

Nad 83 CNT Datum
UTM Zone 11

The information on this map was compiled by the CSRD for regulatory and internal reference purposes only. No representation or warranty is made as to the accuracy of the information.



BOARD REPORT

TO:	Chair and Directors	File No: 7130 25 34
SUBJECT:	Newsome Creek Feasibility Study – Property Erosion at Caen Road	
DESCRIPTION:	Report from Derek Sutherland, Team Leader, Protective Services, Operations Management, dated June 17, 2019. Newsome Creek Feasibility Study - Property Erosion at Caen Road in Sorrento, BC.	
RECOMMENDATION:	THAT: the Newsome Creek Erosion Mitigation Options report prepared by Kerr Wood Leidal Consulting Engineers dated June 7, 2019 be received by the Board for information this 20 th day of June, 2019.	

SHORT SUMMARY:

At the January 10, 2019 regular Board meeting, the Board authorized the expenditure of \$25,000 from the Shuswap Emergency Program budget to match \$25,000 in funding from Emergency Management BC (EMBC) to undertake a remediation work plan and ravine stabilization assessment on Newsome Creek at Caen Road in Sorrento, BC.

Kerr Wood Leidal Consulting Engineers (KWL) was retained by the CSR to undertake the project. The subsequent report is now complete.

On June 13, 2019, CSR Board Chair Martin, Electoral Area C Director Demenok, and the CSR Chief Administrative Officer met with the Minister of Public Safety and Solicitor General, Mike Farnworth, and Ministry staff to discuss the ongoing concerns and next steps. A verbal update of this meeting will be provided to the Board at the regular meeting on June 20, 2019.

VOTING:	Unweighted Corporate	<input checked="" type="checkbox"/>	LGA Part 14 (Unweighted)	<input type="checkbox"/>	Weighted Corporate	<input type="checkbox"/>	Stakeholder (Weighted)	<input type="checkbox"/>
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BACKGROUND:

Newsome Creek is located in Electoral Area C of the CSR. Two sub-basins within the watershed merge and form the main channel of Newsome Creek in the Notch Hill area before it crosses below the Trans-Canada Highway in Sorrento, where it flows adjacent to Caen Road and drains into Shuswap Lake. As the creek exits the culvert at the Trans-Canada Highway it travels through a deep gully with side slopes ranging from 75% to over 110%.

During the spring freshet in 2017 and again in 2018, high stream flows occurred in Newsome Creek, which caused extreme erosion of the creek bank along Caen Road. Stream bank undercutting and slope failures in 2018 resulted in the CSR's Shuswap Emergency Program receiving funding from EMBC to conduct an assessment of the erosion and effect and provide recommendations. Reports were developed and shared with affected residents and provincial stakeholders. A total of 11 properties were placed on evacuation alert on May 3, 2018. Some homes and other structures such as detached shops and garages along Caen Road remain at an elevated risk of further instability during high stream flow.

With regards to the development of a feasibility study on Newsome Creek, the geotechnical report recommended that a feasibility study should be undertaken to determine how the gully below the Trans-Canada Highway could be stabilized.

At the January 10, 2019 regular Board meeting, the Board authorized the expenditure of \$25,000 from the Shuswap Emergency Program budget to match \$25,000 in funding from Emergency Management BC (EMBC) to undertake a remediation work plan and ravine stabilization assessment on Newsome Creek at Caen Road in Sorrento, BC.

Kerr Wood Leidal Consulting Engineers (KWL) was retained by the CSRD to undertake the project. The subsequent report is now complete and identifies a total of nine mitigation options and associated costs for consideration ranging from \$4,800,000 to \$6,200,000.

KWL indicated in their reporting that while all of the options presented would limit further destabilization of the ravine, none of the options would fully stabilize the upper ravine slopes.

This information was shared by the CSRD in a meeting with the Minister of Public Safety and Solicitor General in a face to face meeting on June 13, 2019. A verbal update of this meeting will be communicated at the Board meeting.

POLICY:

CSRD Policy No. W-5 Flooding outlines the CSRD's role with respect to flooding issues in unincorporated areas of the Regional District.

FINANCIAL:

Funding for the study was utilized on a one time basis from revenues generated from the CSRD's structural protection unit deployments within BC during the 2018 wildfire season.

COMMUNICATIONS:

The report will be posted on the CSRD website and distributed to affected property owners and stakeholders.

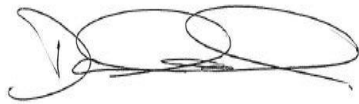
BOARD'S OPTIONS:

1. *Endorse the Recommendation.*
2. *Deny the Recommendation*
3. *Defer.*
4. *Any other action deemed appropriate by the Board.*

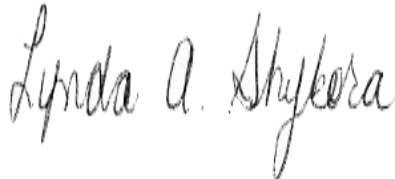
Report Approval Details

Document Title:	2019_06_20_OM_Board_Newsom_Creek_Feasibility_Study_.docx
Attachments:	- 20190607_NewsomCreekErosionMitigationOptions.pdf - 20190607_CvrLtr-NewsomCk.pdf
Final Approval Date:	Jun 18, 2019

This report and all of its attachments were approved and signed as outlined below:



Darcy Mooney - Jun 18, 2019 - 9:01 AM



Lynda Shykora - Jun 18, 2019 - 10:39 AM



Charles Hamilton - Jun 18, 2019 - 11:17 AM



Okanagan
 202 - 3334 30th Avenue
 Vernon, BC V1T 2C8
T 250 503 0841
F 250 503 0847

June 7, 2019

Derek Sutherland
 Columbia Shuswap Regional District
 555 Harbourfront Drive NE
 PO Box 978
 Salmon Arm, BC V1E 4P1

Dear Mr. Sutherland:

**RE: Newsome Creek Erosion Mitigation Options
 Our File 3234.013**

We are pleased to submit herewith our technical memorandum which documents a feasibility study to mitigate erosion on Newsome Creek below Highway 1. This project was performed by Kerr Wood Leidal (KWL) and Westrek Geotechnical Services Ltd. (Westrek). The project results are summarized below.

The study area is the creek reach from Highway 1 to Shuswap Lake, a length of approximately 520 m, with a focus on the reach between Highway 1 and Dieppe Road. Thirteen properties are within the study area, eleven on Caen Road (right bank) and two on Passchendaele Road (left bank). This section of Newsome Creek mostly flows through a ravine with nearly vertical side walls, and has been subjected to erosion, channel destabilization, and bank instability. Eroding banks and falling trees, especially on the right bank (looking downstream) of the ravine, have resulted in a slope stability risk to houses along Caen Road.

In October 2018, Westrek¹ documented four properties on Caen Road (2809, 2819, 2821 and 2823) that could be affected by imminent bank failure, and therefore were at high risk of foundations being undermined. The underlying cause of the ravine instability is the creek undercutting the silty sand layers of the ravine, leading to progressive collapse of the ravine walls. The Westrek report documents the fact that the ravine instability is progressing downstream.

Nine potential mitigation options were identified and evaluated. After consideration of construction practicality, design life, and community feedback, three options remain for consideration. These options and associated indicative cost estimates are as follows:

Mitigation Option	Cost Estimate
Rock-Lined Channel	\$4,800,000
Culvert (2700 mm Diameter)	\$5,000,000
Sheet Pile Wall with Bed Stabilizers	\$6,200,000
Note: Cost estimate includes construction cost, engineering / construction management, environmental compensation/enhancement and contingency.	

¹ Westrek Geotechnical Services Ltd, 2018. Monitoring Results and Summary Recommendations. Newsome Creek Erosion below Highway 1. Prepared for Columbia Shuswap Regional District – Shuswap Emergency Program.



Newsome Creek Erosion Mitigation Options
Columbia Shuswap Regional District
June 7, 2019

The objective of mitigation works would be to stabilize the creek channel to reduce undercutting of the ravine slopes. While each of these options would limit further destabilization of the ravine, none of the options would fully stabilize the upper ravine slopes. In the end, some combination of these three options would probably provide the optimum approach to channel stabilization.

Once funding is secured, detailed engineering work would be needed to refine the final combination of options, prepare detailed design, and provide an updated cost estimate. A safe construction approach would also need to be developed.

Please contact us with any questions that arise.

Yours truly,

KERR WOOD LEIDAL ASSOCIATES LTD.

A handwritten signature in black ink, appearing to read 'J. Miller', is written over the printed name and title.

Jason Miller, P.Eng.
Water Resources Engineer

/dwm

Encl.

KWL Technical Memorandum, June 7, 2019

Westrek Technical Memorandum, June 7, 2019

KERR WOOD LEIDAL ASSOCIATES LTD.
consulting engineers

Technical Memorandum

DATE: June 7, 2019

TO: Derek Sutherland, P.Eng
Columbia Shuswap Regional District

FROM: Jason Miller, P.Eng
Alisson Seuarz, M.Eng, EIT

RE: **Newsome Creek Erosion Mitigation Options**
Our File 3234.013

1. Introduction

Kerr Wood Leidal Associates Ltd. (KWL) has been retained by the Columbia Shuswap Regional District (CSRD) to complete a feasibility study to mitigate erosion on Newsome Creek from Highway 1 to Shuswap Lake in Sorrento, BC. The study identifies and evaluates options to mitigate erosion within the Newsome Creek ravine. The options focus on preventing further erosion of the ravine, but do not address current ravine slope instability. KWL has partnered with Westrek Geotechnical Services Ltd. (Westrek) to provide geotechnical input for the potential erosion mitigation options and to provide an opinion on ravine bank stability.

2. Background

Newsome Creek is located in the South Shuswap of the Southern Interior of British Columbia. The watershed of Newsome Creek extends from its headwaters near the top of Black Mountain and Mount Hilliam to its mouth at Shuswap Lake in the community of Sorrento. Most of the watershed is within the Columbia Shuswap Regional District except for the top west tip of the watershed that lies within the Thompson Nicola Regional District.

The creek system includes two branches on the east side of the watershed that converge before joining a third branch at about 400 m northwest of the Notch Hill Road and Fredrickson Road intersection. A map of the watershed is shown on Figure 1.

The study area is the creek reach from Highway 1 to Shuswap Lake, a length of approximately 520 m, with a focus on the reach between Highway 1 and Dieppe Road. This section of Newsome Creek mostly flows through a ravine with nearly vertical side walls and has been subjected to erosion, channel destabilization, and bank instability. Eroding banks and falling trees, especially on the right (looking downstream) bank of the ravine, has put houses along Caen Road at risk of foundation failure.



3. Site Visit

On March 20, 2019, KWL conducted a site visit to assess Newsome Creek from Highway 1 to Shuswap Lake, focussing on the reach between Highway 1 and Dieppe Road. The current observations were compared to 2017 conditions, as documented a KWL technical memorandum Emergency Site Assessment of Newsome Creek¹. In general, erosion and channel instability continues to cause banks to slough and numerous mature trees to topple. Specific observations are summarized below.

Bank toe erosion is leading to undercutting and slope failure with earthen blocks falling into the creek along a reach of 40 m downstream of the Highway 1 culvert outlet. A recent slope failure caused a channel blockage, with ponding of the creek and an outlet drop of 1.2 m. Photo 1 below shows the conditions looking upstream from the channel blockage.



Photo 1: Looking upstream at culvert outlet and erosion.

¹ Kerr Wood Leidal Associates Ltd, 2017. Emergency Site Assessment of Newsome Creek. Prepared for Columbia Shuswap Regional District – Shuswap Emergency Program



TECHNICAL MEMORANDUM
Newsome Creek Erosion Mitigation Options
June 7, 2019

In the ravine below 2809 Caen Road, bank erosion has progressed to cause bank undercutting. Debris, including trees, shrubs, and sloughed material has obstructed the channel and pushed the flow to the right bank. Recent sloughed material was observed on snow piles at the slope toe with audible and active slope failure occurring. Photo 2 depicts the flow undercutting the right bank below the eroded slope.

Overall, debris including fallen trees and an old tree fort litter the gully bottom causing deflected flow and ponding water. In 2018, Forsite Forest Management Specialists flagged danger trees throughout the reach². Photo 3 shows flagging tape for danger trees, along with a man-made structure on some of the toppled trees.



Photo 2: Erosion below 2809 Caen Road (looking downstream).



Photo 3: Looking downstream near 2817 Caen Road at toppled trees and manmade structures.

The right bank below 2819 Caen Road is affected by erosion along a reach of approximately 42 m. A portion of the bank is undercut by 2 m for 15 m at the apex of the erosion. A mature cedar located 30 m downstream is anticipated to imminently fall. The gully becomes more defined and narrows to approximately 4 m at the downstream extent of the erosion. Photo 4 shows the right bank erosion and the outbuilding (woodwork shop) at the top of the bank.

Below 2827 Caen Road, 20 m of erosion along the creek at the gully bottom is flanked by a steep 6 m high bank. Sedimentary layers are evident through the erosion with varying sizes and colours. Photo 5 indicates the layers of material and channel.

² FORSITE Forest Management Specialists, 2018. Newsome Creek Danger Tree Assessment. Prepared for Columbia Shuswap Regional District - Shuswap Emergency Program.



TECHNICAL MEMORANDUM
Newsome Creek Erosion Mitigation Options
June 7, 2019



Photo 4: Looking across at undercut bank and high erosion at Civic address 2819.



Photo 5: Looking across at erosion below property No. 2827 from bench across.

Downstream, there are other areas of older erosion which were not affected by high flows in 2018. However, toppled trees continue to cause irregular flow paths which may exacerbate erosion in future high flows. The culverts at Dieppe Road have oblong inlets which may trap debris. Below Dieppe Road, the shallow creek gradient is subject to sediment deposition.

4. Site Conditions

4.1 Properties

Thirteen properties are within the study area, eleven on Caen Road (right bank) and two on Passchendaele Road (left bank).

In October 2018, the risk to these properties, from 2803 to 2829 Caen Road, 1185 Passchendaele Road and 1159 Passchendaele Road, was assessed by Westrek based on monitoring and field observations. The Westrek report³ documented four properties on Caen Road (2809, 2819, 2821 and 2823) that could be affected by imminent bank failure and therefore were at high risk of foundation collapse. Further assessment was recommended.

4.2 Slope Stability

Westrek has completed a further geotechnical review of Newsome Creek downstream of Highway 1. Westrek has identified that highly erodible sand and gravel units have been exposed in recent years

³ Westrek Geotechnical Services Ltd, 2018. Monitoring Results and Summary Recommendations. Newsome Creek Erosion below Highway 1. Prepared for Columbia Shuswap Regional District – Shuswap Emergency Program.



during high flow events, which in some places has undercut the bank 1 to 2 m (i.e. below 2809 to 2819 Caen Road). There is an overlying silt unit, which is fine grained in nature, but can stand at very steep slopes. This layer is prone to unpredictable collapse due to shear failure, or a toppling failure in locations of unfavourable joints. Either of these mechanisms can result in large volumes of material being introduced into the channel, which aggravates the erosion and destabilization process further as the sediment is transported downstream. There are active failures occurring within the ravine as well as relic failures.

Work in the gully could put workers and equipment at risk. Sudden toppling and sliding failures along the gully side slopes may occur suddenly with little warning; this is a concern for construction and public safety. Options to mitigate this risk include minimizing worker and equipment exposure, progressively working through the site while restricting workers to the more stabilized areas, carefully selecting access points, and working while the banks are in the most stable condition (i.e. winter when bank are frozen).

More detailed information about the geotechnical conditions and considerations are included in the attached Westrek technical memorandum.

4.3 Environment

A review of the Fish Inventories Data Query⁴ indicated there were no observed fish within Newsome Creek. However, based on information provided by the Ministry of Transportation at a public meeting, new crossings being designed along Newsome Creek will consider fish passage. Therefore, fish passage is considered in option evaluation.

Fallen trees within the ravine has lead to alteration of the flow path and further destabilization of the channel. Removal of fallen trees will need to be considered in conjunction with an overall erosion protection and bank stabilization plan. The 2018 danger tree assessment identified categories of danger trees based on the potential risk to human life or infrastructure. Sixty four danger trees were identified, and treatment was also recommended.

The eroding bank material that is being deposited within the creek channel is being transported to Shuswap Lake. This is causing the delta at the mouth of the creek (adjacent to the Sorrento water intake) to increase in size. This will continue to occur until Newsome Creek is stabilized.

5. Hydrologic Analysis

A hydrologic analysis of Newsome Creek was performed to obtain peak flow estimates, including a climate change allowance. A design flood discharge is recommended.

5.1 Peak Flow Analysis

There are no hydrometric stations on Newsome Creek. The method for peak flow estimation is based on the 100-year return period peak instantaneous flow isolines developed by the BC Ministry of Environment, Land and Parks which were published as part of the BC Streamflow Inventory (1998). Additional data was gathered using the national hydrology network. The provincial 1:50,000 scale Digital Elevation Model (DEM) was used to provide watershed characteristics. Table 5-1 summarizes the compiled watershed information.

⁴ <http://a100.gov.bc.ca/pub/fidq/infoSingleWaterbody.do>, accessed May 10, 2019



Table 5-1: Newsome Creek Watershed Parameters

Watershed	Area (km ²)	Mean Elevation (m)	Hydrologic Zone
Newsome Creek	18.5	851	Northern Columbia Mountains

Based on Newsome Creek watershed area and the provincial isoline of 25 m³/s, the estimated 100-year return period peak instantaneous flow was derived. The 200-year return period peak instantaneous flow was estimated to be 15% higher than the 100-year peak instantaneous flow. Results of the hydrological analysis are summarized in Table 5-2.

Table 5-2: Newsome Creek Peak Flow Estimates

Flood Event	Peak Instantaneous Flow (m ³ /s)
100-Year Return Period	6.6
200-Year Return Period	7.6

5.2 Climate Change

Climate change projections for the Northern Columbia region include increased temperature. The change will likely result in more precipitation falling as rain, higher peak flows, lower summer/fall flows, drier summers and more frequent wildfires.

The upper part of the watershed has been previously affected by wildfires. The last significant wildfire occurred in 2009, burning an area of approximately 28 km² on Black Mountain. More frequent wildfires would increasingly affect the hydrology of the area by reducing rainfall interception in the tree canopy, and reducing the capacity of the ground to absorb infiltration. Such hydrologic impacts may increase the frequency and magnitude of flooding.

In selecting a design flow, an allowance for climate change should be considered as per EGBC professional practice guidelines⁵. These guidelines recommend that in the absence of a historical trend, an additional 10% should be included on the peak flow estimates.

Table 5-3 below provides the peak flow estimate including climate change allowance.

Table 5-3: Newsome Creek Peak Flow Estimate including Climate Change Allowances.

Flood Event	Peak Instantaneous Flow with 10% Allowance (m ³ /s)
200-Year Return Period	8.4

⁵ Engineers and Geoscientists BC, 2018. Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC.



5.3 Recommended Design Flow

The recommended 200-year return period design flow for the Newsome Creek ravine is 8.4 m³/s. This estimate reflects a climate change allowance of 10%.

6. Hydraulic Analysis

The field observations and data collected from the field investigation was used to develop a preliminary hydraulic model. The hydraulic analysis consisted of modelling the main channel to obtain hydraulic parameters that will support identification and evaluation of erosion mitigation options.

6.1 Newsome Creek Model

A one-dimensional hydraulic model was built using HEC-RAS to estimate water levels, depths and velocities at different locations of the creek.

The model extends for 450 metres downstream of Highway 1 to just upstream of Dieppe Road. The Highway 1 and Dieppe Road culverts were not included in the model. Eighteen cross sections were incorporated into the model. Additional cross sections were also interpolated between the measured cross sections to facilitate the hydraulic calculations and obtain a representative profile.

Boundary Conditions

Model simulations were performed assuming a steady state condition and allowing for mixed flow regime calculations. Mixed flow calculations require a boundary condition at each end of the river; therefore, a normal depth with a channel gradient of 4% was assumed at the upstream and downstream ends of the model. The recommended design flow from Section 5.3 was adopted for the model. The simulations also assume the absence of channel blockages (i.e. debris, ice, etc.). Boundary conditions implemented in the model are summarized in table below.

Table 6-1: Newsome Creek Boundary Conditions for Hydraulic Model

Location	Peak Instantaneous Flow m ³ /s
Upstream End (Downstream of Highway 1)	8.4
Downstream End (Upstream of Dieppe Road)	Normal Depth

Channel Roughness

The frictional resistance of the channel bed is defined using the Manning's n roughness values. For Newsome Creek, two scenarios were considered to capture the bed resistance of the channel under different conditions. Each scenario has a different roughness value throughout the entire modelled section.

The highest roughness value was selected to represent the current condition of the channel which is dominated by large woody debris such as trees and branches. The lowest roughness value was selected to represent future channel conditions with removal of the large woody debris and channel restoration.



Model Results

The model was initially run with a relatively high Manning's n roughness value of 0.1 to reflect the current (unimproved and hydraulically rough) condition of the creek. This scenario results in a relatively high water level. Table 6-2 shows computed flow depth and velocity for this scenario. The results indicate that the highest water depth occurs approximately 50 m downstream of Highway 1.

Table 6-2: Hydraulic Model Results for Current Condition

Manning's $n = 0.1$	Water Depth (m)	Velocity (m/s)
Average	1.3	1.6
Minimum	0.7	0.8
Maximum	1.9	2.7

The model was also run with a reduced Manning's n of 0.05 to reflect the improved (less rough) future condition of the creek. This scenario results in a relatively higher flow velocity. Table 6-3 shows computed flow depth and velocity for this scenario. The results indicate that the highest flow velocity occurs approximately 200 m downstream of Highway 1.

Table 6-3: Hydraulic Model Results for Future Condition

Manning's $n = 0.05$	Water Depth (m)	Velocity (m/s)
Average	0.9	2.6
Minimum	0.5	1.0
Maximum	1.6	4.5

To test the sensitivity of the hydraulic model to climate change, the model was also evaluated for a 200-year return period peak instantaneous flow with a climate change allowance of 20% ($9.2 \text{ m}^3/\text{s}$), and for the same two channel roughness scenarios. For each scenario, the results indicate an increase in the average flow velocity and depth of approximately 2% and 6% respectively.

This hydraulic modelling work is considered preliminary, and should be revisited prior to proceeding with design of erosion mitigation measures.

7. Identification and Analysis of Erosion Mitigation Options

Several mitigation options have been identified and evaluated to mitigate the erosion of the creek channel and banks. The objective of such works is to reduce creek channel erosion and the undermining of the ravine slopes. By extension, this will reduce the risk of foundation failure of adjacent properties. Note that these options are not intended to mitigate the unstable ravine slopes. The attached Westrek technical memorandum (Section 5) documents geotechnical considerations for each option.



7.1 Option 1: Riprap Lined Channel

The construction of a riprap lined channel would involve erosion-resistant rock placed on the creek bed and banks to provide a stable creek channel. The advantages and disadvantages are listed in Table 7-1.

Table 7-1: Riprap Lined Channel Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> Slows lateral and vertical channel migration. May support fish passage through the channel. Buttresses the toe of ravine slopes. Long service life with maintenance. 	<ul style="list-style-type: none"> Some over-steepened banks would remain. Slow construction with challenging access.

7.2 Option 2: Articulated Concrete Matt

Placement of an articulated concrete matt (precast concrete blocks that are tied together by steel wires) would increase erosion resistance. The advantages and disadvantages are listed in Table 7-2.

Table 7-2: Articulated Concrete Matt Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> Can mitigate lateral (wall) and vertical (bed stabilizer) channel migration. Work can generally be completed using heavy equipment with limited times when workers are required at toe of slope/bank. Long design life. 	<ul style="list-style-type: none"> Large equipment required to access the site. Need to reshape the ravine to allow placement of mattress. Bank tie-in for mattress may be difficult. Potential fish passage barrier.

7.3 Option 3: Gabion Baskets

Gabion baskets (steel mesh baskets filled with rocks) could be placed along the channel banks and within the creek bed to improve channel stability. Individual baskets are usually rectangular, and designed to form a stepped retaining wall. The advantages and disadvantages are listed in Table 7-3.



Table 7-3: Gabion Baskets Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> • Can be used to mitigate lateral (wall) and vertical (bed stabilizer) channel migration. • Baskets can be placed on uneven ground. • Fill with small equipment. • Can shape/bend around corners. • The baskets can tolerate some movement without failing. 	<ul style="list-style-type: none"> • Need to import rock fill for baskets (no suitable material is present in ravine). • Basket installation requires workers to be working at toe of slope/bank (safety concern). • Baskets can fail over long-term by rusting. • Debris impact can damage gabions • Short design life.

7.4 Option 4: Lock Block Wall

A near-vertical lock block wall placed along the creek banks and within the creek bed to provide an interlocked revetment. The advantages and disadvantages are listed in the Table 7-4.

Table 7-4: Lock Block Wall Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> • Can mitigate lateral (block wall) and vertical (bed stabilizer) channel migration. • Significantly reduce the quantity of rock required to be in channel. 	<ul style="list-style-type: none"> • Base preparation requires worker to be working at toe of slope/bank (safety concern). • Difficult to get smooth foundation surface on which to place blocks – blocks need to be battered (sloped). • Difficult to bend around corners. • Requires scour protection along toe of wall or blocks to be buried below scour depth. • Movement of a single block can compromise the structure.



7.5 Option 5: Mechanically Stabilized/Reinforced Earth/Soil

A mechanically stabilized earth/soil (MSE) can be constructed on the creek banks. The advantages and disadvantages are listed in table below.

Table 7-5: MSE Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> Typically can be installed using small conventional equipment. Can be used to mitigate lateral (wall) channel migration. Some settlement of the wall could be tolerated. Can bend around corners. 	<ul style="list-style-type: none"> Requires excavation into the slope to place reinforcing in backfill. Wall installation requires worker to be working at toe of slope/bank (safety concern). Requires scour protection along toe of wall. Requires specialized construction crews.

7.6 Option 6: Culvert

The creek channel could be replaced with a long culvert along the approximately 450 m section of creek (a culvert diameter of about 2700 mm may be appropriate). The advantages and disadvantages are listed in Table 7-6.

Table 7-6: Culvert Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> Erosion mitigation for all flows up to culvert capacity. All flow conveyed through culvert up to a design flow. Installation possible with current alignment and slope. Can fill in part of ravine to reduce overall depth. 	<ul style="list-style-type: none"> Flow capacity limited to design. Potential for blockage at inlet, with uncontrolled overflow. A debris rack may be needed to mitigate the risk of inlet blockage (regular maintenance would be required). An overflow channel may also be needed to mitigate inlet blockage risk and convey local rainfall runoff. The culvert would be a fish barrier.



7.7 Option 7: Wood Drop Structures

A series of wood drop structures (step-pool structures built at low height across the entire width of the creek) could be constructed through the ravine to reduce channel instability. The advantages and disadvantages are listed in Table 7-7.

Table 7-7: Wood Drop Structures Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> Reduces erosion by decreasing the flow velocity/energy. Series of drop structures can minimize drop height at each structure. Re-use of on-site material (i.e. cedar/fir trees). Natural appearance and functionality. Lower cost than rock structures. Can be designed for fish passage. 	<ul style="list-style-type: none"> Success rate decreases as stream gradient increases above 5%. Need to be anchored to creek bank. Requires ongoing monitoring and maintenance. Limited design life due to wood decay.

7.8 Option 8: Timber Cribbing

A timber crib wall (timber crib structures against the creek banks to produce a gravity retaining wall made of interlocked logs) could also reduce creek instability. The advantages and disadvantages are listed in Table 7-8.

Table 7-8: Timber Cribbing Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> Re-use of on-site material (i.e. cedar/fir trees). Relatively easy to install. Natural appearance and functionality. Can help improve fish habitat. 	<ul style="list-style-type: none"> Reduces width of creek cross section. Need to provide backfill (imported and/or local). Labour and equipment intensive. Limited design life due to wood decay. Requires periodic monitoring and maintenance.



7.9 Option 9: Sheet Piles

A sheet pile structure (elongated piles that are embedded into the ground, closely placed and locked together to form a continuous wall) could provide effective erosion protection. The advantages and disadvantages are listed in Table 7-9.

Table 7-9: Sheet piles Option Advantages and Disadvantages.

Advantages	Disadvantages
<ul style="list-style-type: none"> Can be used to mitigate lateral (wall) and vertical (bed stabilizer) channel migration. Work can generally be completed using heavy equipment with limited times when workers required at toe of slope/bank. 	<ul style="list-style-type: none"> Vibration for pounding pile could cause slope failures or damage buildings at top of ravine. Large equipment required to access the site. Specialized equipment necessary. Soil conditions below surface unknown and piles may not be suitable to pound into the bed.

8. Indicative Construction Cost Estimates

After consideration of construction practicality, design life and community feedback, the above nine mitigation options were narrowed to the following three short-listed options:

- riprap-lined channel;
- culvert; and
- sheet pile wall with bed stabilizers.

An indicative construction cost estimate (+/- 40%) has been prepared for each of these three options. Overall, it is estimated that the cost to mitigate further erosion within Newsome Creek between Highway 1 and Dieppe Road could be between \$4.8 million and \$6.2 million.

Table : Summary of Indicative Construction Cost Estimate

Mitigation Option	Cost Estimate
Rock-Lined Channel	\$4,800,000
Culvert (2700 mm)	\$5,000,000
Sheet pile Wall with Bed Stabilizers	\$6,200,000

The cost estimates include allowances for engineering and construction management (20%) and contingency (40%), but do not include an allowance for property acquisition.

The cost can be better estimated once the option or combination of options is selected, and when there is more certainty regarding geotechnical requirements, environmental requirements, other regulatory requirements, and the proposed upstream work by MOTI.

Any works constructed will also incur maintenance costs which will vary between options, and from year to year for each option. The cost estimates do not include maintenance costs.



9. Implementation Considerations

A summary of the key actions required for the implementation of the potential creek works are listed below. The actions are grouped based on the different implementation phases.

9.1 Detailed Design

Completion of design would include the actions noted below.

- Select a preferred mitigation option (or combination of options) that provides a sufficient level of risk reduction, accepting the fact that some level of residual risk will remain (i.e. upper slope stability).
- Obtain a topographic survey of the ravine.
- Conduct a further geotechnical investigation (i.e. slope stability analysis) to confirm adequate factor of safety for the selected design option(s).
- Complete an environmental assessment to support design and permitting.
- Submit approval and/or authorization applications.
- Resolve private property access issues and/or challenges.
- Consider need for land acquisition.
- Develop an appropriate funding mechanism(s) for construction and maintenance.

9.2 Construction

Construction would include the actions noted below.

- Develop an appropriate approach for procuring construction services.
- Address resident concerns.
- Investigate and establish access routes to the ravine.
- Develop a safety plan for the people and equipment working on-site.
- Establish an appropriate construction timeline (i.e. consider construction during winter versus fish window).
- Develop an effective plan for dewatering the creek during construction (bypass versus short diversions).
- Develop an erosion and sediment control plan.
- Remove trees as needed to enable construction (consider merchantability of timber).
- Conduct engineering inspections and environmental monitoring during construction.
- Conduct a post-construction survey.
- Prepare record drawings to reflect as-constructed conditions.

9.3 Operation and Maintenance

Operation and maintenance would include the actions noted below.

- Determine the future need for inspection, monitoring, routine maintenance, repairs, and post-event restoration.
- Document operation and maintenance requirements, possibly through an operation and maintenance manual.
- Assign responsibility for each maintenance provision.
- Clarify and obtain land tenure.
- Establish adequate access routes for future inspections and repairs.



10. Summary and Recommendations

KWL completed a field assessment on Newsome Creek on March 20, 2019. The creek is unstable with irregular lateral migration, bank toe erosion, and bank sloughing. In two cases, the sloughing now threatens the foundation stability of houses at the top of bank. Westrek Geotechnical Services has completed an independent review of the general bank stability, concluding that the ravine is likely to remain unstable until lateral migration and scour of the creek channel is reduced, and an equilibrium is restored.

Following a hydrotechnical analysis, nine options were identified to mitigate creek instability. Each option was assessed at a high level, and construction cost estimates were completed for three short-listed options.

Option 1 (riprap-lined channel) appears to be the most promising option. While there are less expensive options, the rock lined channel affords the most flexibility to adjust to the undulating creek channel and creek sedimentation from sloughing of the ravine slopes. The rock may be placed with conventional equipment, but there would be challenges to obtain access to and within the ravine. The indicative construction cost estimate for this option is \$4.8 million.

The two other preferred options are: enclosing the creek in a culvert at a cost of approximately \$5.0 million; or use of a sheet pile wall with bed stabilizers at a cost of approximately \$6.2 million.

Each construction cost estimate includes allowances for engineering and construction management (20%) and contingency (40%), but does not including property acquisition (if required). Allowances for future operation and maintenance are also not included.

In the end, it may be most appropriate to select a combination of options for implementation. The construction cost could be reduced by incorporating less expensive materials, such as with a rock/wood combination, however the design life would be reduced.

Each option would increase channel stability within the ravine, thereby reducing the likelihood of continued undermining of the ravine slopes. It is important to recognize that none of the identified options would directly mitigate the upper ravine slope instability, therefore some residual risk would need to be accepted.

As the ravine slopes are unstable, any work in the ravine would require a specific safety plan, and a geotechnical opinion prior to entry and/or construction.



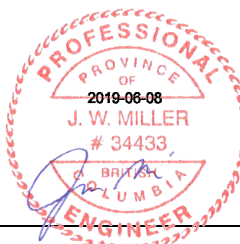
TECHNICAL MEMORANDUM
Newsome Creek Erosion Mitigation Options
June 7, 2019

Submission

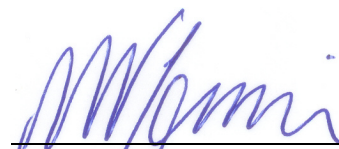
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ABS/JM/

Encl.: Figure 1, Geotechnical Considerations – Newsome Creek Gully Stability Below Highway 1 (Westrek Tech Memo)

Statement of Limitations

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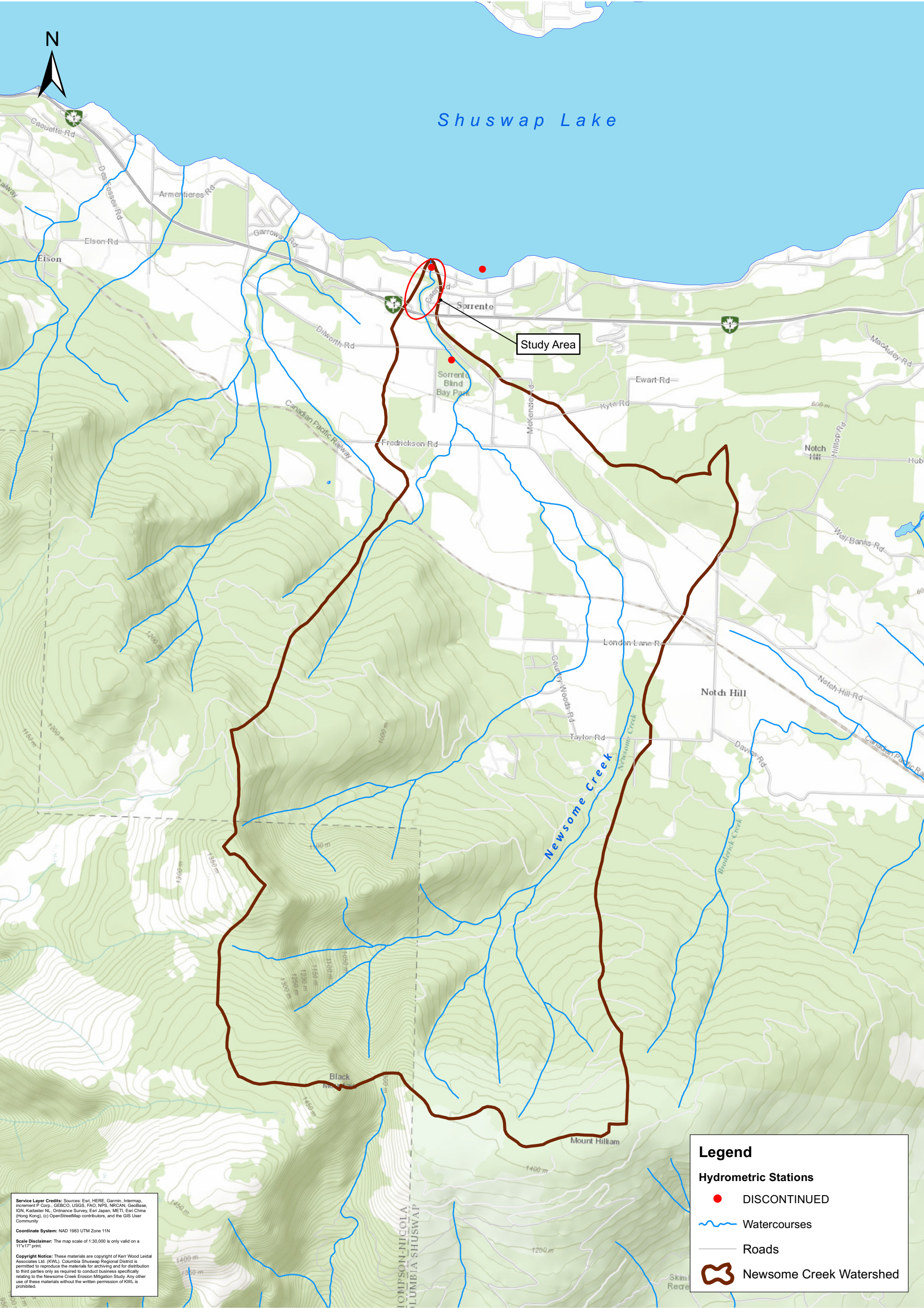
Revision History

Revision #	Date	Status	Revision Description	Author
0	June 7, 2019	Final		ASB/JM
A	May 13, 2019	Draft	Draft for Internal Review	ASB/JM



KERR WOOD LEIDAL ASSOCIATES LTD.
consulting engineers

Columbia Shuswap Regional District
Newsome Creek Erosion Mitigation Study



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Coordinate System: NAD 1983 UTM Zone 11N

Scale Disclaimer: The map scale of 1:30,000 is only valid on a 11"x17" print.

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Legend

DISCONTINUED

Watercourses

Roads

Newsome Creek Watershed

Hydrometric Stations



TECHNICAL MEMORANDUM

Date: June 7, 2019

To: Jason Miller PEng
Kerr Wood Leidal Associates Ltd.

Re: **Geotechnical Considerations - Newsome Creek Gully Stabilization below Highway 1, Sorrento, BC**

1 Introduction and Scope

Erosion during the 2017 and 2018 freshet flows has affected the gully sidewalls along Newsome Creek between Highway 1 and Shuswap Lake, and this has threatened a number of residences and structures built along the gully edge. The Columbia Shuswap Regional District (CSRD) retained Kerr Wood Leidal Associates Ltd. (KWL) to study the feasibility of stabilizing this reach. Westrek Geotechnical Services Ltd. (Westrek) was asked by KWL to provide geotechnical input to assist in the development of the stabilization options.

KWL first assessed the erosion issues in this reach in May 2017. Westrek has been monitoring the progression of instability in the reach since May 2018. Background information was summarized in reports submitted to the CSRD entitled *Monitoring Results and Summary Recommendations, Newsome Creek Erosion below Highway 1*, dated October 6, 2018, and *December 2018 Monitoring Results, Newsome Creek Erosion below Highway 1*, dated December 18, 2018.

The scope of this assessment was outlined in a proposal to KWL dated January 24, 2019, and included the following:

- Conduct a field review along the impacted section to characterize the location and extent of slope stability hazards (e.g. slope failure, block fall / collapse, outburst flood potential, etc.);
- Provide geotechnical input concerning the sensitivity of the gully side slopes for stabilization of the channel, and provide geotechnical input related to access management, constructability, and worker safety; and
- Provide preliminary geotechnical design input for the stabilization options that will be presented to the CSRD.

The purpose of the work was to assist KWL and the CSRD in determining the most feasible options to be explored should funding be secured to assist with the project. Detailed investigation, numerical modelling (slope stability analysis) and detailed geotechnical engineering was beyond the scope of our assessment. The services are subject to the terms and conditions set out in the *Interpretation and Use of Study and Report and Limitations*, which is attached in Appendix A and incorporated herein by reference.

2 Fieldwork

Kevin Turner PEng and/or Leslie Abel PGeo MEng, who represented Westrek, visited the site on April 1 and 2, 2019 to characterize the gully side slopes. KWL had already mapped and flagged five cross-sections in the field. Westrek logged the surficial deposits along four of the cross-sections, including No. 206, 207, 208, and 212 (see attached Figure 1), and another site on the west bank of the gully about 20 m downstream of the Highway 1 embankment (below 1185 Passchendaele Road). The stratigraphy at KWL's cross-section No. 209 was not mapped as a large slope failure occurred between the time KWL and Westrek visited the site. Due to the significant safety issues at the site, we understand that KWL surveyed the cross-sections using a laser rangefinder and GPS system. For the same reason, Westrek completed the surficial mapping using a laser rangefinder and handheld clinometer. Because of this, the relative thickness and depths / heights are likely only accurate to +/- 1 m.

Select representative samples were collected for grain size distribution analysis. The test results are attached and summarized below.

On April 16, 2019, KWL presented preliminary results to the Newsome Creek Watershed Action Group at a public meeting in Sorrento. Westrek attended this meeting, and general geotechnical input on the options presented at that meeting is provided below.

3 Site Conditions

Surficial geological mapping by Fulton (1974)¹ indicates the lower reach of the creek is mapped as a lacustrine complex of clay, silt, sand, and gravel that represent open freshwater and shoreline deposits. This deposit is well-exposed in the eroded gully sidewalls immediately below Highway 1 (see Figure 1). The unit generally comprises two main surficial units, as described below:

- 1) A thick banded **silt** deposit forms the upper stratigraphic unit in this area. The unit is typically 4 to 6 m thick and forms the upper slope in the gully sidewall. It is prominently exposed in the near-vertical bluffs on the left (west) side of the gully along 1185 Passchendaele Road. The bands are centimetre to decametre-scale in thickness and distinctly tan or dark grey / black in color. The slope of this deposit is typically very steep, and varies from 80% to near-vertical bluffs. The silt is compact and moist.

¹ Fulton, R.J. 1974. *Surficial geology, Shuswap Lake (west of sixth meridian), British Columbia*. Geological Survey of Canada. Map 1391A. Scale 1:126,720.

The grain size distribution curves of two samples of the unit are attached and summarized below.

Sub-unit	Gravel	Sand	Silt	Clay	Remarks
Tan Silt	0%	4%	93%	3%	Inferred non-plastic
Dark grey / black Silt	0%	34%	62%	4%	Inferred non-plastic

- 2) The second unit underlies the silt and is generally coarse grained but variable, with two main facies that generally coarsen downwards. It usually forms the lower part of the gully sidewall slope.

Decameter-scale thick layers of dark grey / black **sand and silt** were observed in the upper part of the lower unit. Gradation testing on one sample indicated it was composed of 2% fine-grained gravel, 58% sand, and 40% silt. The layer was generally loose. Interlayered in this deposit were layers of **sand and silt** as noted above.

Lower down, this unit is composed mainly of dark grey / black, well-graded **sand and gravel** with trace to some silt. The stratigraphic layers are typically decametre to metre-scale. Gradation testing on two samples of this unit indicated it was composed of 45% to 47% gravel, 44% to 48% sand, and 6% to 11% silt. Maximum nominal particle size was about 75 mm but boulders up to 0.6 m in size were observed in the channel downstream. The layer was generally loose, but in some areas immediately under the **silt** unit, cementation was observed.

4 Slope and Channel Hazards

Bank erosion from the recent freshet flows has de-stabilized the channel starting immediately below the Highway 1 embankment. This has exposed the highly erodible **sand and gravel** unit, which in some places has undercut the overlying **silt** unit 1 to 2 m, i.e. below 2809 to 2819 Caen Road. Despite its fine-grained nature, the silt unit can stand at very steep slopes but once undercut, is prone to unpredictable collapse due to shear failure or else as a toppling failure where the unit has unfavourable joints. Either of these mechanisms can suddenly introduce a significant volume of material into the channel, as occurred in 2019. However, given the nature of the undercutting relative to the size of the gully and the lack of any strain-related features on the slope along the edge of the gully, the introduced volume is unlikely to be large enough to fully block the gully and create the potential for an outburst flood. Sediment from these failures is likely to be bypassed and gradually eroded by the creek.

Failure of the **silt** unit can also occur as comparatively small, shallow saturated landslides where seepage is emerging on steep slopes. There is an active failure of this nature below 2809 Caen Road (cross-section 209), and the scarp from this feature is progressing uphill. Relict failures of this type were also observed below the residence at 2807 Caen Road.

In 2017, KWL reported that severe erosion and bank failures were occurring behind 2809 and 2819 Caen Road, by 2018 this had progressed downstream to 2821 Caen Road. By 2019, bank undercutting was starting to increase in severity below 2827 Caen Road. Based on this, it appears that the gully sidewall destabilization is progressing downstream.

Channel instability is also destabilizing large trees along the lower part of the gully sidewall and the top of the prominent bluff along 1185 Passchendaele Road. Several trees have fallen since 2018 and more are likely. The CSRD commissioned a study in 2018 to map out the vulnerable trees, but to date none have been felled or removed.

Channel instability in the upper part of the watershed was briefly discussed in Westrek's October 6, 2018 report. Follow-up studies to characterize this have not been done, but the distance from the upper watershed and its alluvial fan to Highway 1 suggests that there is a very low potential for debris floods to directly impact this reach. Over time, fine grained sediment transported from the upper watershed could reach the channel below Highway 1 during flooding, so this should be taken into account when designing stabilization measures.

5 Stabilization Measures

KWL presented several potential options to stabilize the gully at the April 16, 2019 public meeting. Most of the options can reduce further downcutting or lateral shifting of the channel that erodes the toe of the gully sidewall slopes, but they will not necessarily improve the stability of the upper part of the slope. Where residences and buildings have been built at the crest, these structures would still be vulnerable to slope instability associated with the upper silt unit. This is further discussed in Section 5.9. Summarized below are geotechnical considerations to be taken into account for each option.

5.1 Rock-lined Channel

This is a common method for channel stabilization. Given the characteristics of the gully and the slope undercutting that has occurred, it will be a difficult option and likely expensive, but should result in a relatively robust solution. Compared with most other options, little channel foundation preparation is necessary as the system is flexible and able to accommodate differential settlement. Furthermore, less labour is typically required with this option, which reduces worker exposure. Geotechnical comments associated with this option include:

- It would be beneficial to raise the channel elevation starting immediately downstream from Highway 1, which will reduce the amount of work required to stabilize the toe of undercut slopes, except along 1185 Passchendaele Drive where the bluffs are near-vertical and relatively high.
- Reshaping the channel (subgrade) will be difficult where the slopes are undercut. For this we recommend that uniform, rounded coarse gravel and cobble material be used to backfill undercut slopes, as this material can be placed by allowing it to roll into place and without the need for compaction. Angular rock is less effective for this purpose.
- Rock could be end-dumped into the channel along the Highway 1 / 1185 Passchendaele Drive bluff to partially support that slope while work is progressing. Dump sites will have to be carefully selected.
- Rock material would have to meet the acid rock drainage / metal leaching criteria.
- This option would not improve the stability of the upper slope of the gully.

5.2 Concrete Mattress Channel Lining

This method has similar technical challenges as a rock-lined channel, but requires a more uniform and relatively competent foundation, as the system is more sensitive to differential settlement. This system is difficult to build in a narrow, deep gully like the reach below Highway 1. Geotechnical comments associated with this option include:

- To obtain a uniform competent foundation, organic and soft material will have to be stripped, which could result in high volumes. Backfilling to the new channel subgrade elevation will require a high-quality sand and gravel material that is compacted to uniform compact density.
- Re-shaping the channel (subgrade) will be difficult where the slopes are undercut. For this we recommend that uniform, rounded coarse gravel and cobble material be used to backfill undercut slopes, as this material can be placed by allowing it to roll into place and without the need for compaction. Angular rock is less effective for this purpose.
- This option would not improve the stability of the upper part of the slope.

5.3 Gabion Baskets

This method was proposed to stabilize the Highway 1 embankment, the toe of the gully sidewall slope, and possibly to curtail channel downcutting. Gabion walls are likely an effective option immediately downstream from the Highway 1 embankment and along the near-vertical bluffs currently along 1185 Passchendaele Drive where the site is less constrained.

Geotechnical comments associated with this option include:

- Gabion walls are favourable in circumstances like this as they are relatively flexible and require less critical foundation preparation than other wall options (although some preparation is required).
- Gabion walls that support the slope toe would have to be anchored in some locations, as the site may be too constrained for geosynthetic reinforced fill.
- They have to be designed and built with adequate scour protection.
- They require good access to transport rock material to the site to fill the units.
- This option could be used to stabilize local sections where undercutting has occurred. The area between the gabion wall and undercut area could then be backfilled with uniform, rounded coarse gravel and cobble material.
- A gabion wall option is likely only suitable for toe stabilization to prevent further undercutting and channel migration. They would have to be very high structures to improve the stability of the upper part of the slope, which would make them difficult to stabilize and therefore not cost effective. Gabion walls can also be useful for weirs across the channel, which could reduce the potential for further creek downcutting into the existing channel.

5.4 Lock Block Walls

This option requires a competent foundation and this will be very difficult to achieve in most areas of the reach. Geotechnical comments associated with this option include:

- The wall has to be supported on a dense sand and gravel foundation, which will be difficult to achieve along parts of the gully floor.
- They need to be protected from instability due to scour at the toe.
- Lock Block walls will have to be anchored in some locations due to steep slopes above, as geosynthetic reinforcement of the backfill may not be possible.
- Lock Block walls would have to be very high to improve the stability of the upper slopes. This would make them difficult to stabilize and therefore not cost effective.

5.5 Mechanically Stabilized Earth Walls

Like gabion walls, mechanically stabilized earth (MSE) walls may be an effective way of stabilizing the Highway 1 embankment and protecting the lower slopes from further undercutting. Geotechnical comments associated with this option include:

- MSE walls can be built on a less competent or variable foundation as they are relatively flexible structures, but some preparation is still needed, which could be difficult.
- MSE wall locations require geosynthetic reinforcement to be installed, and the higher the wall, the longer the reinforcement that is required. They cannot be anchored. This likely constrains the sites where MSE walls can be considered.
- The area between the reinforced backfill and undercut area could then be backfilled with uniform, rounded coarse gravel and cobble materials.
- MSE walls would have to be very high to improve the stability of the upper part of the slope, which would make them difficult to stabilize and therefore not cost effective.

5.6 Wood Drop Structures / Timber Cribbing

These are typical short-term structures unless provisions are made for replacement of the wood members. Unfortunately they require a lot of manual labour which can introduce worker safety issues. Geotechnical comments associated with this option include:

- These structures are relatively flexible and can have a variable foundation.
- Timber crib walls would have to be anchored in some locations, as constrained site precludes geosynthetic reinforcement.
- There is limited life expectancy associated with this option (i.e. 10-15 years).
- These structures may be effective in stabilizing channels but would be the least effective of all options in stabilizing the toe of the gully sidewall slope.
- Wood drop structures and timber cribbing are unlikely to improve the stability of the upper part of the slope because they can only be built to a limited height.

5.7 Culvert

This method has similar technical challenges as a rock-lined channel, but requires a more uniform and relatively competent foundation, as piping tends to be sensitive to differential settlement. Geotechnical comments associated with this option include:

- It would be beneficial to raise the channel elevation starting immediately downstream from Highway 1. This would simplify construction and reduce worker safety issues.
- High exit velocities at the pipe outfall will require erosion mitigation measures.
- A permanent overland flow channel will still be required in the event a culvert blockage occurs or its capacity is exceeded. This could allow the channel to be raised in elevation and therefore stabilize the toe of the side slopes along a longer reach of the gully.
- The gully channel elevation could be further backfilled after the culvert is installed. While this would improve the stability of the lower part of the slope, it would not improve the stability of the upper slope. The residences or structures built near the crest of the slope may still not have an adequate factor of safety.
- A culvert could potentially allow supplemental slope stabilization structures to stabilize the upper slope to be constructed more cost effectively.

5.8 Sheet Piles

Sheet piles could likely be an option to help stabilize the upper slope of the gully sidewall as well as stabilize the toe of the steep sidewall slopes where they are being undercut, and therefore may be an option where residences or structures were built at the edge of the gully. Geotechnical comments associated with this option include:

- Sheet piles should be capable of being driven into sand and gravel, but some zones of cemented sand and gravel were observed. Toe embedment will be important to minimize scour at the toe. A drilling program to investigate specific sites for each sheet pile wall would be required.
- High sheet piles would need anchoring, especially where they are present below the upper slope that extends above it and is very steep.
- The undercut areas behind sheet piles could be backfilled with uniform, rounded coarse gravel and cobble material, as this material can be placed by allowing it to roll into place and without the need for compaction.

5.9 Concluding Remarks

Should an attempt be made to stabilize the channel, it is likely that a combination of options will be necessary to achieve the stabilization objectives. Aside from a culvert, which would remove most of the risk associated with further scour by the creek, the most feasible options for this site appear to be the following:

- a rock-lined channel along the majority of the gully;

- gabion or MSE wall(s) at the toe of the Highway 1 embankment and along the near-vertical bluff adjacent to 1185 Passchendaele Road; and
- sheet pile walls or gabion walls where site geometry dictates.

Planning for these measures will require an up-to-date detailed survey plan to be developed. Aside from the requisite hydrotechnical studies, each of these options requires geotechnical and/or structural engineering to design and construct.

All of the above techniques will only be useful in stabilizing the channel and lower part of the gully side slopes, but will not likely be effective in restoring the upper side slopes. The structures and residences built along the edge of the gully may still be vulnerable to slope instability, with or without the channel protection in place. The owners have been advised to undertake their own studies to assess the level of risk to their property. If the channel and lower slopes are stabilized, they would have a few options including:

- shifting the structures away from the crest;
- underpinning the structures so they are founded on a deeper, more stable surficial deposit; and/or
- stabilizing the upper silt deposit using soil nails or similar systems.

5.10 Public and Worker Safety

All options require workers and equipment to be present in the gully, which places them at risk. Both the toppling and sliding failure mechanisms along the gully side slopes can occur suddenly with little advanced sign of movement, and this is a major concern with respect to public safety and construction site safety.

Options to mitigate the risk to workers include:

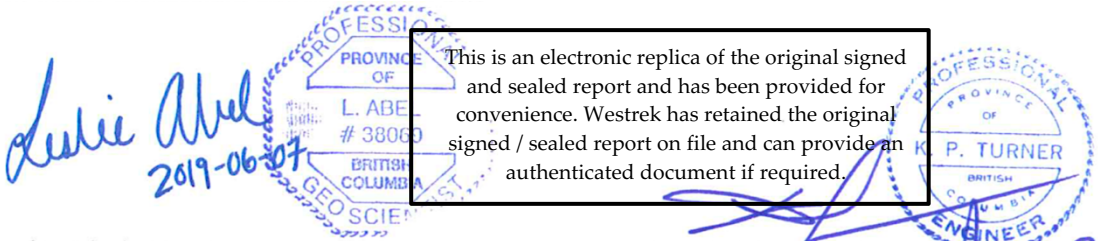
- Select construction methods and material handling processes that minimize worker and equipment exposure.
- Advance work progressively from one end (up or down), and restrict workers as much as possible to the stabilized sections.
- Carefully select gully access points, especially near the sites where near-vertical or undercut slopes exist. These would be seasonally dependent.
- Work while the gully sidewalls are frozen.

Any work within this gully would require written instructions from a qualified registered professional engineer, as required by Section 20.78 of the *Occupational Health and Safety Regulation*.

6 Closure

We trust this memo provides the information required at this time. If there are any questions, please contact the undersigned at your convenience.

Westrek Geotechnical Services Ltd.



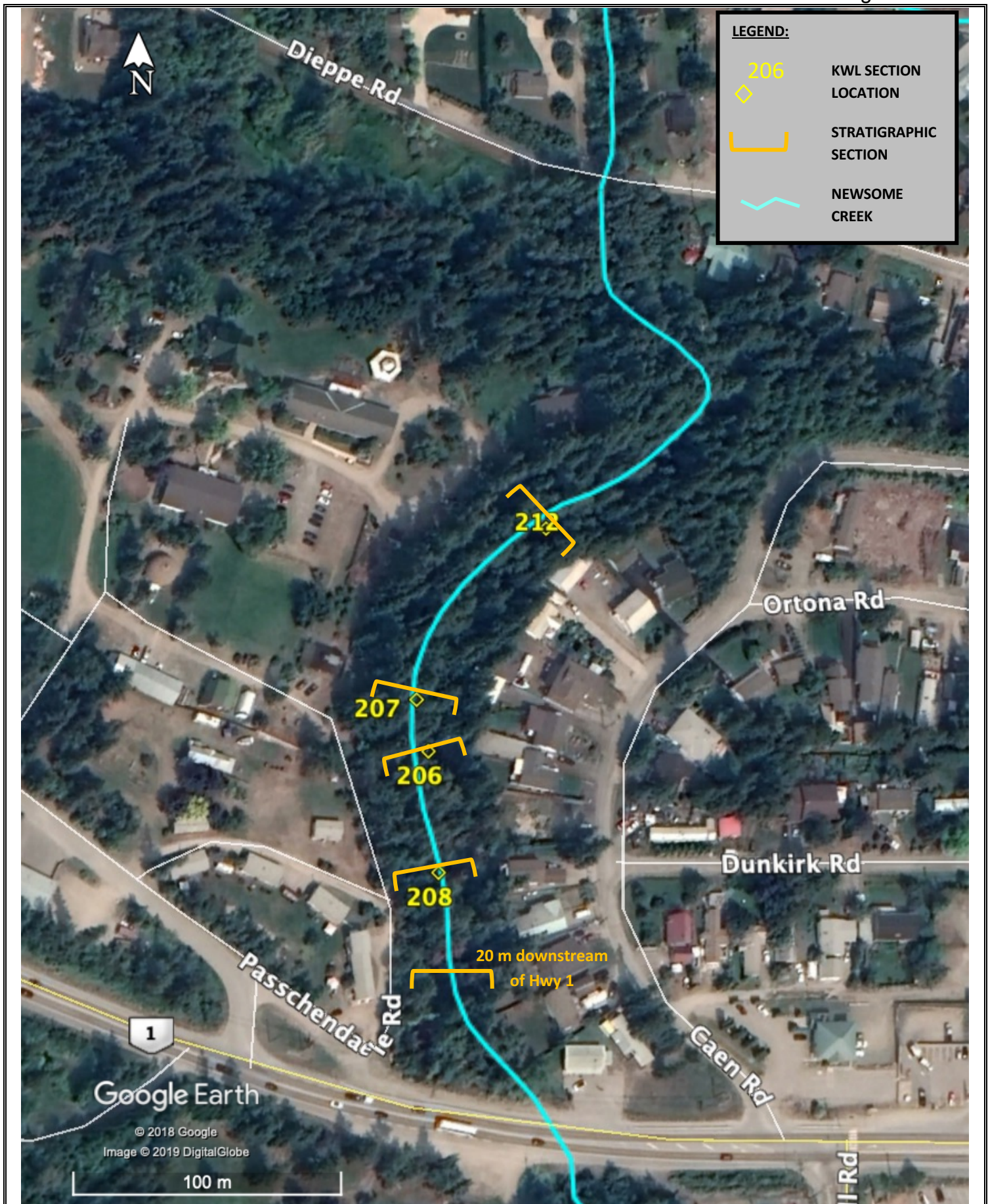
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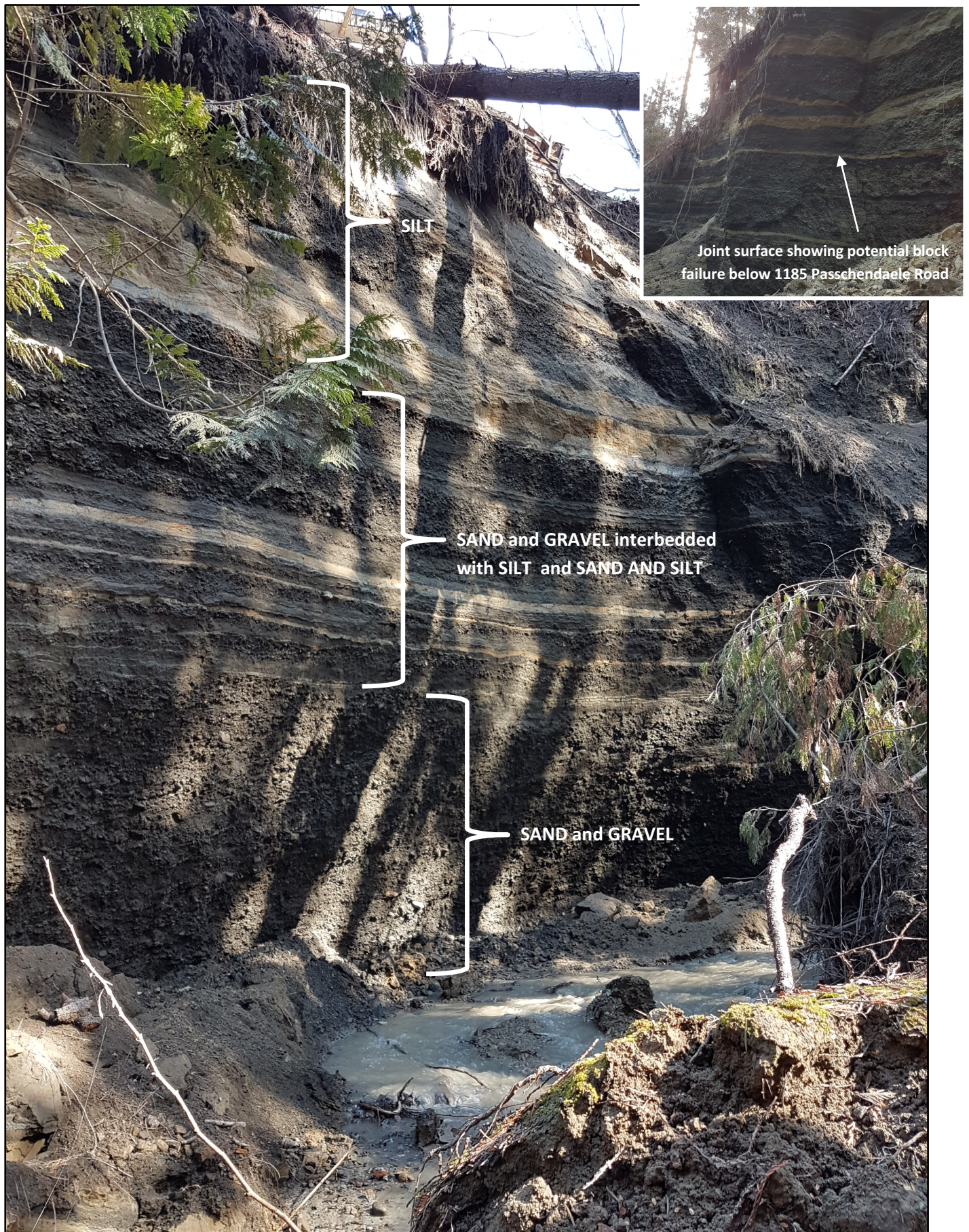
Leslie Abel PGeo MEng
 Geoscientist

Kevin Turner PEng
 Senior Geotechnical Engineer

Attached:

- Figure 1 - Stratigraphic section locations
- Figure 2 – Site Photograph
- Annotated KWL Slope Cross-sections
- Laboratory Test Results
- Appendix A *Interpretation and Use of Study and Report and Limitations*







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Page 66 of 86

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Terrace, BC V8G 2X5
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Client KWL

Contact

Project NEWSOME CREEK 019-006

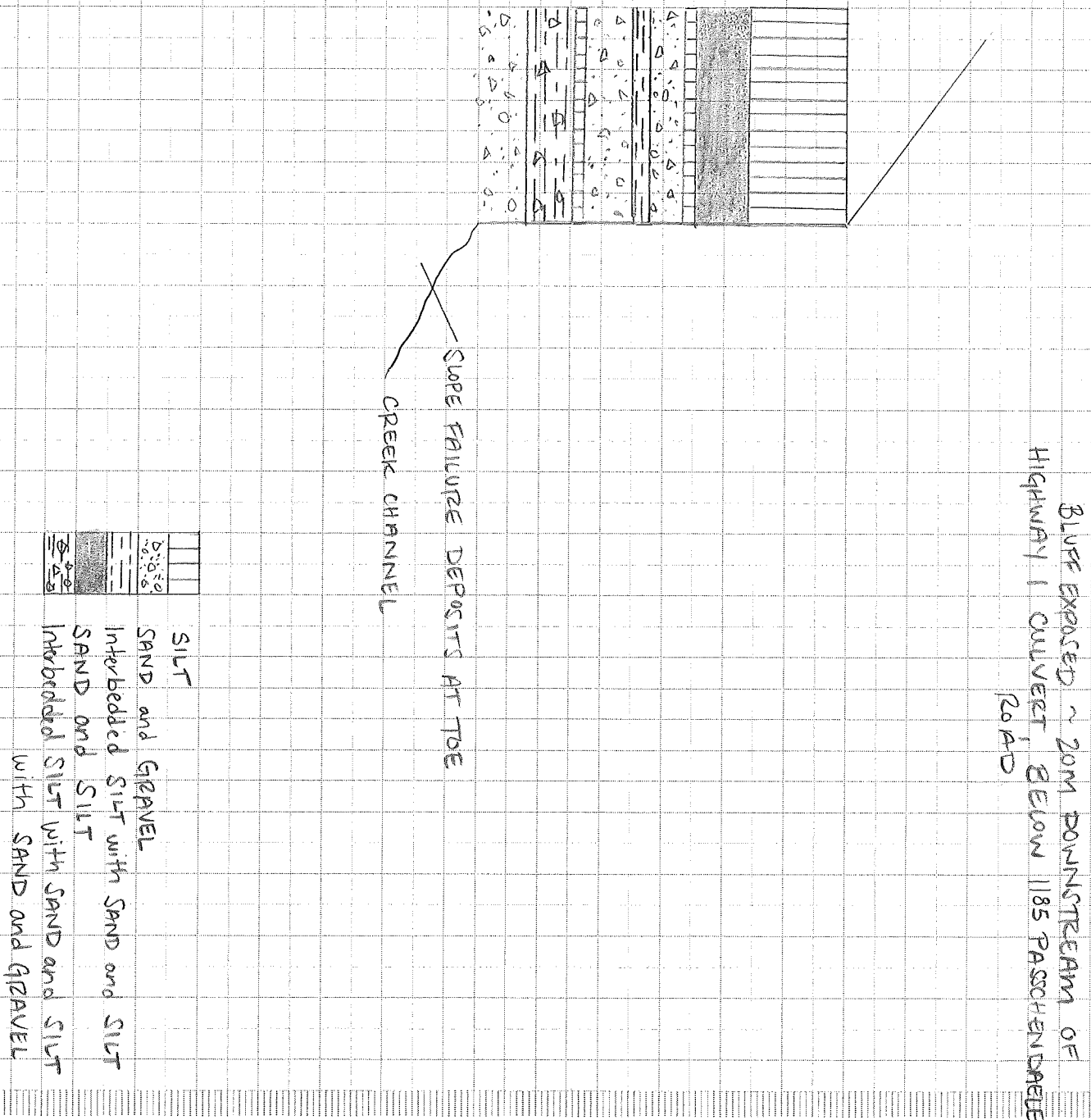
Date 2019-06-05

Phone No.

Fax No.

Prepared by LA

Sheet No. 1 of 5





KERR WOOD LEIDAL
consulting engineers

Calculations

File _____

CLIENT	DESIGNED BY	Page <u>3</u> of <u>5</u>
PROJECT	CHECKED BY	DATE
SUBJECT	<u>XS-206</u>	

REFERENCE	CALCULATION	RESULT
	<p>11.0m</p> <p>1.5:1</p> <p>LEFT BANK</p> <p>3.5m 3.0m 3.6m</p> <p>0.4m 0.4m</p> <p>RIGHT BANK</p> <p>NOT EXPOSED</p> <p>SILT SAND and GRAVEL Interbedded SILT with SAND and SILT</p>	



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Calculations

File _____

CLIENT	DESIGNED BY	Page <u>4</u> of <u>5</u>
PROJECT	CHECKED BY	DATE
SUBJECT	<u>XS-207</u>	

REFERENCE	CALCULATION	RESULT
	<p>10.0m 1:1 LEFT BANK</p> <p>2.6m 3.0m 3.5m</p> <p>1.1m</p> <p>6.0m</p> <p>RIGHT BANK</p> <p>7.0m 1:1 NOT EXPOSED</p> <p>SAND and GRAVEL Interbedded SILT with SAND and SILT</p>	



KERR WOOD LEIDAL
consulting engineers

Calculations

File _____

CLIENT	DESIGNED BY	Page <u>2</u> of <u>5</u>
PROJECT	CHECKED BY	DATE
SUBJECT	<u>XS-208</u>	

REFERENCE	CALCULATION	RESULT
	<p>13.0m</p> <p>1:1</p> <p>1.0m</p> <p>9.5m</p> <p>2.0m</p> <p>3.5m</p> <p>0.75:1</p> <p>LEFT BANK</p> <p>SILT Interbedded SILT with SAND and GRAVEL</p>	



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Calculations

File

CLIENT	DESIGNED BY	Page <u>5</u> of <u>5</u>
PROJECT	CHECKED BY	DATE
SUBJECT <u>XS-212</u>		

REFERENCE	CALCULATION	RESULT
	<p>9.0m LEFT BANK 1:1 1.8m 1.6m 1.0m 6.0m 20.75:1 6.0m NOT EXPOSED PIT/BANK SAND and GRAVEL</p>	

GRAIN SIZE DISTRIBUTION

wood.

Westrek Geotechnical Services Ltd
101- 1383 McGill Road
Kamloops, BC
V2C 6K7

OFFICE: Kamloops, BC
PROJECT: KX13690
DATE: April 10, 2019

Attn: Leslie Abel / Kevin Turner

Project Name: Newsome Creek - Sorrento

TEST NO: 19 -035-1

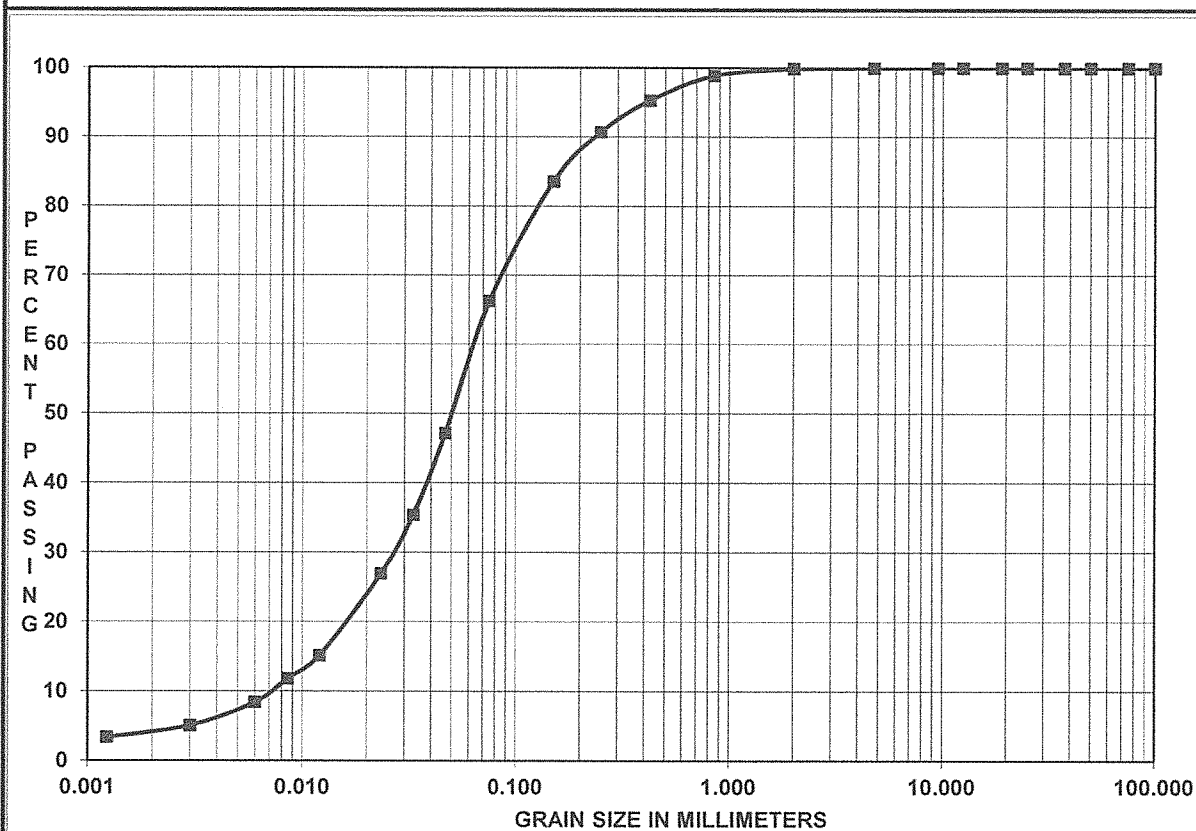
SAMPLED BY: Client

DATE Rec'd: April 4, 2019

SOURCE: X Section 200A - GS #5

DATE TESTED: April 9, 2019

SAMPLE TYPE: Black Silt



SUMMARY

Grain size (mm)	Passing (%)
75.0	100.0
50.0	100.0
37.5	100.0
25.0	100.0
19.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.00	99.9
0.850	98.9
0.425	95.3
0.250	90.7
0.150	83.6
0.075	66.2
0.0467	47.1
0.0330	35.4
0.0234	26.9
0.0121	15.2
0.0085	11.8
0.0060	8.4
0.0030	5.1
0.0012	3.4

REMARKS:

GRAVEL	0.0%
SAND	33.8%
SILT	62.1%
CLAY	4.1%

TECHNICIAN: B. Shearer

Reporting of these test results constitutes a testing service only.

Engineering interpretation or evaluation of the test results is provided only on written request.

Westrek Geotechnical Services Ltd
101- 1383 McGill Road
Kamloops, BC
V2C 6K7

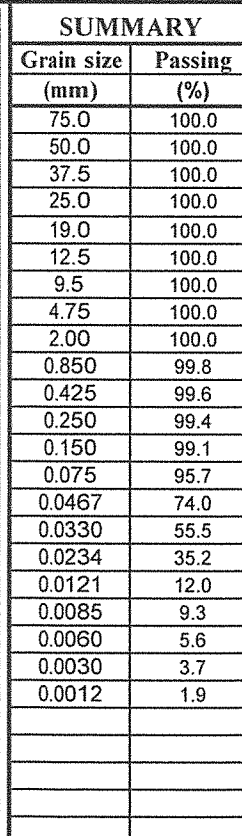
OFFICE: Kamloops, BC
PROJECT: KX13690
DATE: April 10, 2019

Project Name: Newsome Creek - Sorrento

SAMPLED BY: Client

SOURCE: X Section 208 - GS #1

SAMPLE TYPE: Tan Silt



GRAVEL	0.0%
SAND	4.3%
SILT	93.0%
CLAY	2.7%

Reporting of these test results constitutes a testing service only.

Engineering interpretation or evaluation of the test results is provided only on written request.

GRAIN SIZE DISTRIBUTION

wood.

Westrek Geotechnical Services Ltd
100-1383 McGill Road
Kamloops, BC
V2C 6K7

Project No: KX13690
Date: April 9, 2019

Attn: Leslie Abel / Kevin Turner

Project Name: Newsome Creek Sorrento

Test No.: 19 - 035 -1

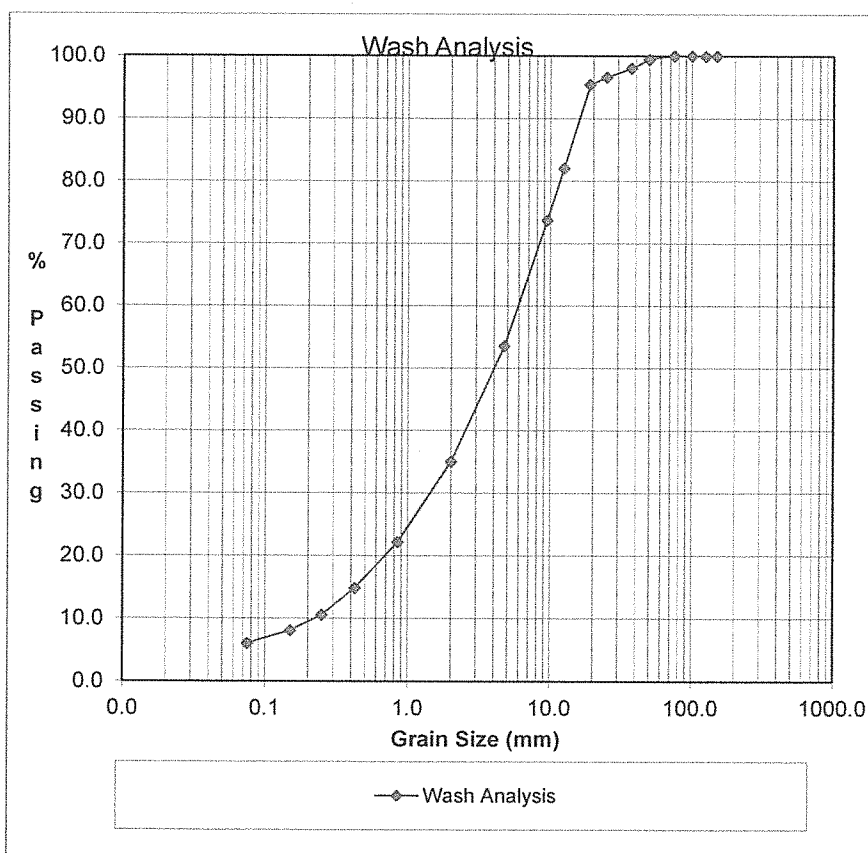
Source: 207 - GS #4

Sample Type: Bulk

Date Rec'd : April 4, 2019

By: Client

Date Tested: April 8, 2019



Wash Sieve Analysis				
Sieve Size(mm)	Percent Retained	Percent Passing	Limits	
			Upper	Lower
150.0	0.0	100.0		
125.0	0.0	100.0		
100.0	0.0	100.0		
75.0	0.0	100.0		
50.0	0.5	99.5		
37.5	1.5	98.0		
25.0	1.4	96.6		
19.0	1.2	95.4		
12.5	13.4	82.1		
9.5	8.3	73.7		
4.75	20.2	53.5		
2.000	18.4	35.1		
0.850	12.9	22.2		
0.425	7.3	14.9		
0.250	4.3	10.5		
0.150	2.5	8.1		
0.075	2.1	6.0		
PAN	6.0			

Sieve Mass (g): 48857.1

Gravel	46.5 %
Sand	47.5 %
Fines	6.0 %

COMMENTS

Wood Environment & Infrastructure Solutions

Per: B. Shearer

Reporting of these test results constitutes a testing service only.
Engineering interpretation or evaluation of the test results is provided only on written request.

GRAIN SIZE DISTRIBUTION



Westrek Geotechnical Services Ltd
100-1383 McGill Road
Kamloops, BC
V2C 6K7

Project No: KX13690
Date: April 9, 2019

Attn: Leslie Abel / Kevin Turner

Project Name: Newsome Creek Sorrento

Test No.: 19 - 035 - 2

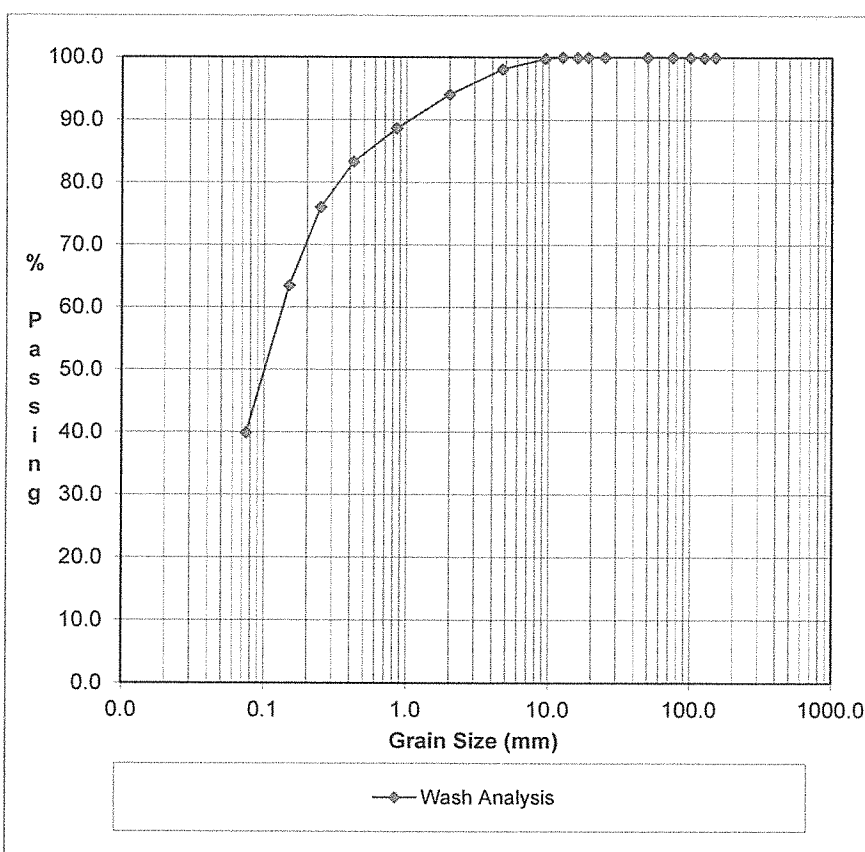
Source: 208 GS# 2

Sample Type: Bulk

Date Rec'd: April 4, 2019

By: Client

Date Tested: April 5, 2019



Wash Sieve Analysis

Wash Sieve Analysis				
Sieve Size(mm)	Percent Retained	Percent Passing	Limits	
			Upper	Lower
150.0	0.0	100.0		
125.0	0.0	100.0		
100.0	0.0	100.0		
75.0	0.0	100.0		
50.0	0.0	100.0		
25.0	0.0	100.0		
19.0	0.0	100.0		
16.0	0.0	100.0		
12.5	0.0	100.0		
9.5	0.2	99.8		
4.75	1.7	98.1		
2.000	4.0	94.1		
0.850	5.4	88.7		
0.425	5.3	83.3		
0.250	7.3	76.0		
0.150	12.5	63.5		
0.075	23.7	39.8		
PAN	39.8			

Sieve Mass (g): 805.3

Gravel	1.9 %
Sand	58.2 %
Fines	39.8 %

COMMENTS

Wood Environment & Infrastructure Solutions

Per: B. Shearer

Reporting of these test results constitutes a testing service only.
Engineering interpretation or evaluation of the test results is provided only on written request.

GRAIN SIZE DISTRIBUTION



Westrek Geotechnical Services Ltd
100-1383 McGill Road
Kamloops, BC
V2C 6K7

Project No: KX13690
Date: April 9, 2019

Attn: Leslie Abel / Kevin Turner

Project Name: Newsome Creek Sorrento

Test No.: 19 - 035 -3

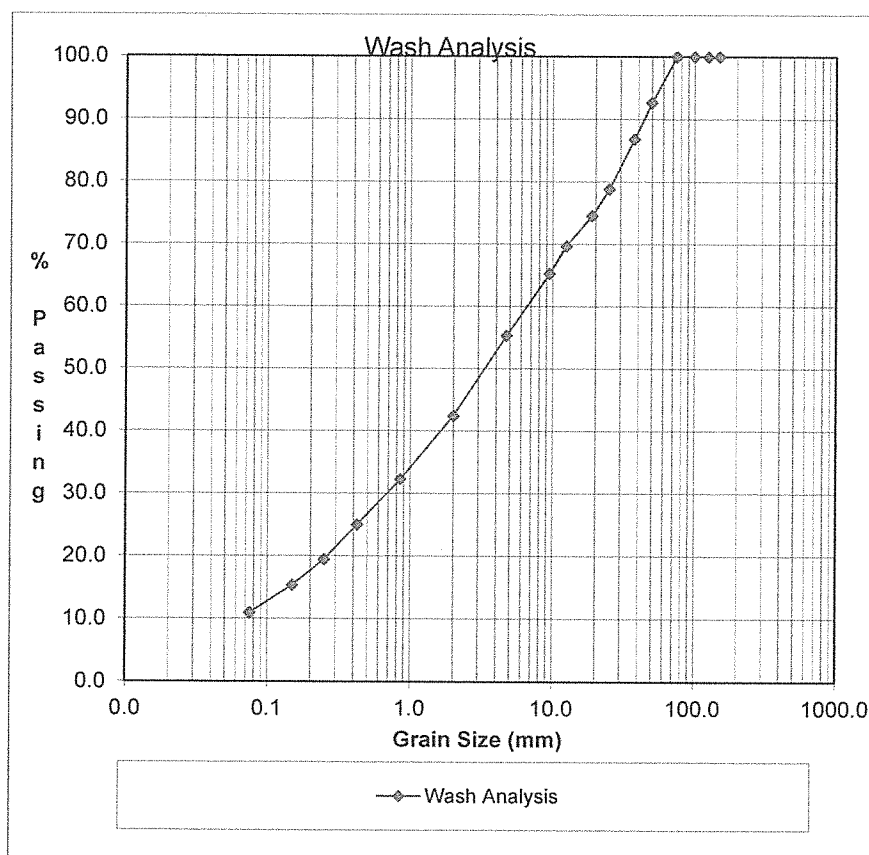
Source: 208 - GS #3

Sample Type: Bulk

Date Rec'd : April 4, 2019

By: Client

Date Tested: April 8, 2019



Wash Sieve Analysis				
Sieve Size(mm)	Percent Retained	Percent Passing	Limits	
			Upper	Lower
150.0	0.0	100.0		
125.0	0.0	100.0		
100.0	0.0	100.0		
75.0	0.0	100.0		
50.0	7.3	92.7		
37.5	5.9	86.8		
25.0	8.0	78.8		
19.0	4.2	74.6		
12.5	4.9	69.7		
9.5	4.5	65.2		
4.75	9.9	55.3		
2.000	12.9	42.4		
0.850	10.2	32.3		
0.425	7.3	25.0		
0.250	5.5	19.5		
0.150	4.1	15.4		
0.075	4.4	10.9		
PAN	10.9			

Sieve Mass (g): 4256.4

Gravel	44.7 %
Sand	44.4 %
Fines	10.9 %

COMMENTS

Wood Environment & Infrastructure Solutions

Per: B. Shearer

Reporting of these test results constitutes a testing service only.
Engineering interpretation or evaluation of the test results is provided only on written request.

APPENDIX A

INTERPRETATION AND USE OF STUDY AND REPORT AND LIMITATIONS

1. STANDARD OF CARE.

This study and Report have been prepared in accordance with generally accepted engineering and geoscience practices. No other warranty, express or implied, is made. Geological and geotechnical studies and reports do not include environmental consulting unless specifically stated in the report.

2. COMPLETE REPORT.

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report which is of a summary nature and is not intended to stand alone without reference to the instructions given to us by the Client, communications between us and the Client, and to any other reports, writings, proposals or documents prepared by us for the Client relative to the specific site described herein, all of which constitute the Report.

IN ORDER TO UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WE CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3. BASIS OF THE REPORT.

The Report has been prepared for the specific site, development, design objectives and purpose that were described to us by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document are only valid to the extent that there has been no material alteration to or variation from any of the said descriptions provided to us unless we are specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT.

The information and opinions expressed in the Report, or any document forming the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT OUR WRITTEN CONSENT. WE WILL CONSENT TO ANY REASONABLE REQUEST BY THE CLIENT TO APPROVE THE USE OF THIS REPORT BY OTHER PARTIES AS "APPROVED USERS". The contents of the Report remain our copyright property and we authorise only the Client and Approved Users to make copies of the Report only in such quantities as are reasonably necessary for the use of the Report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make the Report or any portion thereof, available to any party without our written permission. Any uses, which a third party makes of the Report, or any portion of the Report, are the sole responsibility of such third parties. Westrek accepts no responsibility for damages suffered by any third party resulting from unauthorised use of the Report.

5. INTERPRETATION OF THE REPORT.

- (i) Nature and Exactness of Soil and Description: Classification and identification of soils, rocks, geological units, and engineering estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations utilising the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarising such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- (ii) Reliance on Provided information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations or fraudulent acts of any persons providing representations, information and instructions.

- (iii) To avoid misunderstandings, Westrek should be retained to work with the other design professionals to explain relevant geotechnical findings and to review the adequacy of their plans and specifications relative to engineering issues. Further, Westrek should be retained to provide field reviews during the construction, consistent with generally accepted practices.

6. LIMITATIONS OF LIABILITY.

Westrek's liability will be limited as follows:

- (a) In recognition of the relative risks and benefits of the Services to be provided to the Client by Westrek, the risks have been allocated such that the Client agrees, to the fullest extent permitted by law, to limit the liability of Westrek, its officers, directors, partners, employees, shareholders, owners, subconsultants and principals for any and all claims, losses, costs, damages of any nature whatsoever or claims expenses from any cause or causes, whether arising in contract or tort including negligence, including legal fees and costs and disbursements (the "Claim"), so that the total aggregate liability of Westrek, its officers, directors, partners, employees, shareholders, owners, subconsultants and principals:
 - i. if the Claim is satisfied by the re-performance of the Services proven to be in error, shall not exceed and shall be limited to the cost to Westrek in re-performing such Services; or
 - ii. if the Claim cannot be satisfied by the re-performance of the Services and:
 - 1. if Westrek's professional liability insurance does not apply to the Claim, shall not exceed and shall be limited to Westrek's total fee for services rendered for this matter, whichever is the lesser amount. The Client will indemnify and hold harmless Westrek from third party Claims that exceed such amount; or
 - 2. if Westrek's professional liability insurance applies to the Claim, shall be limited to the coverage amount available under Westrek's professional liability insurance at the time of the Claim. The Client will indemnify and hold harmless Westrek from third party Claims that exceed such coverage amount. Westrek shall maintain professional liability insurance in the amount of \$2,000,000 per occurrence, \$2,000,000 in the aggregate, for a period of two (2) years from the date of substantial performance of the Services or earlier termination of this Agreement. If the Client wishes to increase the amount of such insurance coverage or duration of such policy or obtain other special or increased insurance coverage, Westrek will cooperate with the Client to obtain such coverage at the Client's expense.
- It is intended that this limitation will apply to any and all liability or cause of action however alleged or arising, including negligence, unless otherwise prohibited by law. Notwithstanding the foregoing, it is expressly agreed that there shall be no claim whatsoever against Westrek, its officers, directors, partners, employees, shareholders, owners, subconsultants and principals for loss of income, profit or other consequential damages howsoever arising, including negligence, liability being limited to direct damages.
- (b) Westrek is not responsible for any errors, omissions, mistakes or inaccuracies contained in information provided by the Client, including but not limited to the location of underground or buried services, and with respect to such information, Westrek may rely on it without having to verify or test that information. Further, Westrek is not responsible for any errors or omissions committed by persons, consultants or specialists retained directly by the Client and with respect to any information, documents or opinions provided by such persons, consultants or specialists, Westrek may rely on such information, documents or opinions without having to verify or test the same.
 - (c) Notwithstanding the provisions of the Limitation Act, R.S.B.C. 2012 c. 13, amendments thereto, or new legislation enacted in its place, Westrek's liability for any and all claims, including a Claim as defined herein, of the Client or any third party shall absolutely cease to exist after a period of two (2) years following the date of:
 - i. Substantial performance of the Services,
 - ii. Suspension or abandonment of the Services provided under this agreement, or
 - iii. Termination of Westrek's Services under the agreement,
 whichever shall occur first, and following such period, the Client shall have no claim, including a Claim as defined herein, whatsoever against Westrek.



Okanagan
 202 - 3334 30th Avenue
 Vernon, BC V1T 2C8
T 250 503 0841
F 250 503 0847

June 7, 2019

Derek Sutherland
 Columbia Shuswap Regional District
 555 Harbourfront Drive NE
 PO Box 978
 Salmon Arm, BC V1E 4P1

Dear Mr. Sutherland:

**RE: Newsome Creek Erosion Mitigation Options
 Our File 3234.013**

We are pleased to submit herewith our technical memorandum which documents a feasibility study to mitigate erosion on Newsome Creek below Highway 1. This project was performed by Kerr Wood Leidal (KWL) and Westrek Geotechnical Services Ltd. (Westrek). The project results are summarized below.

The study area is the creek reach from Highway 1 to Shuswap Lake, a length of approximately 520 m, with a focus on the reach between Highway 1 and Dieppe Road. Thirteen properties are within the study area, eleven on Caen Road (right bank) and two on Passchendaele Road (left bank). This section of Newsome Creek mostly flows through a ravine with nearly vertical side walls, and has been subjected to erosion, channel destabilization, and bank instability. Eroding banks and falling trees, especially on the right bank (looking downstream) of the ravine, have resulted in a slope stability risk to houses along Caen Road.

In October 2018, Westrek¹ documented four properties on Caen Road (2809, 2819, 2821 and 2823) that could be affected by imminent bank failure, and therefore were at high risk of foundations being undermined. The underlying cause of the ravine instability is the creek undercutting the silty sand layers of the ravine, leading to progressive collapse of the ravine walls. The Westrek report documents the fact that the ravine instability is progressing downstream.

Nine potential mitigation options were identified and evaluated. After consideration of construction practicality, design life, and community feedback, three options remain for consideration. These options and associated indicative cost estimates are as follows:

Mitigation Option	Cost Estimate
Rock-Lined Channel	\$4,800,000
Culvert (2700 mm Diameter)	\$5,000,000
Sheet Pile Wall with Bed Stabilizers	\$6,200,000
Note: Cost estimate includes construction cost, engineering / construction management, environmental compensation/enhancement and contingency.	

¹ Westrek Geotechnical Services Ltd, 2018. Monitoring Results and Summary Recommendations. Newsome Creek Erosion below Highway 1. Prepared for Columbia Shuswap Regional District – Shuswap Emergency Program.



Newsome Creek Erosion Mitigation Options
Columbia Shuswap Regional District
June 7, 2019

The objective of mitigation works would be to stabilize the creek channel to reduce undercutting of the ravine slopes. While each of these options would limit further destabilization of the ravine, none of the options would fully stabilize the upper ravine slopes. In the end, some combination of these three options would probably provide the optimum approach to channel stabilization.

Once funding is secured, detailed engineering work would be needed to refine the final combination of options, prepare detailed design, and provide an updated cost estimate. A safe construction approach would also need to be developed.

Please contact us with any questions that arise.

Yours truly,

KERR WOOD LEIDAL ASSOCIATES LTD.

A handwritten signature in black ink, appearing to read 'J. Miller', is written over the printed name and title.

Jason Miller, P.Eng.
Water Resources Engineer

/dwm

Encl.

KWL Technical Memorandum, June 7, 2019

Westrek Technical Memorandum, June 7, 2019

KERR WOOD LEIDAL ASSOCIATES LTD.
consulting engineers

POLICY
FLOODING

W-5

Preamble:

The Columbia Shuswap Regional District receives numerous requests to respond to incidents of flooding in the unincorporated areas of the Regional District. The Regional District is not required under legislation to provide flood protection service and the Regional District has not established a flood protection service function or a tax for flood protection service. The purpose of this Policy is to clarify the role of the Regional District with respect to flooding issues for the benefit of the public, Regional District staff and relevant provincial and federal agencies.

Policy:

Property owners are responsible for protective works on their properties and for developing a protective flood plan for their properties. The Columbia Shuswap Regional District will not respond to flooding incidents but will, upon request, provide property owners with the following agency contact information in order for property owners to request assistance in response to an actual or pending flooding situation:

Ministry of Transportation and Infrastructure (MOTI)

- Flooding incident that involves the road drainage system; typically an open ditch adjacent to the road, associated culverts and downstream drainage systems.

Ministry of Environment (MoE)

- Flooding incident that involves an established drainage course, stream, creek, river or lake.

Provincial Emergency Program (PEP)

- Flooding incident that involves an application for funding assistance to the Disaster Financial Assistance Fund.

Department of Fisheries and Oceans (DFO)

- Flooding incident that involves an adverse impact to fisheries habitat.

Where requested, the Columbia Shuswap Regional District will endeavour to provide information and education for property owners on the development of a protective plan to mitigate damage from flooding.

Note: This Policy is not intended to affect any rights and responsibilities the Columbia Shuswap Regional District may have under the *Emergency Program Act* with respect to disasters and emergencies under that Act.

APRIL 2010



BOARD REPORT

TO: Chair and Directors

File No: 1850 20 19

SUBJECT: Grant-in-Aids

DESCRIPTION: Report from Jodi Pierce, Manager, Financial Services, dated June 18, 2019.

RECOMMENDATION: THAT: the Board approve the following allocations from the 2019 electoral Grant-in-Aids:

Area A

\$10,000 Little Mittens Animal Rescue Association (operating expenses)

Area C

\$8,000 Sorrento Memorial Hall (tables and chairs)

\$25,000 South Shuswap Canada Day Society (Canada Day event)

\$1,950 South Shuswap Transportation Society (start-up costs)

Area D

\$1,900 Falkland & District Community Association (Family Day event)

Area F

\$1,100 Anglemont Volunteer Fire Department (pancake breakfast and open house)

VOTING:	Unweighted Corporate <input type="checkbox"/>	LGA Part 14 (Unweighted) <input type="checkbox"/>	Weighted Corporate <input checked="" type="checkbox"/>	Stakeholder (Weighted) <input type="checkbox"/>
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POLICY:

These requests meet the requirements of Policy F-30, are approved by the respective Area Director, and the required source documentation has been received. These requests are within the Electoral Area's Grant-in-Aid budget for 2019.

COMMUNICATIONS:

The respective Electoral Director will advise each organization of the Board's decision. Successful organizations will be sent a cheque accompanied by a congratulatory letter.

DESIRED OUTCOMES:

That the Board endorse the recommendation.

BOARD'S OPTIONS:

1. *Endorse the Recommendation.*
2. *Deny the Recommendation.*
3. *Defer.*
4. *Any other action deemed appropriate by the Board.*

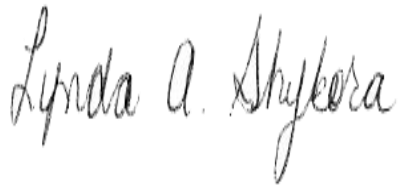
LIST NAME OF REPORT(S) / DOCUMENT(S) AVAILABLE FROM STAFF:

1. Grant-in-Aid applications

Report Approval Details

Document Title:	2019-06-20_Board_FIN_Grant_in_Aids - amended.docx
Attachments:	
Final Approval Date:	Jun 18, 2019

This report and all of its attachments were approved and signed as outlined below:



Lynda Shykora - Jun 18, 2019 - 11:11 AM



Charles Hamilton - Jun 18, 2019 - 11:14 AM



BOARD REPORT

TO: Chair and Directors

File No: 1855 03

SUBJECT: Infrastructure Planning Grant – Nicholson Groundwater Aquifer

DESCRIPTION: Report from Ben Van Nostrand, Team Leader, Environmental Health Services, dated June 14, 2019. Board endorsement for an Infrastructure Planning Grant application for the Nicholson Groundwater Aquifer.

RECOMMENDATION: THAT: the Board empower the authorized signatories to apply for an Infrastructure Planning Grant for the community of Nicholson from the Ministry of Municipal Affairs and Housing in the amount of \$10,000 to develop a community water system infrastructure feasibility study, this 20th day of June, 2019.

SHORT SUMMARY:

The Ministry of Municipal Affairs and Housing offers an Infrastructure Planning Grant Program. The program allows for a local governments to apply for funding for the feasibility of establishing a community water system. The funding covers 100% of the first \$5000 and 50% of the next \$10,000 for a total funding amount of \$10,000 on an eligible planning initiative.

The recent monitoring sample results from the Nicholson Aquifer monitoring project have identified significant septic system impact in the water quality of the aquifer. CSRD staff would like to engage with a qualified professional to determine the feasibility of a community water system. The Electoral Area A Director supports the grant application. The \$5,000 contribution from the CSRD would come from the Nicholson Groundwater budget within the Special Projects function.

VOTING:	Unweighted Corporate	<input type="checkbox"/>	LGA Part 14 (Unweighted)	<input type="checkbox"/>	Weighted Corporate	<input checked="" type="checkbox"/>	Stakeholder (Weighted)	<input type="checkbox"/>
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BACKGROUND:

On October 29, 2014 the CSRD held a public meeting at the Nicholson Elementary School to provide information to the community on the quality of groundwater collected as part of the CSRD's ground monitoring program in Nicholson. The water monitoring program was historically funded through the Special Project budget and the CSRD indicated that the continuation of ongoing monitoring would be required to be funded through the establishment of a service area comprised of benefiting property owners. The information session confirmed that the Nicholson ground water is impacted by on-site septic systems. The community of Nicholson indicated that they were not supportive in the CSRD's involvement in pursuing any option that would require the establishment of a service area. The CSRD discontinued its sampling program in 2014.

Interior Health (IH) has recently expressed concerns to the CSRD of deteriorating water quality issues at the Nicholson Elementary School. On January 30, 2019, IH proposed to partner with the CSRD on a monitoring program that would revisit assessing water quality in the Nicholson aquifer. IH offered a

\$5,000 contribution towards a monitoring program and requested that the CSRD administer the delivery of the program and share the results with community members.

At the February 21, 2019 regular Board meeting, the Board authorized expenditure of \$10,000 from the Special Projects budget as a contribution in partnership with IH for the delivery of a groundwater aquifer monitoring program in 2019.

A water sampling/monitoring contractor has been hired and the first round of sampling has recently been completed. Data has shown continued septic impacts to the Nicholson aquifer.

The CSRD has notified all affected residents of the sampling program and has developed a webpage within the CSRD website to provide all relevant monitoring information. The CSRD will be hosting a community meeting in the fall of 2019 to provide the results of the data and recommendations for options moving forward. As it is clear the ground water in the Nicholson aquifer is substantially compromised, the CSRD is recommending that an infrastructure feasibility study be completed in order to provide preliminary design and costing on a community water system.

If the CSRD is successful in receiving the grant, an engineer will be retained to provide costing and design information to be shared with the community at the fall public meeting. The information provided will be important for property owners to consider the advancement of a community water system for Nicholson.

POLICY:

As part of the grant submission process, a Board resolution supporting the project is required. Policy No. F-3 "Electoral Area Community Works Fund – Expenditure of Monies" requires Board authorization to utilize funds.

FINANCIAL:

The overall budget to complete the feasibility study is \$15,000, with a \$10,000 Infrastructure Planning Grant contribution and a \$5,000 contribution from the Nicholson Groundwater budget within the Special Projects function.

KEY ISSUES/CONCEPTS:

A Board resolution supporting the funding application is required to be submitted with the grant application. It is important to provide residents with options for consideration within the CSRD's mandate to deliver services.

IMPLEMENTATION:

Upon Board approval, the application will be submitted to the Province, along with the Board resolution and any other required supporting documentation.

DESIRED OUTCOMES:

The Board endorse the Infrastructure Planning Grant application for the Nicholson Groundwater Aquifer community water system infrastructure feasibility study.

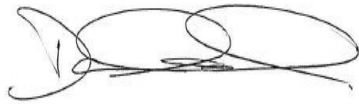
BOARD'S OPTIONS:

1. *Endorse the Recommendation.*
2. *Deny the Recommendation.*
3. *Defer.*
4. *Any other action deemed appropriate by the Board.*

Report Approval Details

Document Title:	2019-06-20_Board_OM_185503_IPGrant_Nicholson_Aquifer.docx
Attachments:	
Final Approval Date:	Jun 18, 2019

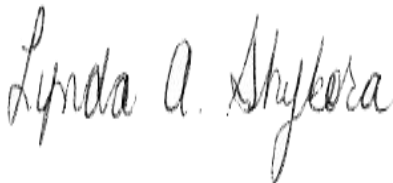
This report and all of its attachments were approved and signed as outlined below:



Darcy Mooney - Jun 18, 2019 - 8:51 AM



Jodi Pierce - Jun 18, 2019 - 8:59 AM



Lynda Shykora - Jun 18, 2019 - 9:48 AM

No Signature - Task assigned to Charles Hamilton was completed by assistant Lynda Shykora

Charles Hamilton - Jun 18, 2019 - 11:54 AM