SUMMARY OF PUBLIC CONSULTATIONS

APPLICATION FOR
AUTHORIZATION TO DISCHARGE WASTE
AT 460 STEBBINGS ROAD,
SHAWNIGAN LAKE, BC

Submitted To:

BC MINISTRY OF ENVIRONMENT
ENVIRONMENTAL MANAGEMENT BRANCH

Prepared For:

SOUTH ISLAND AGGREGATES LTD.

Prepared By: Reviewed By:

Principal, Senior Engineer  Principal, Hydrogeologist

BC MOE File # PR-105809
AE Project Number: 320
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1.0 Introduction

Active Earth Engineering Ltd. (Active Earth) was retained by South Island Aggregates Ltd. (SIA) to undertake a Technical Assessment and associated Public Consultations as part of an application to the BC Ministry of Environment (MOE) for an Authorization to Discharge Waste. The application is made pursuant to Section 14 of the BC Environmental Management Act (EMA).

The subject property (the “Site”) is located at 460 Stebbings Road, in the South Shawnigan Lake Area (Electoral Area B) within the Cowichan Valley Regional District.

The Site is currently operated as a rock quarry under the jurisdiction of the BC Ministry of Mines permit number Q-8-094. An application is being made to modify the mine reclamation plan in the mining permit concurrently with an application for an Authorization to Discharge Waste. The proposed changes/authorization would allow for contaminated soil to be treated and permanently encapsulated on the Site as part of the mine reclamation plan.

This report provides a summary of notifications and consultations, including questions and comments, received as part of the consultation process pursuant to the Public Notification Regulation.

2.0 Background

A Draft Technical Assessment Report was prepared by Active Earth, and submitted on behalf of SIA, in October 2011. In January 20, 2012, the MOE provided initial input and commentary which was subsequently addressed in a letter dated February 22, 2012. A second round of input and comments was received on May 3, 2012, resulting in a second response dated June 21, 2012. Final input was addressed in the final Technical Assessment Report, dated August 2012.
The minimum 30-day Public Consultation period was officially initiated on May 9, 2012 and ended on August 20, 2012. The total period of consultation was therefore 104 days.

3.0 Notifications Summary

3.1 Public Notification

On May 9, 2012, an Environmental Protection Notice was published as follows:

- Posted at the Site;
- BC Gazette; and,
- Published in the Cowichan News Leader.

These Notifications are included as Appendix A.

In addition to the Formal Notifications, a dedicated website was established at http://www.sialtd.ca/public_notification.html. This website included formal notification information, a Technical Analysis related to the Application, Contact Information and a Discussion Forum to solicit feedback and commentary. The website also served as a venue to provide information on planned meetings and information sessions. The website content is summarized in Appendix B.

On July 20, 2012, the following Public Interest and Stewardship Groups were issued formal notification letters (refer to Appendix C):

- Shawnigan Lake Watershed Roundtable
- Shawnigan Lake Watershed Watch Association
- Shawnigan Lake Residents Association

3.2 First Nations Notifications

On April 26, 2012, prior to initiating the Public Consultation period, the BC MOE sent introductory letters to local First Nations including:
• Malahat First Nation
• Stz’uminus First Nation
• Cowichan Tribes
• Halalt First Nation
• Lyackson First Nation
• Penelakut Tribe
• Scia’new First Nation
• Lake Cowichan First Nation

Copies of these letters are included in Appendix C. Neither Active Earth, nor SIA was contacted by any of these groups as a result of these notifications.

3.3 Agency Notifications

On July 20, 2012, the following Agencies were issued formal notification letters (refer to Appendix C):

• Cowichan Valley Regional District
• Ministry of Energy and Mines
• Ministry of Transportation
• Ministry of Health (Local Health Authority)
• Ministry of Forests, Lands and Natural Resources Operations
• Environment Canada

Neither Active Earth, nor SIA was contacted by any of these Agencies as a result of these notifications. However, consultations were held with the CVRD and Ministry of Energy and Mines as documented below.
4.0 Consultations Summary

4.1 Public Consultations

Public consultations included formal and informal meetings and discussions, written correspondence, an Open House and a Public Forum. Each interaction provided an opportunity for the public and other stakeholders to ask questions and seek clarifications with respect to the Application. The public was also afforded an opportunity to express their support for / opposition to the Application, both verbally and via written correspondence. This written correspondence was received through a number of means, including:

- Directly through the SIA Website Feedback Link (feedback@activeearth.ca)
- Directly through the SIA Website Online Discussion Forum
- Indirectly via email to the MOE

Specific questions and concerns mostly related to water quality protection measures (both surface water and groundwater) built into the Application. This included short-term concerns such as a sudden failure of surface water treatment facilities, and long-term concerns related to the integrity of the proposed containment system.

Specific written questions and related responses received via the SIA Website Online Discussion Forum are included with Appendix B. Questions, comments and associated responses communicated via the SIA Website Feedback Link are included as Appendix D. Questions received via email to the MOE, along with associated responses, are summarized in Appendix E.

4.1.1 Community Meeting – May 8, 2012

An informal community meeting was hosted at a local coffee shop on May 8, 2012. The meeting included an introduction of the Application by SIA, a power point presentation by Active Earth, and an opportunity for questions, discussion and feedback. The meeting was
attended by the CVRD Regional Director and approximately 30 members of the public (mostly local to Shawnigan Village). The presentation, attendance sheet, and a summary of questions and associated responses, is included as Appendix F.

4.1.2 Application Website

A website was developed specific to the application. In addition to providing technical information, the website was designed to allow for public discussion and submission of questions. Twelve questions and/or comments were received via this venue. All questions were responded to and most comments were acknowledged.

Questions included the following general themes:

- What measures are proposed to ensure no Hazardous Waste is accepted at the proposed facility?
- How is this facility going to benefit the local population?
- Why has this site been chosen for the proposed facility?
- What will be the impacts on local property values?
- What is the appeal process should the application be approved?
- How many employment opportunities will result from the proposed facility?
- Where would contaminated soil come from?

Comments included the following general themes:

- The application appears sound and well thought out. It is a reasonable solution to the ongoing problem of local dumping.
- No contaminated soil should be deposited within the Shawnigan Lake Watershed under any circumstances.
- There should be no more development within the Shawnigan Lake Watershed.

Specific questions and comments provided as part of the website discussion forum are included as Appendix B.
4.1.3 Informal Meetings – May 29, 2012

On May 29, 2012, Active Earth and SIA met with Georgia Collins, the Head of the Shawnigan Lake Watershed Roundtable and Mary-Ann Watson, a local resident and vocal opponent to the Application, at the SIA offices on Stebbings Road. Active Earth and SIA provided each party with a summary of the Application and addressed their questions and concerns. These mainly related to local property values and water quality. Ms. Collins was also provided a guided tour of the SIA facility. Minutes from these two meetings are included as Appendix G.

Representatives from SIA again met with Ms. Collins of the Shawnigan Lake Watershed Roundtable on June 11, 2012 to further discuss the proposed facility design.

4.1.3 Open House – May 31, 2012

An Open House was hosted by SIA on May 31, 2012 at the Shawnigan Lake Community Centre, from 4-9pm. The Open House was attended by SIA, BC MOE and members of the Active Earth design team, and included a poster-board presentation. The objective of this forum was to allow stakeholders to review summarized technical information and discuss the Application with SIA and Active Earth. This type of forum allowed for informal discussions and explanations on a one-on-one basis.

The Open House was attended 203 participants (based on the sign-in sheet). This represents less than 3% of the local population (estimated at 8,000). The meeting was well publicized by SIA as well as local interest groups such as the Shawnigan Creek Protection Society. Local interest groups also posted signs around the community which served to provide further notification of the pending Open House.

A copy of the poster presentation, summary of feedback, the sign in sheet, and the feedback forms, are included as Appendix H. Appendix H also includes a summary of questions (pulled from the feedback forms) and associated responses. Most of these responses were communicated verbally at the Open House.
4.1.4 CVRD Public Meeting

On July 12, 2012, the Cowichan Valley Regional District (CVRD) hosted a Public Meeting at the Kerry Park Arena in Mill Bay. The meeting was attended by MOE, Ministry of Mines and Energy (Mines), the CVRD Board and Area Directors, SIA and Active Earth. According to the CVRD Meeting Minutes (included within Appendix I) approximately 350 people attended this meeting. This represents about 4% of the local population. The meeting minutes were not reviewed for accuracy by SIA or Active Earth.

The meeting was organized and facilitated by the CVRD. It included formal presentations by MOE, Mines, and Active Earth on behalf of SIA (included within Appendix I). Each presentation was followed by questions and answers. At the conclusion of the presentations and question/answer sessions, the attendees were provided the opportunity to provide formal comments which were to be included as part of a submission to the MOE on behalf of the CVRD.

4.2 First Nations Consultations

Representatives from SIA and/or Active Earth met with representatives from both the Malahat First Nation and Cowichan Tribes to discuss the proposed facility and address comments and concerns. Preliminary discussions were held with Chief Harvey Alfonse of the Cowichan Tribes on June 7, 2012. These preliminary discussions introduced the proposed facility on a conceptual level. Chief Alfonse indicated that he had no comment related to the proposed facility.

Subsequently, on July 10, 2012, a meeting was hosted with Chief Michael Harry of the Malahat First Nation at the SIA offices. SIA and Active Earth representatives provided Chief Harry with a Summary Memo and took him through a power point presentation outlining the detailed facility design (both the Memo and Presentation are attached within Appendix J). The presentation was followed by a guided tour of the SIA facility.
The Malahat First Nation has since expressed their support for the proposed facility through written correspondence with the MOE and SIA, and through verbal comments made at the CVRD Public Meeting held on July 12, 2012. The Malahat First Nation letter of support is included with Appendix H.

4.3 **Agency Consultations**

SIA and Active Earth met with CVRD Board and Staff members on several occasions, both before, and during the consultation period. The first of these meetings was on March 6, 2012 when representatives of Active Earth and SIA met with Area Director Bruce Fraser at the SIA Offices to discuss the concept of the proposed facility. At that time, Director Fraser expressed his support for the facility and that the CVRD as a whole, recognized the need for such a facility.

Following this meeting, Director Fraser arranged for SIA and Active Earth to give a formal presentation to select CVRD staff members at the CVRD offices in Duncan on March 13, 2012. The meeting was attended by Director Fraser, Brian Dennison (Manager of Engineering), Tom Anderson (General Manager, Planning and Development) and Harmony Huffman (Environmental Technologist). A copy of the presentation is included in Appendix K.

Additional, informal meetings and discussions were held with CVRD representatives on April 9, 2012 (Bruce Fraser and CVRD Staff), May 22, 2012 (Bruce Fraser), June 7, 2012 (CVRD Staff) and June 25, 2012 (CVRD Chair – Rob Hutchins).

In addition, SIA representatives met with NDP MLA Bill Routley on June 25, 2012 to discuss the proposed facility. Mr. Routley indicated that he had no comment or input.

5.0 **Written Responses to Comments and Reports**

Active Earth provided written responses to comments received by various stakeholders following review of the Technical Assessment Report, or portions of the TAR. These
responses are provided as attachments to this Public Consultation summary report as follows:

- Appendix L – MOE Water Protection Comments and Response
- Appendix M – Lowen Hydrogeology Consultants Report and Response
- Appendix N – VIHA Comments and Response
- Appendix O – BC Geological Survey Report and Response

The comments and/or reports are also provided in the above-referenced appendices.

6.0 Summary and Conclusions

Public Consultations were initiated on May 9, 2012 through the publishing and posting of formal Notifications. Consultations were subsequently undertaken with the Public, Interest Groups, government organizations, and First Nations in accordance with the requirements of the Public Notification Regulation. Consultations included informal meetings and discussions, as well as a formal Open House and Public Forum. Opportunities for stakeholder feedback were provided via email, an online discussion forum, feedback forms, and verbally at several venues.

Overall, feedback has been provided by less than 10% of the local population (likely less than 5%), even though the application was well-publicized by both the proponent and an opposition group calling themselves the Shawnigan Creek Protection Society. This indicates a high-degree of indifference to the proposal by the local population. Of those who provided feedback, approximately 80-90% opposed the application while a smaller proportion (10-20%) expressed their support. The primary reason for opposing the application related to concerns regarding potential impacts to water quality. A proportion of those opposed to the application simply opposed any commercial/industrial activities within the Shawnigan Lake Watershed, or the broader Cowichan Valley Regional District.
Key support for the proposal was expressed by the Malahat First Nation, local contractors and developers and some open-minded individuals who viewed the proposed facility as an opportunity to stimulate the local economy, create jobs, and improve the overall environmental condition of the South Island Region.
APPENDIX A
FORMAL PUBLIC NOTIFICATIONS
ENVIROMENTAL PROTECTION NOTICE

Application for a permit under the provisions of the Environmental Management Act.

Rio Tinto Alcan, 680 - 1066 West Hastings Street, Vancouver, BC, intends to submit this amendment application to the Director to authorize the discharge of air emissions and refuse from a construction work camp. The source of discharge is a municipal waste incinerator.

The land upon which the facility will be situated and the discharge will occur is District Lot 3072, Range 4, Coast Land District, located near Kemanor, within the Kitmat-Stikine Regional District.

The maximum rate of air emissions discharged from this facility will be 8.5 dscm/min.

The operating period for this facility will be 12 hours per day, 7 days per week.

The characteristics of the air emissions are: Particulate, daily average of 8.8 mg/m².

The type of treatment to be applied to the discharge is: Dual chamber Cyclonator Incinerator.

Any person who may be adversely affected by the proposed discharge of waste and wishes to provide relevant information may, within 30 days after the last date of posting, publishing, service or display, send written comments to the applicant, with a copy to the Regional Manager, Environmental Protection, Bag 5000, 5726 Alfred Street, Smithers, BC V0J 2N0. The identity of any respondents and the contents of anything submitted in relation to this application will become part of the public record.

Contact person: K. Otting, Rio Tinto Alcan, telephone 604-687-0305 ext. 304. [my10]

Did you know that The British Columbia Gazette, Part I, is available online in a fully searchable format? Check it out at www.gplegalize.ca or call 1-800-663-6105 for information.

VICTORIA, MAY 10, 2012

ENVIROMENTAL PROTECTION NOTICE

Application for a permit under the provisions of the Environmental Management Act. Application for an amendment to the permit approving the Mine Plan and Reclamation Program (Permit Q-8-094) under the provisions of the Mines Act.

South Island Aggregates, 460 Stebbings Road, Shawnigan Lake, BC V0R 2W3, intends to submit this application to the Director to amend Permit Q-8-094.

The waste material will originate from commercial, industrial and government sites in the southern Vancouver Island Region, Lot 23, Block 156, 201 Plan VIP 78459 Malahat District, Block 323.

The waste material will be comprised of contaminated soils and other potential industrial waste materials including incinerator ash and dredge.

The waste material will contain non-leachable levels of substances that may exceed the residential, commercial and/or industrial land use standards as defined in the BC Contaminated Sites Regulation and contaminated sites regulation.

The volume of waste to be discharged will not exceed 100,000 tonnes per year.

For more information please visit http://www.sialtd.ca

File: PR-105809.

Contact person: Matt Pye, Active Earth Engineering, 4510 Saddle Crescent, Langley, BC V2Z 1S6, matt.pye@active earth.ca. [my10]

ORDER IN COUNCIL

Order in Council 279, approved and ordered May 3, 2012.

On the recommendation of the undersigned, the Lieutenant Governor, by and with the advice and consent of the Executive Council orders that, to make provision for a water supply for the use of the Crown for any purpose, the following unrecorded waters of the following streams in the Prince George Water District, are reserved from being taken, used, or acquired under the Water Act for the two year period after the date this order is made:

(a) 777 200 cubic metres per year of the unrecorded waters of Bowron River;
(b) 9 688 200 cubic metres per year of the unrecorded waters of Fraser River;
(c) 120 600 cubic metres per year of the unrecorded waters of Hutda Lake;
(d) 375 200 cubic metres per year of the unrecorded waters of Nechako River;
(e) 2 438 800 cubic metres per year of the unrecorded waters of Willow River.

Steve Thomson, Minister of Forests, Lands and Natural Resource Operations, Mary McNeil, Presiding Member of the Executive Council. [my10]

MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS

LAND ACT:

NOTICE OF INTENTION TO APPLY FOR A DISPOSSESSION OF CROWN LAND

Take notice that Rockrite Resources Inc. of Kamloops, BC, intends to make application to the Ministry of Forests, Lands and Natural Resource Operations, for a Crown land disposition for a licence for Rock Quarry purposes, covering parts of Section 21, Township 20, Range 18, W6M, Kamloops Division, Yale District; situated on Provincial Crown land located in the vicinity of Kamloops. Rockrite Resources Inc. has also made an application for a Mines Act Permit to the Ministry of Energy and Mines to operate the proposed quarry.

The Lands File Number that has been established for this application is 3412501. The Mines File Number that has been established for this application is 1621038. Written comments concerning this application should be directed to the Project Manager at 441 Columbia Street, Kamloops, BC V2C 2T3.

Comments will be received by Ministry of Forests, Lands and Natural Resource Operations and Ministry of Energy and Mines until June 21, 2012. Ministry of
rape escape draws 300-plus bikes

In a small town and a little bit of help from Multiple Sclerosis participants from across the state, a mission to save thirty-five cyclists took place in the Cowichan Valley. The event was a tour of Cowichan Valley farms and scenic views. Along the route, participants raised funds for MS research, treatment, and programs. The Wannabe team, with 17 members led by Team Captain Kevin James, whose wife, Darcie, has MS, raised an incredible $311,000, which is $81,000 more than they had expected.

The cyclists, volunteers, and MS staff are already excited about next year’s 13th Annual Royal Bank MS Bike Tour. If you would like more information about the MS Bike Tour or the MS Society, please go to www.cowichanvalleypesapress.com or call 250-746-7010.

Cyclists for the Grape Escape wait at the starting line on Saturday morning before heading out on their cycling tour of the Cowichan Valley.

PUBLIC MEETING NOTICE
Application Under the Mines Act
South Island Aggregates Gravel Pit
Stebbins Road
Shawigan Lake Area, BC

A public information meeting will be held on Friday, August 21, 2009 at 7:00 PM at Shawigan Lake Community Center.

2004 Shawigan Lake Road, Shawigan Lake, BC V0N 2W0

Regarding a proposed gravel extraction project located at Lot 21, Block 155 and 363, Malaikat District, Plan VIP 78459, PID 026-226-461

For further information contact South Island Aggregates Ltd. - Marty 250-681-1422

Anyone interested in this application is invited to attend.

TAYLOR GRANITO

Injured? Injured?

Don’t contact ICBC, Call us First for FREE advice.
No award - no fee

Call us for peace of mind and results.

TAYLOR GRANITO

Injured? Injured?

Don’t contact ICBC, Call us First for FREE advice.
No award - no fee

Call us for peace of mind and results.

TAYLOR GRANITO
MINISTRY OF ENVIRONMENT,
ENVIRONMENTAL PROTECTION DIVISION
MINISTRY OF ENERGY AND MINES
NOTICE

This site is the subject on an application for a permit under the Environmental Management Act for an Amendment to the Permit Approving the Mine Plan and Reclamation Program (Permit Q-8-094) under the Mines Act.

For further details see the application posted below.

For further information contact the office of the Environmental Protection Program indicated on the application form.
APPENDIX B
APPLICATION WEBSITE CONTENT
The updated Mine Reclamation Plan will enhance Triple Bottom Line Outcomes for better Environmental, Social and Economic Outcomes in the Region.

The South Island Aggregates Site
PUBLIC NOTIFICATION

This webpage is provided in support and in accordance with the Public Notification Regulation, which requires that South Island Aggregates (SIA) consult the Public and other Stakeholders regarding the application for authorization to discharge waste at 460 Stebbings Road, Shawnigan Lake, BC. More specifically, an application for Amendment to the Permit Approving the Mine Plan and Reclamation Program (Permit Q-8-094) Under the Provision of the Mines Act has been made by SIA.

Required information for the Public Notice is as follows:

Ministry file Number:
PR-105809

Applicant Name and Address:
South Island Aggregates
693 Stebbings Road, Shawnigan Lake, BC, V0R 2L0

Source of Wastes:
The waste material will originate from commercial, industrial and government sites in the southern Vancouver Island Region.

Legal Description of Land:
PID: 026-226-602
Lot 23 Blocks 156, 201 and 323 Malahat District Plan VIP 78469

Waste Description:
The waste material will be comprised of contaminated soils and other potential industrial waste materials including incinerator ash and dredge.

Waste Characteristics:
The waste material will contain non-leachable levels of substances that may exceed the residential, commercial and/or industrial land use standards as defined in the BC Environmental Management Act and Contaminated Sites Regulation.

Volume of Material to be Discharged:
100,000 tonnes per year

Contact Information:
See MOE Contact menu button to the right
BETTER ENVIRONMENTAL OUTCOMES

Responsible Soil Management

Unauthorized and unregulated dumping of contaminated soil represents a significant environmental and health hazard to the South Island Region. SIA is proposing to construct and operate an engineered, monitored and permitted soil management facility. The proposed facility incorporates state-of-the-art engineering design and environmental monitoring measures to ensure indefinite environmental protection.

In addition, such a facility offers a wider scope of environmental protection to the Region by providing a viable, cost effective solution to contaminated soil treatment and disposal. The facility would help to address the current under-regulated, ad-hoc approach employed in the Region, by offering a safe, effective, monitored and permitted solution.

Brownfield Cleanup

Brownfields are lands which are under utilized as a result of remediation costs which exceed the land value. At present, the South Island Region has a number of Brownfields due to soil remediation costs which are 200-300% higher than in other parts of the province. This high cost is a barrier to remediation, meaning that hazards at these sites will persist well into the future.

A local Soil Management Facility would significantly reduce physical remediation costs and would stimulate the cleanup of more Brownfields in the Region; including historic waterfront and harbour lands that have been impacted by past industrial activities.

Greenhouse Gas Reduction

At present, much of the contaminated soil in the Region is trucked to the North Island or barged to the Lower Mainland. The shorter distance to the proposed facility would result in a significant reduction in Greenhouse Gases relative to current options.

Ideal Location and Solution

The location of the Proposed Soil Management Facility is ideal in terms of its accessibility, geology and hydrogeology. Significant work has already been undertaken to assess and document the competency of the underlying bedrock and the depth of the underlying aquifer. These natural protective measures are to be enhanced through the implementation of an engineered facility design, incorporating multiple layers of environmental protection. Further design details can be found under the Technical Summary tab.

INCREASED SAVINGS AND REVENUE TO GOVERNMENT
INCREASED SAVINGS AND REVENUE TO GOVERNMENT

Legacy Sites

All levels of Government have significant liabilities with respect to historic contaminated sites in the South Island Region. The proposed Soil Management Facility would encourage the timely cleanup of these sites, at a significantly reduced cost to taxpayers. These savings will allow governments to invest in other areas including Health Care and Education.

The proposed facility would enable all levels of governments, and therefore taxpayers, to reduce overall environmental liabilities.

Greater Tax Revenue

The operation of the Proposed Soil Management Facility is anticipated to result in the creation of direct and indirect employment. Much of this economic stimulation will result from the clean up and development of contaminated sites which are currently cost-prohibitive. Increased land development will improve land tax revenues thereby reducing the individual tax burden.

INCREASED JOBS IN REGION

Direct Job Creation

The Soil Management Facility will be operated by a number of full- and part-time staff. Given the high level engineering systems that have been proposed, construction and regular monitoring work at the facility will generate additional employment opportunities.

Land Development

The reduced cleanup of historically contaminated sites within the region will stimulate land development, creating additional jobs in the construction and development industries, and beyond.
CONTACT US

Our objective with consultation is to be as transparent and open with the public as possible. We actively encourage public engagement. Please send you feedback on the application and we will strive to answer your questions as best we can. We are happy to meet with members of the public in private to answer questions in person.

Our intent is to update this webpage with answers to Frequently Asked Questions.

Feedback

Feedback on the application can be mailed to SIA c/o:

Active Earth Engineering Ltd.
4083 Shelbourne Road
Victoria, BC, V8N 5Y1

or via Email to:

feedback@activeearth.ca

Additional Information / Private Meeting Requests

Should you wish to obtain further information on the application or would like to have a private meeting with the Applicant, please either attend the Open House on May 31st, or send us an email or letter with your request.

We will review emails in the priority received and will strive to respond as quickly as feasible.
"Welcome to South Island Aggregates - Ministry of the Environment Application comments section! All comments will be posted!

Currently, the SIA Quarry accepts Residential Quality Soil as required backfill in accordance with their Mine Reclamation Plan. The Proposed Soil Management Facility would also accept Waste which would be encapsulated into an engineered "cell".

Hazardous Waste, which has a potential to produce "leachate" wastes will not be accepted. All soils to be received at the Proposed Facility will require laboratory testing and characterization in accordance with Ministry of Environment guidelines.

We want to hear from you:

Email

*Comments

Submit
Online discussion page continued

**COMMENTS:**

**May 27, 2012:** What independent failsafe measure is there to ensure that "hazardous wastes" are not deposited under this proposed permit? Something to guarantee that SIA will be held liable if and when that occurs?

**SIA:** Hazardous Wastes are defined by the BC Hazardous Waste Regulation. With respect to contaminants in soil, definitions are generally contingent upon total concentrations and/or the potential for leachate formation. Prior to accepting any soil, SIA would require that soil be characterized by the Generator Site Consultant in accordance with methods prescribed by the MOE. Included in this characterization is a requirement that analytical testing is conducted by third party, accredited laboratory. The Generator Site Consultant will be required to provide original laboratory certificates and certify that soil is not hazardous waste and that it has been adequately characterized. SIA then conducts its own data quality check to verify the adequacy and accuracy of the provided information before accepting any material to its facility.

**May 30, 2012:** Appears to be a pretty sound solution to economic growth/utilization of resources, and disposal of unwanted soil, all of which provides employment and the generation of wealth which circulates in our own community in the form of wages and taxes. Bravo...lets get on with it.

**May 30, 2012:** After reading this website it looks like the planning is a very effective way to embrace the after-mining landscape. After the operating life of the mine this would produce an acceptable landscape economically. The activities listed on this website regarding the closure plan are exactly what is needed. Good Luck

**May 30, 2012:** I would think a well managed and monitored facility would be better than what we are dealing with now. So I do support your application.

Ken Schuurman

**May 31, 2012:** No...I don’t want any contamination fill site in this area.

**May 31, 2012:** I see how this helps SIA and your bottom line But how is it going to help me.

**SIA** — Please refer to the Benefits Tab in the Application Menu. In short, the Proposed Facility would provide better environmental outcomes, savings to government and taxpayers and increased jobs in the region.

**May 31, 2012:** It is ironic that the Victoria Water Supply Area and the Shawnigan Watershed are adjacent and share a boundary not far from the SIA quarry. The CRD has stringent protective measures for their water supply and it is inconceivable that Victoria residents would even consider the notion of a waste dump within their watershed. I don’t think most Victoria would be happy knowing that CRD waste was planned for the Shawnigan Watershed either. There may even be a potential risk to Victoria water quality. The facility is intended to operate for 50 years. Sooke Lake is about 180m lower than the proposed site. Surface water is separated by topography but who knows how groundwater mixes over time, especially after an earthquake?

Responsible waste management is a necessity and we collectively need to identify appropriate sites to relocate contaminated material. No one welcomes these facilities in their back yard. Surely though, when a site of this scale is being proposed, the government should be directing the process and multiple options be available for public debate. You would not expect a watershed used for drinking water to be among the options.

**SIA** — Thanks for your input. This information will be provided to the Ministry of Environment as part of the Public Consultation Report.
May 31, 2012: Given the location of the Stebbings Road SIA site, I have concerns about the acceptance of contaminated fill as well as the current status of this location. I realize a lot of effort is being made to address inquiries from the public. I feel that this application damages SIA’s business reputation since many local residents are resistant to the proposed site and, if the application is accepted, will not want to do business with SIA. Unfortunately this topic can make people very emotional because of the issues at hand: loss in potential income, loss in property value, concerns about short-term and long-term health, and safety issues.

In light of the outcry that has resulted from the application, I think it would be best if this plan was abandoned and the site only accepts clean fill. There is an implicit trust between neighbouring properties that the activities of one will not adversely impact the other. Surely the employees and owners of SIA themselves would not want to live near a site accepting contaminated fill?

In this situation, the fill site will potentially impact the entire watershed, not just the neighbouring properties. Even if the contaminated fill is perfectly managed, its presence adversely impacts the small community that is growing around the Maahat Centre. There are many other environmentally-friendly business initiatives that SIA can consider as alternative sources of income. Unfortunately, SIA is not located in an area that is strictly industrial and more homes will be built in the vicinity.

Specifically, I would like to know the answers to the following questions:
1. Why has this site been chosen for this fill application? What are the alternative sites? I note that SIA has a second location in Nanaimo. Why is that site or any other not considered preferable?
2. What compensations will be offered to property owners whose property is devalued by this action?
3. What is the appeal process against the application?

In summary, I object to this application and respectfully request that it be dropped. I am available to discuss this further.

SIA:
Answer 1 – Thanks for your input. This information will be provided to the Ministry of Environment as part of the Public Consultation Report.
Answer 2 – The site being proposed is owned by SIA and is subject to an existing Mines Act Permit which requires that it be reclaimed. SIA has identified a need for viable, responsible contaminated soil disposal options within the South Island Region. No compensation is planned for local property owners.
Answer 3 – The purpose of the current Public Consultation period is to solicit feedback on the application. The Ministry of Environment will ultimately consider the application, in light of all comments and feedback, and render their decision.

May 31, 2012: I don’t think that having a contaminated fill site on your property is going to help stop the unregulated dumping of contaminated soil in our area. With regard to greenhouse gas reduction, what is the furthest distance that material will be brought from to be deposited at your facility? I’m not convinced that the Shawnigan Lake Watershed is the “ideal location”.

How many more employment opportunities do you anticipate?

SIA – It’s important to predict every source location that would ultimately utilize the Proposed Facility. We anticipated that the vast majority of soils would be received from the South Island Region, including within the CVRD.

With respect to employment, we believe the Facility would require approximately 5 to 10 full-time staff to operate. As discussed in the benefits tab, we believe there are a number of peripheral economic benefits which include the remediation and development of Brownfield sites within the region.
June 1, 2012: I appreciate the effort SIA has put into this proposal, but there should be NO more industrial or residential development in the drinking watershed. The fact that there has been up to now is an indication that the MOE has failed the people living in the region. The risk of potential contamination of the drinking water for thousands of people can never be guaranteed never to happen. Please don't proceed with this application.

SIA - Thanks for your input. This information will be provided to the Ministry of Environment as part of the Public Consultation Report.

June 4, 2012: There are reports of large volumes of fill waiting to be deposited in the SIA quarry. What category of soil is this material? Is it relatively clean Residential or has it been relocated from Industrial and Commercial sites in anticipation of the current application being approved? There are also reports of actual hazardous waste being on-site, apparently delivered months ago by mistake, but still waiting to be properly dealt with. Could a SIA representative please comment.

SIA – We are not aware of the soil being referred to. With the application now being public, we anticipate that a number of stakeholders in the region will delay remediation projects pending a decision on the application, as significant cost savings would be realized should it be approved. With respect to your second question, the site being referred to is an adjacent property, not included within the current application. This property is currently being used as a residential quality fill site. No Hazardous Waste soils have been shipped to this property. Rather, Waste Level soils were inadvertently shipped to the property under the premise that the soils were clean by a third party. During the course of shipment, employees of SIA identified a potential for soil contamination at which point the shipment was halted. SIA self-reported the incident and is currently in the process of removing and managing these soils. SIA has cooperated with the Ministry of Environment and has initiated legal action against the responsible parties.
June 5, 2012: I've been following SIA's application submitted to Ministry of Environment. Wanting a broad picture I've attended their public information meeting, read all of the comments on the Shawnigan Creek Protection Association's website and deal with environmental concerns for an industrial operation myself. Before this meeting I attempted to post a comment to the protection association's website to no avail. If you read the postings they are all against SIA, where as reading comments on SIA's site are both for and against. I appreciate and commend SIA for posting both sides of the story on their site. I would hope that residents made it past the protesters outside the public meeting to gain the valuable and scientific information that was presented inside. The word "contaminated soils" seems to be getting augmented by some to be hazardous, i.e. Battery acid, bio waste, leachate forming wastes etc. The true classifications of soils to be accepted at this facility do not reach the realm of being hazardous nor would they be leachate forming.

Our environment is crucial and valuable, there for we need to take steps in protecting it. After talking to a MOE representative and engineers I feel SIA has taken exemplary steps in ensuring any potential risks have been thoroughly evaluated and dealt with, providing an environmentally clean and safe facility.

There are rumblings out there that SIA is only in it for the money and don’t care about people’s health or the environment. Being a past business owner and employee I know; as should others, that businesses have to make a profit, otherwise there would be no jobs or pensions!

Having that said, they have to conduct their activities in an upstanding and safe manner which; in this industry, becomes very expensive and cumbersome at times. This impacts the bottom line of a company and can involve dedicating a full time position to environmental practices depending on the size of operation.

SIA is already responsible for testing pertaining to safety and environment and will become more so with this new facility. It will cost them thousands monthly for tests such as water quality measuring things like suspended solids etc. Yes MOE won't be the ones doing the testing; it will be an outside agency, but they will be the ones regulating the parameters and acceptable levels, ensuring our environment and citizens are well taken care of. All this cost will come off SIA's bottom line and not us as tax payers! The fines for non compliance can reach into the millions so I'm sure SIA will ensure everything is done not only correctly but above and beyond acceptable minimums set forth by MOE.

I appreciate all the effort, scientific research and financial commitment SIA has put forth to ensure their facility exceeds environmental regulations and standards so that we may enjoy our surroundings indefinitely and they may enjoy employing people and turning a profit. Having an educated and informed opinion I hope they are granted their permits needed for this facility.
July 19, 2012

Cowichan Valley Regional District
175 Ingram Street
Duncan, BC  V9L 1N8

ATTENTION: General Manager, Planning and Development

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

This letter is provided on behalf of South Island Aggregates (SIA), and pertains to their application made to the BC Ministry of Environment for an Authorization to Discharge Waste at 640 Stebbings Road in South Shawnigan Lake. A parallel application is being made to the BC Ministry of Energy and Mines to amend SIA’s existing mining permit.

The applications are being made to allow for waste-level, contaminated soil to be used for the reclamation of the existing aggregate mine. The soil will be used to backfill the quarry and will be contained on the Site within engineered cells. Provisions for monitoring surface water, groundwater and air quality are all included as part of the application. Technical information and details of the application are provided on the following website: www.sialtd.com.

The application was made in January 2012 and includes a public consultation process that was initiated in May 2012. The public consultation process has been extended beyond the 30 day minimum and is currently on-going. This letter is to ensure that your organization is aware of the application, has received all necessary information pertaining to the application, and has had an opportunity to provide feedback regarding the application. Further technical details will be provided upon request to:

Active Earth Engineering
4083 Shelbourne Street
Victoria, BC  V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal

CC: Engineering and Environmental Services Department
July 19, 2012

Environment Canada
Suite 200-401 Burrard Street
Vancouver, BC  V6C 3S4

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

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4083 Shelbourne Street
Victoria, BC  V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal
July 19, 2012

Ministry of Energy and Mines
PO Box 9053 Stn Prov Govt
Victoria, BC  V8W 9E2

ATTENTION: Ed Taje, Senior Inspector of Mines, West Coast Region

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

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Active Earth Engineering
4083 Shelbourne Street
Victoria, BC  V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,
ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal
July 19, 2012

Ministry of Forests, lands and Natural Resources
PO Box 9049 Stn Prov Govt
Victoria, BC  V8W 9E2

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

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4083 Shelbourne Street
Victoria, BC  V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal
July 19, 2012

Ministry of Health  
Vancouver Island Health Authority  
1952 Bay Street  
Victoria, BC  V8R 1J8

ATTENTION: Murray Sexton

REFERENCE: Application for Authorization to Discharge Waste  
640 Stebbings Road, Shawnigan Lake, BC

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Active Earth Engineering  
4083 Shelbourne Street  
Victoria, BC  V8N 5Y1  
Email: feedback@activieearth.ca

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.  
Principal
July 19, 2012

Ministry of Transportation
PO Box 9850 Stn Prov Govt
Victoria, BC  V8W 9T5

ATTENTION: Michael Pearson, District Engineer

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

This letter is provided on behalf of South Island Aggregates (SIA), and pertains to their application made to the BC Ministry of Environment for an Authorization to Discharge Waste at 640 Stebbings Road in South Shawnigan Lake. A parallel application is being made to the BC Ministry of Energy and Mines to amend SIA’s existing mining permit.

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Active Earth Engineering
4083 Shelbourne Street
Victoria, BC  V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal
July 19, 2012

Shawnigan Creek Protection Association

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

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4083 Shelbourne Street
Victoria, BC V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal
July 19, 2012

Shawnigan Lake Residents Association
PO Box 443
Shawnigan Lake, BC  V0R 2W0

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

This letter is provided on behalf of South Island Aggregates (SIA), and pertains to their application made to the BC Ministry of Environment for an Authorization to Discharge Waste at 640 Stebbings Road in South Shawnigan Lake. A parallel application is being made to the BC Ministry of Energy and Mines to amend SIA’s existing mining permit.

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Active Earth Engineering
4083 Shelbourne Street
Victoria, BC  V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,
ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal
July 19, 2012

Shawnigan Lake Watershed Roundtable

ATTENTION: Georgia Collins

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

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Active Earth Engineering
4083 Shelbourne Street
Victoria, BC  V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,
ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal
July 19, 2012

Shawnigan Lake Watershed Watch Association

ATTENTION: Mary Desmond

REFERENCE: Application for Authorization to Discharge Waste
640 Stebbings Road, Shawnigan Lake, BC

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Active Earth Engineering
4083 Shelbourne Street
Victoria, BC V8N 5Y1
Email: feedback@activieearth.ca

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal
Dear Chief Harry,

As requested, please find the file copy of the notification letter sent to you and your Council on April 26, 2012 regarding South Island Aggregates Application for an Authorization to Discharge Waste.

South Island Aggregates (SIA) is currently working with their consultants, Active Earth Engineering (AEE) to issue the latest draft Technical Assessment Report (TAR). Please do not hesitate to contact AEE to obtain additional information or schedule a meeting to discuss technical details of the application. Contact details are included in the notification letter attached. I remain available to discuss the application with you as well if preferred.

An overview of the application is available on SIA website at [http://www.sialtd.ca/~sialtd/moe_home.html](http://www.sialtd.ca/~sialtd/moe_home.html). I have attached a Technical Analysis summary, also available on the website. This information is a summary of the information presented at the Open house on May 31st. I will inform you as soon as the latest draft TAR becomes available.

Please do not hesitate to contact me if you require any additional information,

Kind regards,

### Luc Lachance, P.Eng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Nanaimo BC V9T 6J9

24-hour Spill/Environmental Emergency Reporting: 1-800-663-3456 (Provincial Emergency Program)
24-hour RAPP (Report All Poachers and Polluters) tip-line: 1-877-952-7277 (Conservation Officer Service)
[www.gov.bc.ca/env](http://www.gov.bc.ca/env)

Please consider the environment before printing this email
Recipient
'david.harry@malahatnation.com'
Bunce, Hubert ENV:EX

Read
Read: 2012-06-20 1:21 PM
Dear Peter,

Notification letters were sent to First Nations groups based on the geographical location of the South Island Aggregates (SIA) project location. In total eight First Nation groups were identified and were sent notification letters, including the Malahat and Scia’new (Beecher Bay) First Nations which are part of the Te’mexw Treaty Association. The letters were sent from the Ministry of Environment (MoE) on April 26th, indicating the proponent’s name and providing the application primary contact info. The MoE is expecting a Consultation Report describing the consultation process and results with each of the First Nations groups, public and other community interest groups. As indicated in my message yesterday to Mr. Janes, we have not heard from any of the First Nation groups yet.

As part of the Application review process, the MoE is expecting a third version of the Technical Assessment Report today. This report will include detailed information on the application and should be available shortly on the SIA website. I will let you know when that is made available.

As requested, I have attached four figures that will give you a better idea as to where the Soil Remediation facility is proposed. I also included the Environmental Notice initially submitted. This will provide you with the legal description of the land.

Please feel free to contact me anytime,

Regards,

Luc Lachance, P.Eng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Nanaimo BC V9T 6J9

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24-hour RAPP (Report All Poachers and Polluters) tip-line: 1-877-952-7277 (Conservation Officer Service)
www.gov.bc.ca/env

Please consider the environment before printing this email
Mr. Lachance;

Robert Janes has asked me to review this matter. I can not find any record of receiving the referral package. Could you please forward a copy of the information that was sent. I gave a quick review to the materials on the SIA website but do not see any maps or plans for the proposal.

Thanks in advance for your cooperation.

At 04:07 PM 5/29/2012, Robert Janes wrote:

Peter,

I am in trial right now but I think this needs to be looked at urgently in relation to the Malahat land package. Could you have a look at this.

Note there is a public meeting Monday night.

Robert

Sent from my iPhone

Begin forwarded message:

From: "Lachance, Luc ENV:EX" <Luc.Lachance@gov.bc.ca>
Date: 29 May, 2012 3:57:28 PM PDT
To: Robert Janes <RJanes@jfklaw.ca>
Cc: "Bowen, Douglas ABR:EX" <Douglas.Bowen@gov.bc.ca>, "Graham, Marilynn ABR:EX" <Marilynn.Graham@gov.bc.ca>, "Bunce, Hubert ENV:EX" <Hubert.Bunce@gov.bc.ca>
Subject: South Island Aggregates Application for Contaminated Soil Remediation and Storage Facility - Stebbings Road, Malahat

Dear Mr. Janes,

As briefly discussed over the phone, South Island Aggregates (SIA) has applied for a refuse and water discharge permit under the Environmental Management Act as well as for an amendment to their current quarry permit (Q-8-094) under the Mines Act. Notification letters were sent by the Ministry of Environment (MoE) to identified First Nations groups leaders and council including the Malahat and Scia'ê€™new First Nations on April 26th. However, no responses or comments were received to date.

Information on the application can be found on SIAâ€™s website (http://www.sialtd.ca/) and additional technical information will be added as it becomes available. You will see a link to the application on their home page, top right. SIA has given the mandate to Active Earth Engineering (AEE), an environmental engineering consulting firm, to prepare the Technical Assessment Report and coordinate the consultation process related to this application. Please do not hesitate to contact them for additional technical information.

Contact details are provided on the SIA website but are presented here as well:

SIA c/o:
Active Earth Engineering Ltd.
4083 Shelbourne Road
Victoria, BC, V8N 5Y1
Email: feedback@activeearth.ca
An Open House meeting is scheduled this Thursday (May 31) between 4 and 9PM, at the Shawnigan Lake Community Centre. MoE and Ministry of Energy Mines will be in attendance. You will find details on the agenda and location on the SIA website as well. That being said and as mentioned on SIA’s website, additional meeting can be asked to AEE or through the MoE.

Please feel free to contact me as needed,

Best regards,

Luc Lachance, P.Eng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Nanaimo BC V9T 6J9

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www.gov.bc.ca/env

Please consider the environment before printing this email

Peter Wainwright
9485 Greenglade Rd.
Sidney BC V8L 3T6

voice: (250) 656-1903
e-mail: pwwright@islandnet.com
April 27, 2012

File: PR-105809

Chief Harvey Alphonse and Council
Cowichan Tribes
5760 Allenby Road
Duncan BC  V9L 5J1

Dear Chief Harvey Alphonse and Council:

PROJECT PROPOSAL:

Project Application for a Contaminated Soil Management site at 693 Stebbings Road, Malahat, British Columbia

The Province is initiating consultation with the Cowichan Tribes on the above-noted project. South Island Aggregates has applied to dispose of contaminated soil in engineered containment cells within an existing quarry, remediate soils containing organic contaminants, and treat and discharge related waters.

Information about the Proponent and Project are noted below:

Proponent: South Island Aggregates Ltd.

Primary Contact:
Active Earth Engineering Ltd. (agent/consultant working on the Proponent’s behalf)

Matt Pye, P.Eng
Principal, Hydrogeologist
4083 Shelbourne Street
Victoria BC V8N 5Y1
Phone: 250 686-9650
matt.pye@activeearth.ca

Location: 693 Stebbings Road, Malahat, British Columbia

Legal Description: Lot 23, Plan VIP78459, Blocks 156, 201 and 323, Malahat Land District

PID: 026-226-502
Land Title: Registered Owner in Fee Simple: Cobble Hill Holdings Ltd., Inc No. BC0754588

The Province is making efforts to coordinate consultation amongst ministries to simplify the process for First Nations and proponents when more than one provincial agency is involved in making a decision related to the same project. The coordinated consultation effort will not hinder your access to representatives of the authorizing agencies.

Please find below a table that indicates all the authorization applications identified for the Project and the agency responsible for issuing each authorization.

<table>
<thead>
<tr>
<th>Authorization/ File Number</th>
<th>Application Type</th>
<th>Agency responsible for issuing authorization</th>
<th>Agency Decision Maker (position)</th>
<th>Application status (received, under review, issued, approved, rejected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR-105809</td>
<td>Refuse and effluent discharge permit application</td>
<td>Ministry of Environment</td>
<td>Director, Environmental Management Act</td>
<td>Received</td>
</tr>
<tr>
<td>Q-8-094</td>
<td>Quarry permit amendment application</td>
<td>Ministry of Energy and Mines</td>
<td>Chief Inspector of Mines</td>
<td>Received</td>
</tr>
</tbody>
</table>

Potential Impact of the Project on the Land and Resources

The Project is proposed on previously disturbed private land (in a quarry) with an effluent discharge to an ephemeral tributary of Shawnigan Creek. The effluent discharge is proposed to meet water quality guidelines for the protection of aquatic life. There are engineering controls proposed to protect against impacts to groundwater.

Identification of Potentially Impacted Known Interests

Through the consultation process the Province intends to understand how the proposed project may impact Cowichan Tribes Aboriginal interests. Based on an initial review of the Proponent’s application, and on preliminary review of available studies1,2; it would appear that possible impacts of the Project would be low.


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Yours truly,

Luc Lachance
Senior Environmental Protection Officer
Ministry of Environment

Eddy Taje
Senior Inspector: Coast Area
Ministry of Energy and Mines

LACHANCE/jlk
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April 27, 2012

File: PR-105809

Chief James Thomas and Council
Halalt First Nation
7973 Chemainus
Westholme BC V0R 3C0

Dear Chief James Thomas and Council:

**PROJECT PROPOSAL:**

Project Application for a Contaminated Soil Management site at 693 Stebbings Road, Malahat, British Columbia

The Province is initiating consultation with the Halalt First Nation on the above noted project. South Island Aggregates has applied to dispose of contaminated soil in engineered containment cells within an existing quarry, remediate soils containing organic contaminants, and treat and discharge related waters.

**Information about the Proponent and Project are noted below:**

**Proponent:** South Island Aggregates Ltd.

**Primary Contact:**
Active Earth Engineering Ltd. (agent/consultant working on the Proponent’s behalf)

Matt Pye, P.Eng
Principal, Hydrogeologist
4083 Shelbourne Street
Victoria BC V8N 5Y1
Phone: 250 686-9650
matt.pye@activeearth.ca

**Location:** 693 Stebbings Road, Malahat, British Columbia

**Legal Description:** Lot 23, Plan VIP78459, Blocks 156, 201 and 323, Malahat Land District

**PID:** 026-226-502
Land Title: Registered Owner in Fee Simple: Cobble Hill Holdings Ltd., Inc No. BC0754588

The Province is making efforts to coordinate consultation amongst ministries to simplify the process for First Nations and proponents when more than one provincial agency is involved in making a decision related to the same project. The coordinated consultation effort will not hinder your access to representatives of the authorizing agencies.

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Potential Impact of the Project on the Land and Resources

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Identification of Potentially Impacted Known Interests

Through the consultation process the Province intends to understand how the proposed project may impact Halalt First Nation Aboriginal interests. Based on an initial review of the Proponent’s application, and on preliminary review of available studies¹,², it would appear that possible impacts of the Project would be low.


In order to facilitate effective communications on this proposal, South Island Aggregates or their consultant, Active Earth Engineering, will contact you with further information. They will be responsible for reviewing relevant information and will request that you forward any additional information regarding the scope and nature of your Aboriginal interests within the area affected by the proposal and how these interests may be impacted by this proposed Project. However you are welcome to communicate directly with the Province if you would rather. If so, please contact the undersigned. Luc Lachance may be reached at 250 751-7245, or Luc.Lachance@gov.bc.ca, and Eddy Taje may be reached at 250 952-0732 or Eddy.Taje@gov.bc.ca.

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Luc Lachance      Eddy Taje
Senior Environmental Protection Officer  Senior Inspector:  Coast Area
Ministry of Environment    Ministry of Energy and Mines

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April 27, 2012

File: PR-105809

Chief Cyril Edward Livingstone and Council
Lake Cowichan First Nation
313B Deer Road
PO Box 159
Lake Cowichan BC V0R 2G0

Dear Chief Cyril Edward Livingstone and Council:

**PROJECT PROPOSAL:**

Project Application for a Contaminated Soil Management site at 693 Stebbings Road, Malahat, British Columbia

The Province is initiating consultation with the Lake Cowichan First Nation on the above noted project. South Island Aggregates has applied to dispose of contaminated soil in engineered containment cells within an existing quarry, remediate soils containing organic contaminants, and treat and discharge related waters.

**Information about the Proponent and Project are noted below:**

**Proponent:** South Island Aggregates Ltd.

**Primary Contact:**
Active Earth Engineering Ltd. (agent/consultant working on the Proponent’s behalf)

Matt Pye, P.Eng
Principal, Hydrogeologist
4083 Shelbourne Street
Victoria BC V8N 5Y1
Phone: 250 686-9650
matt.pye@activeearth.ca

**Location:** 693 Stebbings Road, Malahat, British Columbia

**Legal Description:** Lot 23, Plan VIP78459, Blocks 156, 201 and 323, Malahat Land District
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**Land Title:** Registered Owner in Fee Simple: Cobble Hill Holdings Ltd., Inc No. BC0754588

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**Identification of Potentially Impacted Known Interests**

Through the consultation process the Province intends to understand how the proposed project may impact Lake Cowichan First Nation Aboriginal interests. Based on an initial review of the Proponent’s application, and on preliminary review of available studies\(^1,2\), it would appear that possible impacts of the Project would be low.

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In order to facilitate effective communications on this proposal, South Island Aggregates or their consultant, Active Earth Engineering, will contact you with further information. They will be responsible for reviewing relevant information and will request that you forward any additional information regarding the scope and nature of your Aboriginal interests within the area affected by the proposal and how these interests may be impacted by this proposed Project. However you are welcome to communicate directly with the Province if you would rather. If so, please contact the undersigned. Luc Lachance may be reached at 250 751-7245, or Luc.Lachance@gov.bc.ca, and Eddy Taje may be reached at 250 952-0732 or Eddy.Taje@gov.bc.ca.

Yours truly,

Luc Lachance      Eddy Taje
Senior Environmental Protection Officer  Senior Inspector:  Coast Area
Ministry of Environment        Ministry of Energy and Mines

LACHANCE/jlk
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April 27, 2012

File: PR-105809

Chief Richard Thomas and Council
Lyackson First Nation
7973A Chemainus Road
Chemainus BC  V0R 1K5

Dear Chief Richard Thomas and Council:

**PROJECT PROPOSAL:**

Project Application for a Contaminated Soil Management Site at 693 Stebbings Road, Malahat British Columbia

The Province is initiating consultation with Lyackson First Nation on the above noted project. South Island Aggregates has applied to dispose of contaminated soil in engineered containment cells within an existing quarry, remediate soils containing organic contaminants, and treat and discharge related waters.

**Information about the Proponent and Project are noted below:**

**Proponent:** South Island Aggregates Ltd.

**Primary Contact:**
Active Earth Engineering Ltd. (agent/consultant working on the Proponent’s behalf)

Matt Pye, P.Eng
Principal, Hydrogeologist
4083 Shelbourne Street
Victoria BC  V8N 5Y1
Phone: 250 686-9650
matt.pye@activeearth.ca

**Location:** 693 Stebbings Road, Malahat, BC

**Legal Description:** Lot 23, Plan VIP78459, Blocks 156, 201 and 323, Malahat Land District

**PID:** 026-226-502
**Land Title:** Registered Owner in Fee Simple: Cobble Hill Holdings Ltd., Inc No. BC0754588

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The Project is proposed on previously disturbed private land (in a quarry) with an effluent discharge to an ephemeral tributary of Shawnigan Creek. The effluent discharge is proposed to meet water quality guidelines for the protection of aquatic life. There are engineering controls proposed to protect against impacts to groundwater.

**Identification of Potentially Impacted Known Interests**

Through the consultation process the Province intends to understand how the proposed project may impact Lyackson First Nation interests. Based on an initial review of the Proponent’s application, and on preliminary review of available studies1,2, it would appear that possible impacts of the Project would be low.


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Yours truly,

Luc Lachance
Senior Environmental Protection Officer
Ministry of Environment

Eddy Taje
Senior Inspector: Coast Area
Ministry of Energy and Mines

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notification_Lyackson.docx
August 16, 2012

File: PR-105809

Chief David Harry and Council  
Malahat First Nation  
110 Thunder Road  
Mill Bay BC  V0R 2P4

Dear Chief Michael Harry and Council:

**PROJECT PROPOSAL:**

Project Application for a Contaminated Soil Management site at 693 Stebbings Road, Malahat, British Columbia.

The Province is initiating consultation with Malahat First Nation on the above noted project. South Island Aggregates has applied to dispose of contaminated soil in engineered containment cells within an existing quarry, remediate soils containing organic contaminants, and treat and discharge related waters.

**Information about the Proponent and Project are noted below:**

**Proponent:** South Island Aggregates Ltd.

**Primary Contact:**
Active Earth Engineering Ltd. (agent/consultant working on the Proponent’s behalf)

Matt Pye, P.Eng  
Principal, Hydrogeologist  
4083 Shelbourne Street  
Victoria, BC V8N 5Y1  
Phone: 250 686-9650  
matt.pye@activeearth.ca

**Location:** 693 Stebbings Road, Malahat, British Columbia

**Legal Description:** Lot 23, Plan VIP78459, Blocks 156, 201 and 323, Malahat Land District

**PID:** 026-226-502
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Potential Impact of the Project on the Land and Resources

The Project is proposed on previously disturbed private land (in a quarry) with an effluent discharge to an ephemeral tributary of Shawnigan Creek. The effluent discharge is proposed to meet water quality guidelines for the protection of aquatic life. There are engineering controls proposed to protect against impacts to groundwater.

Identification of Potentially Impacted Known Interests

Through the consultation process the Province intends to understand how the proposed project may impact Malahat First Nation’s Douglas Treaty Rights to hunt and fish as formally or any other aboriginal rights. Based on an initial review of the Proponent’s application, it would appear that possible impacts of the Project would be low.
In order to facilitate effective communications on this proposal, South Island Aggregates or their consultant, Active Earth Engineering, will contact you with further information. They will be responsible for reviewing relevant information and will request that you forward any additional information regarding the scope and nature of your Treaty Rights within the area affected by the proposal and how these interests may be impacted by this proposed Project. However you are welcome to communicate directly with the Province if you would rather. If so, please contact the undersigned. Luc Lachance may be reached at 250 751-7245, or Luc.Lachance@gov.bc.ca, and Eddy Taje may be reached at 250 952-0732 or Eddy.Taje@gov.bc.ca.

Yours truly,

Luc Lachance  
Senior Environmental Protection Officer  
Ministry of Environment

Eddy Taje  
Senior Inspector: Coast Area  
Ministry of Energy and Mines

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April 27, 2012

File: PR-105809

Chief Earl W. Jack and Council
Penelakut Tribes
PO Box 360
Chemainus BC V0R 1K0

Dear Chief Earl W. Jack and Council:

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The Province is initiating consultation with the Penelakut Tribes on the above noted project. South Island Aggregates has applied to dispose of contaminated soil in engineered containment cells within an existing quarry, remediate soils containing organic contaminants, and treat and discharge related waters.

Information about the Proponent and Project are noted below:

**Proponent:** South Island Aggregates Ltd.

**Primary Contact:**
Active Earth Engineering Ltd. (agent/consultant working on the Proponent’s behalf)

Matt Pye, P.Eng
Principal, Hydrogeologist
4083 Shelbourne Street
Victoria BC V8N 5Y1
Phone: 250 686-9650
matt.pye@activeearth.ca

**Location:** 693 Stebbings Road, Malahat, British Columbia

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Identification of Potentially Impacted Known Interests

Through the consultation process the Province intends to understand how the proposed project may impact Penelakut Tribes Aboriginal interests. Based on an initial review of the Proponent’s application, and on preliminary review of available studies, it would appear that possible impacts of the Project would be low.


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Yours truly,

Luc Lachance
Senior Environmental Protection Officer
Ministry of Environment

Eddy Taje
Senior Inspector: Coast Area
Ministry of Energy and Mines
April 27, 2012

File: PR-105809

Chief Russ Chipps and Council
Scia’new First Nation
4901B East Sooke Road
Sooke BC V0S 1N0

Dear Chief Russ Chipps and Council:

**PROJECT PROPOSAL:**

Project Application for a Contaminated Soil Management site at 693 Stebbings Road, Malahat British Columbia

The Province is initiating consultation with Scia’new First Nation on the above noted project. South Island Aggregates has applied to dispose of contaminated soil in engineered containment cells within an existing quarry, remediate soils containing organic contaminants, and treat and discharge related waters.

**Information about the Proponent and Project are noted below:**

**Proponent:** South Island Aggregates Ltd.

**Primary Contact:**
Active Earth Engineering Ltd. (agent/consultant working on the Proponent’s behalf)

Matt Pye, P.Eng
Principal, Hydrogeologist
4083 Shelbourne Street
Victoria, BC V8N 5Y1
Phone: 250 686-9650
matt.pye@activeearth.ca

**Location:** 693 Stebbings Road, Malahat, British Columbia

**Legal Description:** Lot 23, Plan VIP78459, Blocks 156, 201 and 323, Malahat Land District

**PID:** 026-226-502
**Land Title:** Registered Owner in Fee Simple: Cobble Hill Holdings Ltd., Inc No. BC0754588

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The Project is proposed on previously disturbed private land (in a quarry) with an effluent discharge to an ephemeral tributary of Shawnigan Creek. The effluent discharge is proposed to meet water quality guidelines for the protection of aquatic life. There are engineering controls proposed to protect against impacts to groundwater.

**Identification of Potentially Impacted Known Interests**

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Luc Lachance
Senior Environmental Protection Officer
Ministry of Environment

Eddy Taje
Senior Inspector: Coast Area
Ministry of Energy and Mines

LACHANCE/jlk
April 27, 2012

File: PR-105809

Chief Councilor John Elliott and Council:
Stz’uminus First Nation
12611A Trans Canada Highway
Ladysmith BC  V9G 1M5

Dear Chief Councilor John Elliott and Council:

**PROJECT PROPOSAL:**

Project Application for a Contaminated Soil Management Site at 693 Stebbings Road, Malahat, British Columbia

The Province is initiating consultation with Stz’uminus First Nation on the above noted project. South Island Aggregates has applied to dispose of contaminated soil in engineered containment cells within an existing quarry, remediate soils containing organic contaminants, and treat and discharge related waters.

**Information about the Proponent and Project are noted below:**

**Proponent:**  South Island Aggregates Ltd.

**Primary Contact:**
Active Earth Engineering Ltd. (agent/consultant working on the Proponent’s behalf)

Matt Pye, P.Eng
Principal, Hydrogeologist
4083 Shelbourne Street
Victoria BC  V8N 5Y1
Phone : 250 686-9650
matt.pye@activeearth.ca

**Location:**  693 Stebbings Road, Malahat, British Columbia

**Legal Description:**  Lot 23, Plan VIP78459, Blocks 156, 201 and 323, Malahat Land District

.../2
PID: 026-226-502

Land Title: Registered Owner in Fee Simple: Cobble Hill Holdings Ltd., Inc No. BC0754588

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Through the consultation process the Province intends to understand how the proposed project may impact Stz’uminus First Nation’s Aboriginal interests. Based on an initial review of the Proponent’s application, it would appear that possible impacts of the Project would be low.
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Yours truly,

Luc Lachance
Senior Environmental Protection Officer
Ministry of Environment

Eddy Taje
Senior Inspector: Coast Area
Ministry of Energy and Mines
APPENDIX D
SIA FEEDBACK LINK
Thanks Luc.

Please note that the meeting minutes of the July 12, 2012 public meeting held by the CVRD regarding the South Island Aggregates application are available on the CVRD website at http://www.cvrd.bc.ca/index.aspx?nid=1541.

Thank you again to the CVRD team for compiling the minutes and making them available to everyone.

Regards,

Luc Lachance, P.Eng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Nanaimo BC V9T 6J9

24-hour Spill/Environmental Emergency Reporting: 1-800-663-3456
(Provincial Emergency Program)
24-hour RAPP (Report All Poachers and Polluters) tip-line: 1-877-952-7277
(Conservation Officer Service)
www.gov.bc.ca/env<http://www.gov.bc.ca/env>

Please consider the environment before printing this email
It's very close to being done. I will touch base with the engineer putting the final touches on it and get back to you.

Dave

> Good morning Dave,
> 
> Just checking in on the status of the final technical assessment report. Have been reading, through various sources, that the final consultation date has been set for Aug 20th. Would appreciate the final report much in advance of that date if possible.
> 
> Thanks,
> 
> Barane

----- Original Message ----- 
From: feedback@activeearth.ca
To: "Barane" <annybub@shaw.ca>
Sent: Wednesday, July 18, 2012 9:05 AM
Subject: Re: SIA Open House May 31st

>> I think we will separate the technical report from the consultation report, as consultation is still ongoing. The technical studies are now complete and we are just finishing off minor edits to that report and will have it available shortly.
>> We have scanned all the comment forms, but have not yet uploaded them to SIA's website as we have not yet responded to all comments. I think the usage of the term stakeholder refers to anybody with an interest in the application.
>> In the meantime, we have responded to all questions received via email, via the discussion forum on SIA's website and have provided responses to the top 10 questions we have received (in the slideshow). That's a good place to start to see what most people are asking.
>> Sorry to hear about your family member.
>>
>> Dave

>>> Good morning Dave,
>>> You are correct - I was not at the meeting last Thursday. While still very interested in this issue, plus others of importance to the community, I have recently had to curtail my activities. One of my family is seriously ill and that takes precedence over anything else. That said, I appreciate being kept "in the loop" and look forward to
reading through the final assessment reports. From perusing the website, it appears the "consultations and comments" will be included in the final reports? Is this correct? I also found the statement "All of the original comment forms have been scanned and posted to the project website for stakeholder access". Where on the website would I find these and who, exactly, are the "stakeholders"?

All for now, Barane

----- Original Message ----- 
> From: <feedback@activeearth.ca>
> To: "Barane" <annybub@shaw.ca>
> Sent: Tuesday, July 17, 2012 11:23 AM
> Subject: Re: SIA Open House May 31st
>
>>> No problem. I didn't see you at the meeting last Thursday. We have since uploaded our presentation to the SIA Webpage, if you would like to see that. It includes some of the design drawings.

>>> Good morning Dave,
>>> Thank you for keeping me posted.
>>> Will email more later,
>>> Barane

----- Original Message ----- 
> From: <feedback@activeearth.ca>
> To: "Barane" <annybub@shaw.ca>
> Sent: Wednesday, July 11, 2012 4:30 PM
> Subject: Re: SIA Open House May 31st
>
>>> Hi Barane,
>>> Just a quick update...

>>> The report is getting close, but not yet done. Should be another 10 days or so.

>>> Good morning Dave,

>>> How are those reports coming along - the Consultation Report and the final stage of the Technical Assessment Report?

>>> Regards, Barane

----- Original Message ----- 
> From: <feedback@activeearth.ca>
> To: "Barane" <annybub@shaw.ca>
> Sent: Friday, June 08, 2012 10:53 AM
> Subject: Re: SIA Open House May 31st

>>>>> FYI... Our intent is to post a Q&A Section on the website in the near future to address some of the FAQs. That will probably predate the Consultation Report.

>>> Dave

file://Users/ActiveEarth/Desktop/1.html[2012-08-16 9:48:17 AM]
Okay, I have the billboard information now - thanks.
The technical report in its final stage will be forthcoming hopefully next week.
And, I am on the list to receive the comments plus answers to them when your company collates that information.
Think that's it for now.
Will be in touch again after I receive your final reports.
Thank you for all your assistance,
Barane

----- Original Message ----- 
From: <feedback@activeearth.ca >
To: "Barane" <annybub@shaw.ca >
Sent: Wednesday, June 06, 2012 8:47 AM
Subject: Re: SIA Open House May 31st

We are still collating the comments and questions from the Open House and trying to aggregate similar questions. We plan to provide a full response to each question as part of the consultation. We can put you on the list to have that information. In the meantime, the SIA website has an open discussion board to which we have been replying to questions.
http://sialtd.ca/~sialtd/online_discussion.html
There should be a new set of answers today to all outstanding questions.
I appreciate that there is a lot of information to digest. I am glad to see that some people are interested in reviewing it and looking at the details.
Thanks,
Dave

Good morning Dave,
Thank you very much for the info - much appreciated. There is a lot to digest here! One thing I would like to know more about is from the statement "Any interested individuals can SIGN UP to receive copies of the submitted comments and input summary directly". Where do I sign?
Must have missed that part at the open house. Please let me know how I can obtain copies of the comments.
Thanks also for the update on the reports. I will wait for a copy.
of these instead of asking specific questions now.

Regards,
Barane

----- Original Message ----- 
From: feedback@activeearth.ca

To: "Barane" <annybub@shaw.ca>

Sent: Tuesday, June 05, 2012 11:28 AM 

Subject: Re: SIA Open House May 31st

Barane,
The information that was printed off was just a printed version of the boards placed at the meeting, which can be accessed as follows:


WRT to the final report, we are expecting completion next week.

Regards,

Dave

Good morning again,

A hard copy or a PDF would be fine, either way could you just send possibly by the end of business today?

As for the technical studies, it has been my experience that "draft" and "final" technical assessment reports don't actually end up looking all that different. To that end, I would like a copy of the studies you have done to date even if they are in draft form. How long it will take to get the studies to the final stage is anyone's guess at this point therefore having the "draft" copies will at least provide baseline data.

Thank you,

Barane McCartney

----- Original Message ----- 
From: feedback@activeearth.ca

To: "Barane" <annybub@shaw.ca>

Sent: Monday, June 04, 2012 8:56 AM 

Subject: Re: SIA Open House May 31st

I am sure we can get you a hard copy of it as well, or even give you one of the two copies at the Open House. I'm just waiting to hear back
from
the person who prepared those and I will get back to you.

With respect to the technical studies... Reports submitted
to MOE
to date
have been in draft form. The final technical assessment
report
is
being compiled and is expected to be complete in the coming
weeks.
A copy
of this report can be made available to interested parties.
We
will
get
back to you shortly to arrange access to this information.

Dave

Good morning and thank you for your efforts.
In the interest of saving time and a little money I was
hoping for a hard copy but a PDF will be fine.
Have you been able to look into getting me copies of all the
studies?
Please keep me posted.

Regards,
Barane McCartney
----- Original Message ----- 
From: <feedback@activeearth.ca>

To: "Barane" <annybub@shaw.ca>

Sent: Saturday, June 02, 2012 3:35 PM
Subject: Re: SIA Open House May 31st

Got it. I know which package that was. I didn't prepare it,
but I believe it was a printed version of all the billboards
presented that night.
I will confirm with the person who prepared it and email a PDF
of it over.

Dave

Good afternoon Mr. Mitchell,

Thank you for your prompt response and I apologize for not
being more clear.
The brochure was laying on the table next to the entrance.
The only information I wrote down was the title at the top and it
included Q&A's and maps, etc.
Barane,  

Thank you for speaking with me last night and for your email.  

I am not sure which brochure you are referring to.  Was it one of the billboards?  

With respect to copies of the technical reports, I will look into that and get back to you shortly.  

Regards,  
David Mitchell  
Active Earth Engineering  

Good Morning,  

I spoke with your company representative Mr. David Mitchell last night at the SIA open house.  
At his suggestion, I am asking for some additional information regarding this application.  

First, would you please send me a hard copy of the large brochure that was displayed last night?  The title at the top read "Public Information Meeting" and I believe it was produced by your company.  

My address is:  
Ms. Barane McCartney  
1388 Campbell Rd.  RR# 1  
Cobble Hill  B.C.  
VOR 1L6  

Second, could you please email me copies of all the studies done to date that were part of the complete Technical Assessment mandated by MOE?  
This includes studies done on the surface water, hydrology, soil analysis, air quality, etc.  I was told they were posted on the SIA
Mr. Mitchell informed me I had to request them. While the SIA/MOE/Active Earth representatives present last night were very cordial and helpful, the amount of information to digest was simply overwhelming. It will take time for myself and I'm sure other members of the general public to analyze and properly respond to the sheer volume of data. I hope we are afforded that time. Also, I overheard many residents negatively commenting on the format of the meeting. It seems they were expecting more of a "question and answer" debate. I believe having a "public meeting" as opposed to an open house would have enabled these residents to obtain more accurate information than they came away with last night. One big issue in particular seems to revolve around the "monitoring process" of the contaminated soil itself as well as the groundwater leaving the site which then is allowed to flow into the tributary of Shawinigan Creek.

Regards,
Barane McCartney
Hello Mr. Bunce,

Re: CVRD upcoming meeting August 1, 2012 (6:00 pm) regarding:

Contaminated Soils in the Cowichan Valley

“The Cowichan Valley Regional District is going to be debating motions in the coming weeks that could bring greater focus to its efforts to gain a measure of control over the movement and dumping of soils – contaminated and otherwise – in the Regional District.”

http://www.cvrd.bc.ca/CivicAlerts.aspx?AID=642

First off, I would like to offer my complete vote of support to all our Cowichan Valley Regional District’s elected politicians for taking the bull by the horns and taking a position in regards to protecting the Cowichan Valley and Shawnigan Lake drinking water from contaminated soil and fill for present and future residents. I congratulate them. They have my complete support. Other Regional Districts have taken charge of their own pure, fresh drinking water and now we must do so too.

I still find myself incredulous and continue to ask the question, "How is it even possible that the best business practice for cleaning up Victoria contaminated sites by “upstanding” business men, and apparently supported by our Provincial Government, has included the practice of using the Cowichan Valley as their toilet and garbage pail?

And, now, the solution is to approve a business proposal which would leave a deposit of 5 million tons of contaminated product in the headwaters of the Shawnigan Lake drinking watershed?

What kind of a society, in fact, what kind of government would say ‘yes’ to a business proposal resulting in the legacy of 5 million tons of contaminated product being stored in the headwaters of a drinking water shed, only a few meters away from a stream which flows directly into a drinking-water lake?

How is it possible that, with all our education, both from ‘Academic Universities’ and from the ‘University of Life’ that we would say ‘yes’ to a business proposal which would leave 5 million tons of our contaminated product for the residents of Shawnigan Lake who will be living here in the future?
Were there not residents living on Vancouver Island and in Shawnigan Lake 1,000 and 2,000 years ago? Will there not be residents living in Shawnigan Lake 1,000 and 2,000 years from now? Do we have the right to defer the risk, resulting from our contaminated product, to those who will be living here in the future? Do we not have a responsibility to protect their right to fresh, pure drinking water?

As we are currently seeing with the repeated oil spills by Enbridge - whatever man and science builds, even with the best of intentions, - goes awry. We do not have the right to take this risk in our drinking watersheds.

As a society, and as a government, we are required to make decisions which will provide future Shawnigan Lake residents with fresh, pure water to drink.

As a resident and as a member of this society, I say, "No" to this proposal.

Thank you,

Dr. Mackenzie Brooks

Dr. Mackenzie Brooks

(250) 888-0517

Dr@DrMackenzieBrooks.com
www.DrMackenzieBrooks.com

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Dear Ms. Young:

I am writing to follow up on my email of July 9, 2012, in response to your email of May 31, 2012, addressed to the Honourable Terry Lake, Minister of Environment, regarding the South Island Aggregates (SIA) application to discharge waste. I am also in receipt of your emails of July 10 and 18, 2012. Minister Lake has asked that I respond on his behalf and I apologize for the delay in doing so.

Your emails refer to a range of issues and concerns regarding current and proposed activities conducted by SIA as well as other businesses located along Stebbings Road. In accordance with the Environmental Management Act application process, the Ministry of Environment (MoE) is required to receive all applications for waste discharge, refer them to local government, first nations, appropriate agencies and the local public, consider all technical and public issues related to the application and make a reasoned decision.

The Ministry of Transportation (MoT) has jurisdiction over Stebbings Road as it is a link between the Cowichan Valley and the Capital Regional Districts. MoT has been notified of the SIA application as part of the notification and consultation process and we recommend you contact Mr. Michael Pearson, District Engineer, at Michael.Pearson@gov.bc.ca to discuss issues associated to traffic on this road. Additionally, emissions from vehicles in Canada and British Columbia are regulated by federal and provincial legislation. These rules apply to all roads in
British Columbia including Stebbings Road.

Specific clauses related to quarry discharges, hours of work, blasting and traffic are specified under the SIA Mines Act permit Q-8-094 administered by the Ministry of Energy and Mines. We recommend you contact Mr. Eddy Taje, Inspector of Mines, at Eddy.Taje@gov.bc.ca to discuss any issues associated to this permit.

Other aspects such as nuisance and noise are regulated through bylaws issued by local governments. In that regard, we recommend you contact the Cowichan Valley Regional District Development Services, at ds@cvrd.bc.ca to discuss further.

In closing, your comments along with those raised by others will be considered in assessing the application. I encourage you to continue to inform yourself on the proposal and to make your concerns known to the proponent and the MoE.

Please do not hesitate to contact Mr. Luc Lachance, Senior Environmental Protection Officer, at 250 751-7245 or via email Luc.Lachance@gov.bc.ca as needed.

Thank you again for taking the time to write.

Sincerely,

Jim Standen
Assistant Deputy Minister
Environmental Protection Division

cc: Honourable Rich Coleman, Minister of Energy and Mines
    Bill Routley, MLA, Cowichan Valley
    Luc Lachance, Senior Environmental Protection Officer, Ministry of Environment
    Michael Pearson, District Engineer, Ministry of Transportation and Infrastructure
    Eddy Taje, Inspector of Mines, Ministry of Energy and Mines
    Loren Duncan, Cowichan Valley Board Member Area E - Sahtlam/Glenora/Cowichan Station
Jennifer Young
Email: jennyjyoung@shaw.ca

Dear Ms. Young:

Thank you for your email of May 31, 2012, regarding the proposed contaminated soil remediation and storage site near Shawnigan Lake.

This email is to acknowledge the receipt of your correspondence and to assure you that a detailed response will be provided once I have had the opportunity to review with ministry staff the issues you have raised.

Thank you again for taking the time to write.

Sincerely,
Greetings:

Firstly, thank you to Dr. Brooks for including me in her letter with respect to NOT SUPPORTING SIA's application to include operating as a Contaminated Soil Remediation and Storage Site on Stebbings Road in the Shawnigan Lake Watershed District.

I Do Not Support this application.

I have lived on South Shawnigan Lake Road for 25 years. My home was established before both SIA quarries were in place, and MIA Quarry was in place. To arrive at any quarry sites, the trucks must travel past my residence.

With respect to the remediation site application:

Does this now mean that at least 1200 trucks full of contaminated fill/soil will be moving past my residence each month? This is a low estimate based on how many trucks with pups use South Shawnigan Lake Road and travel past my residence per month at this time.

What kind of air pollution and noise pollution will these massive trucks continue to contribute to MY way of life?

How will the Government and the Company monitor my health and my well being from the contaminants, from the quarries, and trucking?

How will the Government be monitoring the pollutants from these vehicles?
What or how does the Government plan on monitoring the sites so that the Hours of Work and other regulations are adhered to?

I thank the Company for hosting an “Open House” and I trust that this will be done in a professional manner without interjections from office staff. In the future, however, I would respectfully suggest to the Ministries that a **Public Meeting** would be more beneficial so that similar questions may be asked and answered. In this way, there may be an appearance of “transparency”.

I look forward to your replies.

Sincerely

Jennifer Young

----- Original Message -----
Hello,

As directed by South Island Aggregates (SIA) website and Mr. Allan McCammon (Ministry of Environment-CVRD Regional Services Committee Meeting, May 23, 2012) I am e-mailing to uncategorically state that I DO NOT SUPPORT South Island Aggregate’s application to expand its’ quarry operations to include operating as a Contaminated Soil Remediation and Storage Site in the Headwaters of Shawnigan Lake’s Drinking Watershed.

Actually, I find it rather inconceivable that I am having to even engage in this conversation with you.

The questions I have include:

1. How is it even possible that we, as residents in this community, are having to join forces against our own Provincial Government, the Ministry of Environment, Environmental Protection, to try to STOP you from saying, ‘yes’ to a business permit application to store 5 million tons of contaminated soil and fill in the Shawnigan Lake Drinking Watershed for present and future generations? The Federal Government’s recent media release reported that there are now over 22,000 known contaminated sites across Canada which were approved by experts and government officials as being sustainably safe. Yet, here we are - the next generations- having to deal with this tsunami of contaminated soil and fill left by previous generations to be ‘managed’ by the current generations. Are we doomed to recreate our past, rather than learn from it?

2. What contaminated soil remediation and storage dump sites currently exist in the Capital Regional District’s Drinking Watershed?

3. Would you permit this application to be considered in the Capital Regional District’s Drinking Watershed?

4. How many applications for contaminated soil remediation and storage sites have been made and approved in the Capital Regional District’s Drinking Watershed?

5. How come it is acceptable to our Provincial Government, the Ministry of Mines, and the Ministry of Environment that Cowichan Valley continues to be the dumping ground for Victoria’s contaminated soil and fill?
6. How is it possible that contaminated and brown sites in Victoria are cleaned by sending your contaminated fill to the Cowichan Valley?

7. How is it environmentally responsible to clean one contaminated site by creating other contaminated sites?

8. How come our local government (CVRD) has no say over what happens in our drinking watersheds in the Cowichan Valley? How is this even possible?

9. What is the business practice and quality control history for South Island Aggregates with the Ministry of Environment?

10. Does South Island Aggregates have any past and current environmental violations?

11. If yes, what are these citations?

12. If yes, how do members of the public access the record of these violations?

I look forward to your response.

Thank you,

Dr. Mackenzie Brooks
(250) 888-0517

/sqmail/src/compose.php?send_to=mackenzie@mackenziebrooks.com

www.DrMackenzieBrooks.com

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[Take Address]
Dear Mr. Standen,

Thank you very much for copying me on your email to Dr. Brooks. Zoning for the property on which the South Island Aggregate facility is located does allow for gravel extraction and processing. The South Island Aggregate Waste Discharge Permit application proposes a facility allowing the deposition of contaminated soils. Am I correct in interpreting your email to suggest that the CVRD is able to regulate by bylaw the deposition of contaminated soils within the CVRD? This has not been the CVRD’s understanding in the past. In fact, the CVRD does have a bylaw in Shawnigan Lake that prohibits the deposition of contaminated soil. I have attached a copy of Bylaw 2202 for your information wherein it is stated that:

“Unless explicitly permitted in a zone, no parcel shall be used for the purpose of storing contaminated waste or contaminated soil, if the contaminated material did not originate on the same legal parcel of land that it is being stored on.”

The CVRD has previously been advised that we may not rely on Bylaw 2202 to regulate the deposition of contaminated soils as the regulation is captured within the sphere of concurrent authority between the regional district and the province. I would appreciate it very much if you could confirm that the Province agrees that the CVRD may rely on Bylaw 2202 to prohibit the deposition of contaminated soils in Shawnigan Lake.

Thank you very much for your attention.

Sincerely,

Warren Jones

Chief Administrative Officer

CVRD
Dr. Mackenzie Brooks

Email: dr@drmackenziebrooks.com

Dear Dr. Brooks:

Thank you for your emails of May 29 and June 6, 2012, addressed the Honourable Terry Lake, Minister of Environment, regarding your objection to the South Island Aggregates application to discharge waste. I am pleased to have this opportunity to respond on behalf of Minister Lake. Please find the response to your questions and concerns summarized below.

In accordance with the Waste Discharge Regulation application process, the Ministry of Environment is required to receive all applications for waste discharge, refer them to local government, First Nations, other agencies and the local public, consider the technical and public issues related to the application and make a reasoned decision.

Ministry of Environment Regional Operations have not issued any authorizations for soil treatment or storage facilities in the Capital Regional District’s (CRD) drinking watershed. In the event that an application was made to discharge waste within the CRD drinking watershed, the Ministry would be required to review the application. The application would be referred to the CRD and the public and their comments would be received and considered as part of the application adjudication. As this watershed land is owned and protected by the CRD, they have the ultimate ability to determine the use of land under their control.

While the Cowichan Valley Regional District (CVRD) does not own all the land within the Shawnigan Lake...
watershed, it does have the authority to define land use within its boundaries through bylaws. The current bylaws do not prevent a facility, such as the one proposed by South Island Aggregates, to be built and operated. For further information, please contact the CVRD directly. We recommend you contact Mr. Warren Jones, CVRD Chief Administration Officer, at wjones@cvrd.bc.ca to discuss further. As the local government, the CVRD is given the opportunity to provide comments on all waste discharge permit applications in their region.

The Ministry of Environment encourages property owners and developers to reuse suitable soils from contaminated sites. Relocated soils have been used to reclaim mine sites, to serve as fill for site consolidation and to provide landfill cover, as proposed by South Island Aggregates. Such soil relocations have facilitated the successful remediation and redevelopment of many sites that might otherwise simply become brownfields. Contaminated soil is an unfortunate result of human activity and the Province has developed legislation to handle its treatment and discharge. In all cases, Contaminated Soil Relocation Agreements are endorsed by the Ministry only if it has been demonstrated by an approved professional that the soil to be relocated is suitable for deposition at a receiving site and will not create a new contaminated site. In other words, the Ministry will not endorse a Contaminated Soil Relocation Agreement unless the soil to be relocated meets the applicable land use standards in the Contaminated Sites Regulation for the receiving site.

Ministry of Environment’s Land Remediation Section has been overseeing the management of related issues and has information regarding concerns around receipt of contaminated soil under the Contaminated Sites Regulation at the South Island Aggregates facility on Stebbings Road and other sites in the CVRD. We recommend you contact Ms. Kerri Skelly, Senior Contaminated Sites Officer, at Kerri.Skelly@gov.bc.ca, to obtain copies of relevant correspondence in order to more fully understand this matter. The Ministry’s Regional Operations Branch does not have compliance-related information pertaining to South Island Aggregates as they do not hold a waste discharge authorization.

I encourage you to continue to inform yourself on the proposal and to make your concerns known to the proponent and the Ministry.

Please do not hesitate to contact Mr. Luc Lachance, Senior Environmental Protection Officer, at 250 751-7245 or via email, at Luc.Lachance@gov.bc.ca, as needed.

Thank you again for taking the time to write.

Sincerely,

Jim Standen
Assistant Deputy Minister
I DO NOT SUPPORT South Island Aggregates application for permit to store 5 million tons of contaminated soil in the headwaters of Shawnigan Lake's drinking-water watershed.

As directed by Mr. Allan McCammon (Ministry of Environment-CVRD Regional Services Committee Meeting –May 23, 2012) and South Island Aggregates (SIA) website I am providing my feedback in regards to SIA’s permit application to expand its quarry operation to include storing 5 million tons of contaminated soil in the headwaters of the Shawnigan Lake drinking-water watershed.

I do not support this permit application.

My comments include:

The Federal Government recently reported that over 22,000 known contaminated sites have been left by previous generations for our generation to contend with. It is increasingly clear that we Canadians are now required to
develop a strategic plan, if we are to co-ordinate the action required to manage this tsunami of contaminated soil, both on our island and across Canada.

What are we going to do with the decisions that we are faced with?

Are we going to learn from our past? Are we going to recreate the past and leave an additional legacy of more contaminated soil sites? In this case, 5 million tons of contaminated soil stored in the headwaters of the Shawnigan Lake drinking-water watershed for present and future generations to contend with.

It seems to me that now is the time for our Provincial Government, Ministry of Environment and Ministry of Energy & Mines, to work closely together with our Local Government (CVRD) and Community Members to develop a cohesive plan for managing the relocation, storage and remediation of contaminated soil, whatever level of contamination.

The location of these contaminated soil dumping, storage and remediation sites requires thorough planning by all key stakeholders to ensure the provision of maximum service for surrounding locations throughout all of British Columbia AND be assessed and situated in locations that have absolutely zero risk of contaminating drinking-water watersheds.

Consideration for the location of these contaminated soil dumping, storage, and remediation sites needs to ensure that the present and future generations of community members' quality of life is protected. We Canadians consider this our basic right. We consider the protection and purity of drinking-water watersheds, and of our drinking water, a right and a responsibility.

Our Local Government, in relationship with Community Members, will monitor and ensure the health and wellness of our community. We, after all, are the ones who live here.

Are we fated to continue to make the same mistakes as those before us? Will we learn from their mistakes? Will our government learn from these mistakes? Will our Provincial Government work with our Local Government, the Cowichan Valley Regional District (CVRD), and Community Members to make the right decision for our community?
We are asking the Ministry of Environment to work with us, to collaborate with us, and to make informed decisions that are right for our community.

Minister Terry Lake has agreed to work with us in this way.

We are requesting this of you as well.

Thank you,

Dr. Mackenzie Brooks

(250) 888-0517

/mackenzie@mackenziebrooks.com
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Take Address
July 18, 2012

Dr. Mackenzie Brooks

Email: dr@drmackenziebrooks.com

Dear Dr. Brooks:

Thank you for your emails of May 29 and June 6, 2012, addressed the Honourable Terry Lake, Minister of Environment, regarding your objection to the South Island Aggregates application to discharge waste. I am pleased to have this opportunity to respond on behalf of Minister Lake. Please find the response to your questions and concerns summarized below.

In accordance with the Waste Discharge Regulation application process, the Ministry of Environment is required to receive all applications for waste discharge, refer them to local government, First Nations, other agencies and the local public, consider the technical and public issues related to the application and make a reasoned decision.

Ministry of Environment Regional Operations have not issued any authorizations for soil treatment or storage facilities in the Capital Regional District’s (CRD) drinking watershed. In the event that an application was made to discharge waste within the CRD drinking watershed, the Ministry would be required to review the application. The application would be referred to the CRD and the public and their comments would be received and considered as part of the application adjudication. As this watershed land is owned and protected by the CRD, they have the ultimate ability to determine the use of land under their control.
While the Cowichan Valley Regional District (CVRD) does not own all the land within the Shawnigan Lake watershed, it does have the authority to define land use within its boundaries through bylaws. The current bylaws do not prevent a facility, such as the one proposed by South Island Aggregates, to be built and operated. For further information, please contact the CVRD directly. We recommend you contact Mr. Warren Jones, CVRD Chief Administration Officer, at wjones@cvrd.bc.ca to discuss further. As the local government, the CVRD is given the opportunity to provide comments on all waste discharge permit applications in their region.

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I encourage you to continue to inform yourself on the proposal and to make your concerns known to the proponent and the Ministry.

Please do not hesitate to contact Mr. Luc Lachance, Senior Environmental Protection Officer, at 250 751-7245 or via email, at Luc.Lachance@gov.bc.ca, as needed.

Thank you again for taking the time to write.

Sincerely,

Jim Standen
From: Dr. Mackenzie Brooks

Sent: Wednesday, June 6, 2012 1:58 AM

To: Active Earth

Cc: Bunce, Hubert ENV:EX; Lachance, Luc ENV:EX; McCammon, Alan W ENV:EX; Doug Walton; Ward, John ENV:EX; Kissinger, Mark ENV:EX; Macfarlane, Mike ENV:EX; Alexander, Randy ENV:EX; Dekelver, Richard ENV:EX; Pauwels, Peter ENV:EX; Minister, ENV ENV:EX

Subject: I DO NOT SUPPORT South Island Aggregates application for permit to store 5 million tons of contaminated soil in the headwaters of Shawnigan Lake's drinking-water watershed.

As directed by Mr. Allan McCammon (Ministry of Environment-CVRD Regional Services Committee Meeting –May 23, 2012) and South Island Aggregates (SIA) website I am providing my feedback in regards to SIA’s permit application to expand its quarry operation to include storing 5 million tons of contaminated soil in the headwaters of the Shawnigan Lake drinking-water watershed.

I do not support this permit application.

My comments include:
The Federal Government recently reported that over 22,000 known contaminated sites have been left by previous generations for our generation to contend with. It is increasingly clear that we Canadians are now required to develop a strategic plan, if we are to co-ordinate the action required to manage this tsunami of contaminated soil, both on our island and across Canada.

What are we going to do with the decisions that we are faced with?

Are we going to learn from our past? Are we going to recreate the past and leave an additional legacy of more contaminated soil sites? In this case, 5 million tons of contaminated soil stored in the headwaters of the Shawnigan Lake drinking-water watershed for present and future generations to contend with.

It seems to me that now is the time for our Provincial Government, Ministry of Environment and Ministry of Energy & Mines, to work closely together with our Local Government (CVRD) and Community Members to develop a cohesive plan for managing the relocation, storage and remediation of contaminated soil, whatever level of contamination.

The location of these contaminated soil dumping, storage and remediation sites requires thorough planning by all key stakeholders to ensure the provision of maximum service for surrounding locations throughout all of British Columbia AND be assessed and situated in locations that have absolutely zero risk of contaminating drinking-water watersheds.

Consideration for the location of these contaminated soil dumping, storage, and remediation sites needs to ensure that the present and future generations of community members’ quality of life is protected. We Canadians consider this our basic right. We consider the protection and purity of drinking-water watersheds, and of our drinking water, a right and a responsibility.

Our Local Government, in relationship with Community Members, will monitor and ensure the health and wellness of our community. We, after all, are the ones who live here.

Are we fated to continue to make the same mistakes as those before us? Will we learn from their mistakes? Will our government learn from these mistakes? Will our Provincial Government work with our Local Government, the Cowichan Valley Regional District (CVRD), and Community Members to make the right decision for our community?
We are asking the Ministry of Environment to work with us, to collaborate with us, and to make informed decisions that are right for our community.

Minister Terry Lake has agreed to work with us in this way.

We are requesting this of you as well.

Thank you,

Dr. Mackenzie Brooks

(250) 888-0517

Click here to learn more about my workshop offerings

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**Attachments:**

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We attended the recent public meeting to discuss the permit application by South Island Aggregate to establish waste discharge. We appreciate all the effort put into presenting such an event by the CVRD and all the parties who were involved. The issue and its effects are complex, and polarizing. We stayed as late as we could; but by 10:45 we had to leave. We were looking forward to hearing what everyone would have to say in the General Comment portion of the evening; but with the meeting scheduled to end at 10PM, we were unable to stay without knowing when it would actually come to an end. Nevertheless we were very pleased to receive the information we were able to take in, and we were very impressed with the presentations by all the principals.

First, we would like to say that it is clear to us that SIA has put a great deal of time, research and money into preparing and presenting a comprehensive, complex and professional application. However, based on the opinions of our neighbours and of the overwhelming majority of citizens who attended the July 12th meeting, one must wonder if SIA researched what the people who live around and depend on the water in Shawnigan Lake felt about the creation of a contaminated waste dump upstream of the lake.

Mr Bunce of the Ministry of Environment, and Mr. Taje of the Ministry of Energy and Mines both made it clear that "process must be followed" when an application of any nature is submitted. A more time and cost effective approach in our view, would be if the B.C. government put out to tender the application for locating installations of these necessary contaminated waste dumps. Applicants would of course be required to show that, among other things, they have the expertise, the finances, the quality control, the maintenance program and the best location with regard to responsible considerations for wildlife, environment and humans. But that would require a completely different process, one that would require political will and strategic planning in order to deal effectively and proactively with the waste our Island community has produced.

We would ask that while the Ministry of Environment is following process and considering SIA's application, that the Ministry would also consider that in the over four hours we were sitting in that meeting, of the 300 or so persons who attended along with us, not one person from the floor gave their support to the SIA application. It was very clear to all that were there that we don't want such a waste dump near or at the headwaters of our lake.
One can appreciate how a private business such as SIA would see tremendous financial opportunity in stockpiling contaminated earth in their quarry, but a good neighbour wouldn't introduce such risk to our village. We would say however, that if such a dump must be established somewhere, that the SIA/Active Earth model should be considered. SIA and the Active Earth Engineering team informed us that B.C. and indeed, the Shawnigan Lake area is blanketed with registered and non-registered waste dumps of various contaminated levels. If that is the case, we feel that we don't need another one down the street from our lake...especially one that would specialize in storing such material.

It's clear that a dump of this nature is needed; but not in a location that is the life-source for so many people, so much wildlife. We made our home here because of the lake. Like so many people in the Shawnigan Lake area, the lake is our spirit, our centre, our life. Please reject the South Island Aggregates Permit application.

Thank you.

Paul Jolicoeur & Dinah Clark

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I don't have the full document and I will ask SIA for a copy.

The original reclamation plan is fairly basic (i.e. fill the hole and achieve the end land use). When SIA made the application, they had thought the future usage of the site could be residential. For that reason, Mines had specified a residential land use. Please note that placement of Waste level soils in a controlled facility does not preclude such land use in the future. As an example, there are many properties in the Province that are developed above contaminated wastes, including the former Expo lands and Dockside Green.

Dave

Hi Dave

Thanks for the quick reply. That clears up a lot of confusion in my mind. It certainly was not clear from the presentation.

I think I understand the situation a little better now.

On a related issue, can you or SIA help me with a little documentation?

When SIA filed for its current mining permit for the quarry, they included a reclamation plan. Can you send me a copy of that plan?

Brent

On 18/07/2012 8:48 AM, feedback@activeearth.ca wrote:

Hi Brent,

There are two adjoining properties on Stebbings Road that are used in the operations of South Island Aggregates. The northern property referred to in your email has the address of 638 Stebbings Road and is loosely called the fill site. The quarry is situated on the southern lot and has the address of 460 Stebbings Road. The Waste Discharge application pertains only to the southern property (i.e. 460 Stebbings Road), not the 'fill site'.

638 Stebbings has been used for placement of clean fill for the last 5 or 6 years. Part of our discussion on Thursday raised the issue of contaminated fill having been placed on this site. If you recall, a contractor arranged for disposal of contaminated soil, but represented the material as being clean to SIA. This material has since been removed from the fill site.

No permit is required to bring in clean fill to a property, so there is no permit pertaining to this activity. The fill site is not presently being actively mined, but may at some point over the next 50 years. There are
Hi Dave

Looking at slide page 13, which is labelled Figure 4, immediately to the north of the quarry site (quarry outline in bold black line) is a cross hatched area labelled Clean Fill Site.

I don't recall any discussion of this site at the July 12 meeting.

Can you provide me some information on the permit you have for this site? Who permitted this clean fill site? Can I get a copy of the permit? Is this part of the permit of the quarry?

I don't recall any mention of a separate clean fill site during the meeting.

Brent

On 16/07/2012 3:51 PM, feedback@activeearth.ca wrote:

Please see attached copy of the slides.

Dave

Hi Dave

Thanks. Can you email me when they are available?

Brent

On 13/07/2012 12:22 PM, Feedback@activeearth.ca wrote:

We'll try to put the slides up soon. Might take a few days.

Thanks,

Dave

Hi

Can I get a copy of the slides from the meeting last night? Could not find a link on the web site.

Brent

Victoria, BC, Canada

Victoria, BC., Canada

Victoria, B.C., Canada
Dear Michael, Ross,

As discussed, please find information in relation to the South Island Aggregates (SIA) Proposal to Discharge Waste - 640 Stebbings Road. The application is referred to you as I understand that Stebbings Road is under your jurisdiction. South Island Aggregates (SIA) has applied for a refuse and water discharge permit under the Environmental Management Act as well as for an amendment of their current permit (Q-8-094) under the Mines Act.

Additional information can be found on SIA’s website (http://www.sialtd.ca/~sialtd/moe_home.html). SIA has given the mandate to Active Earth Engineering (AEE), an environmental engineering consulting firm, to prepare the Technical Assessment Report and coordinate the consultation process related to this application. Therefore, please do not hesitate to contact them for additional technical information. Contact details are provided on the SIA website but are summarized here as well:

SIA c/o:

Active Earth Engineering Ltd.

4083 Shelbourne Road

Victoria, BC, V8N 5Y1

Email: feedback@activeearth.ca

Additional details can be found online at http://www.env.gov.bc.ca/epd/waste_discharge_auth/intro.htm regarding the permit application process.

Please feel free to contact me as needed.

Luc Lachance

Environment

604-724-7891

Email: Luc.Lachance@gov.bc.ca

Ross Deveau

Environment

604-724-7891

Email: Ross.Deveau@gov.bc.ca
Regards,

**Luc Lachance, P.Eng**  
Sr. Environmental Protection Officer  
Ministry of Environment  
West Coast Region  
ph (250) 751-7245 fax (250) 751-3103  
2080A Labieux Road  
Nanaimo BC V9T 6J9

24-hour Spill/Environmental Emergency Reporting: 1-800-663-3456 (Provincial Emergency Program)  
24-hour RAPP (Report All Poachers and Polluters) tip-line: 1-877-952-7277 (Conservation Officer Service)

[www.gov.bc.ca/env](http://www.gov.bc.ca/env)
Thank you for your email.
The proposed facility is situated in an ideal environment. The design of the facility is such that the local ecology and community will be protected.

Regards,
Dave Mitchell
Active Earth Engineering

> Seriously, don't dump at Shawnigan. That is a terrible idea and could had far reaching and disastrous effects on the local ecology and community.
> Isn't there somewhere more appropriate that the waste could go to?
> ~ Loni Pierce
Thank you for your email.

Q - Please would you give me more information regarding all the places in BC that you are shifting contaminated soil.

A - South Island Aggregates is not a remediation contractor.

There are various facilities to receive contaminated soil in BC, a list of which is maintained by the Ministry of Environment.

Q - Also, would you please give me a list of places where contaminated soil has been placed in the last 10 years by your company.

A - As indicated above, South Island Aggregates is not a remediation contractor. This business currently runs an aggregate quarry in Shawnigan Lake.

Regards,
Dave Mitchell
Active Earth Engineering

> SIA Company
> Re: contaminated soil dumping
> Please would you give me more information regarding all the places in BC that you are shifting contaminated soil.
> Also, would you please give me a list of places where contaminated soil has been placed in the last 10 years by your company.
> Thank you,
> S. Lawrence
Ana.

Thank you for your email and your questions. I apologize for not providing an earlier response.

Please address the following questions:

Q - "how much effort has been put into locating alternative sites, at a secure distance from waterways and water sources?"

A - The Site location has been studied and found to be an ideal location to construct the proposed Facility. The design of the Facility is such that waterways and water sources are protected.

Q - What kind of protective sealing envelopes have been considered?

A - The liner design at the Site incorporates a multi-barrier approach with a base liner extending across the entire facility, and intermediate liner for each containment cell and a final cap liner for the finished grade. The materials to be used within each of these three liner systems is as follows:

Cap liner system:
- 1m min growing medium; overlyling
- 1m min low permeability clay till; overlyling
- 30 mil LLDPE synthetic liner; overlyling
- Geofabric.

Intermediate liner system:
- Leachate detection drainage blanket; overlyling
- 30 mil LLDPE synthetic liner; overlyling
- Geofabric.

Base liner system:
- Leachate detection drainage blanket; overlyling
- 40 mil LLDPE synthetic liner; overlyling
- Leak detection drainage blanket; overlyling
- 1m min of low permeability clay till; overlyling
- Native bedrock.

The LLDPE (Linear Low Density Polyethylene) liner will be sourced from a qualified supplier and the liner will meet all requirements of the Ministry of Environment.

Q - Have any baseline studies been done regarding ecosystem parameters (water quality, aquatic and terrestrial wildlife, rare, threatened or endangered species)?

A - Yes, baseline sampling of groundwater wells and creeks has been conducted.

Q - Have any tests been done to show the exact chemical composition of the waste proposed to be dumped?
A - The Facility is still in the proposal stage and no particular soils have yet been reviewed for acceptance.

The soils proposed for disposal at the Facility are termed ‘Waste Level’ soils, which is soil containing contaminants above the Contaminated Sites Regulation Industrial Land Use standards, but less than the Hazardous Waste standards.

Prior to accepting any soil, SIA would require that soil be characterized by the Generator Site Consultant in accordance with methods prescribed by the Ministry of Environment. Included in this characterization is a requirement that analytical testing is conducted by third party, accredited laboratory. The Generator Site Consultant will be required to provide original laboratory certificates and certify that soil is not Hazardous Waste and that it has been adequately characterized. SIA then conducts its own data quality check to verify the adequacy and accuracy of the provided information before accepting any material to its facility.

Please let me know if you would like further clarification.

Regards,
Dave Mitchell
Active Earth Engineering

> Dear South Island Aggregates,
> > I am writing to register my strong opposition to the ongoing practice of dumping contaminated soil and industrial waste in the Cowichan Valley, often at locations that put waterways at risk of pollution and contamination. Most especially, I wish to oppose your most recent project to dump a large quantity of contaminated soil near Shawnigan Creek and Shawnigan Lake.
> > I am concerned about the proposed dump on several counts. As a resident of Greater Victoria, who sources over half of my fruit and vegetable consumption from the Cowichan Valley (and eggs and poultry too!) the potential contamination of watersheds in the valley is of acute and immediate interest to me. Cowichan Valley is also a favourite destination for hiking and swimming for my family. While engaged in recreation, we drink the local water and eat the local produce.
> > Beyond my immediate personal concerns, the integrity of watersheds is key to the ecological health of ecosystems and ultimately to resilient, thriving communities. My grave concern is that the project (and the ongoing practice of which it is an instance) cannot but compromise this integrity.
> > Please address the following questions: how much effort has been put into locating alternative sites, at a secure distance from waterways and water sources. What kind of protective sealing envelopes have been considered? Have any baseline studies been done regarding ecosystem parameters (water quality, aquatic and terrestrial wildlife, rare, threatened or endangered species)? Have any tests been done to show the exact chemical composition of the waste proposed to be dumped?
> >
> > Sincerely,
> > Ana Simeon
> > 1703 B Fernwood Road
> > V1T 2Y2
I fought the dumping of contaminated soil in the Shawnigan watershed years ago in the aftermath of the Bamberton fiasco. I lived in the Cowichan Valley in those days. As it turns out, even down here in Victoria, we are appalled at this idea. That this issue is coming up again is an outrage. Water is our most precious resource. Clean healthy water is the core of our own health and the health of the planet.

We must not allow such a thing to be considered ever again.

Dorothy Field
1560 Gladstone Avenue
Victoria V8R 1S5
I am writing to ask Environment Minister Terry lake to support the Cowichan District's by-law to put a stop to the dumping of contaminated soil in the Shawnigan watershed. That provides drinking water for around 8000 residents. And it is time that we stop polluting the resources that we, as Canadians, depend on for our future health and the health of our children. I am concerned that this government seems to back business without regard for its citizens and the environment. Please stop and re-evaluate this issue.

Sincerely

Beth Falch-Nielsen
2295 Pandora Street, #401
Vancouver V5L1N6
(I was a resident of the Cowichan Valley for over 25 years.)

There are two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle.

A. Einstein
Short Sighted in the extreme. Water is the new oil perhaps that will will have some weight in the matter.

constructively,
G.Gardiner
I cannot imagine what slip from consciousness was required for you to think that dumping contaminated soil into Shawnigan Lake....or any lake or near residential or farming areas......is A-okay. I hope you will retrieve your scruples and create a protected and safe area for dumping contaminated soil......or better yet, stop using so many contaminated building supplies. Go green...er! Thanks, Jo Phillips Sooke B.C.
It has come to my attention that the Province of BC is neglecting or refusing to support the Cowichan District in their efforts, as expressed in their bylaws, to prohibit dumping of contaminated soil in their watershed. Consider a recent experience of my own - a small amount of oil-contaminated soil was found on my construction site. This triggered a massive expenditure of time and money to remove the soil from an area which is NOT in anyone's drinking watershed and to truck it great distances to be deposited elsewhere to contaminate a new location. To think that under the current toxic dump proposal at Shawnigan similar substances might very well be moved from locations where they threaten nobody to locations where they may contaminate a drinking watershed. It is the very height of absurdity. I urge you to support Cowichan District's anti dumping by-law, and further to actively find and promote less damaging methods and locations to clean up the messes and accidents of earlier generations and polluting industries.

Thank you,

Martin Hykin
Victoria BC

hobnob@shaw.ca
Hello,

I have heard about South Island Aggregates proposal to dump contaminated soil near Shawnigan Lake. Please do not. Water is precious and if the soil contaminants leached into the lake, it would be devastating.

Thank-you for reconsidering.

max

---

Subject: south island aggregates
From: "Max Urbanoski" <murbanoski@gmail.com>
Date: Tue, June 26, 2012 11:25 pm
To: feedback@activeearth.ca
Priority: Normal
Options: View Full Header | View Printable Version | Download this as a file | View Message details | View as plain text

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Take Address
Please do not dump contaminated soil in the Shawnigan Lake watershed, or any other watershed. Find a better place. It's your obligation to our collective need for clean water, yours, mine and everyone else's. We can't live without it.

Thank you for your consideration,
Cynthia Callahan-Maureen, Victoria BC
I am writing to you to plead with you to stop the proposed dumping of tonnes of industrial waste and contaminated soil into Shawnigan Lake. The Cowichan District is trying to protect our watershed. We have to become responsible to the environment and future generations.

Thanks you,
Susan-Rose Slatkoff
This is a case of the big, powerful and politically corrupt dumping all over the little guy! It's got to stop! Grow up and deal with your own contamination right in Victoria and don't let the innocent have to pay the price.

Richard Mortimer
Dear Mr. Jones,

Please find attached a scanned copy of the Ministry of Environment response to your letter sent on behalf of the Board of the Cowichan Valley Regional District, dated June 18, 2012. You will receive the original copy of our response by regular mail shortly.

Please distribute as appropriate.

Please do not hesitate to contact me as needed,

Best regards,

Luc Lachance, P.Eng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Nanaimo BC V9T 6J9

24-hour Spill/Environmental Emergency Reporting: 1-800-663-3456 (Provincial Emergency Program)
24-hour RAPP (Report All Poachers and Polluters) tip-line: 1-877-952-7277 (Conservation Officer Service)

www.gov.bc.ca/env

Please consider the environment before printing this email
Subject: Shawnigan watershed
From: "Chris & Pam Rowinski" <rowinskicp@comcast.net>
Date: Tue, June 26, 2012 6:50 pm
To: feedback@activeearth.ca
Priority: Normal
Options: View Full Header | View Printable Version | Download this as a file | View Message details | View as plain text

Dont dump nothin in the waters, ya hear? you do im liable to git'cha!

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The technical report is very close to being done and hopefully this week, if not early next week. I believe that we will post it to the SIA website as a PDF.

The consultation report is a work in progress as we have to document all consultation activities completed, including the proposed CVRD Public Meeting that has been talked about. The final consultation report would be prepared at the end of the consultation.

We do plan to provide a summary of Questions and Answers to the public in the meantime. As with the report, that would be posted to the SIA webpage. We have started the document, but still have a bit of work to do.

Dave

> Good morning Dave,
>
> How are those reports coming along - the Consultation Report and the final stage of the Technical Assessment Report?
>
> Regards,
> Barane
> ----- Original Message -----
> From: feedback@activeearth.ca
> To: "Barane" <annybub@shaw.ca>
> Priority: Normal
> Options: View Full Header | View Printable Version | Download this as a file | View Message details

>> FYI... Our intent is to post a Q&A Section on the website in the near future to address some of the FAQs. That will probably predate the Consultation Report.
>>
>> Dave
>>
>>> Dave,
>>> >> Okay, I have the billboard information now - thanks.
>>> >> The technical report in it's final stage will be forthcoming hopefully next week.
>>> >> And, I am on the list to receive the comments plus answers to them when your company collates that information.
>>> >> Think that's it for now.
>>> >> Will be in touch again after I receive your final reports.
>>> >>
>>> Thank you for all your assistance,
>>> Barane

----- Original Message -----
From: feedback@activeearth.ca
Good morning Dave,

Thank you very much for the info - much appreciated. There is a lot to digest here! One thing I would like to know more about is from the statement "Any interested individuals can SIGN UP to receive copies of the submitted comments and input summary directly". Where do I sign? Must have missed that part at the open house. Please let me know how I can obtain copies of the comments.

Thanks also for the update on the reports. I will wait for a copy of these instead of asking specific questions now.

Regards,
Barane

----- Original Message ----- 
From: <feedback@activeearth.ca>

To: "Barane" <annybub@shaw.ca>

Sent: Tuesday, June 05, 2012 11:28 AM
Subject: Re: SIA Open House May 31st

Barane,
The information that was printed off was just a printed version of the boards placed at the meeting, which can be accessed as follows:

WRT to the final report, we are expecting completion next week.

Regards,
Dave

Good morning again,

A hard copy or a PDF would be fine, either way could you please just send
possibly by the end of business today?

As for the technical studies, it has been my experience that "draft" and "final" technical assessment reports don't actually end up looking all that different. To that end, I would like a copy of the studies you have done to date even if they are in draft form. How long it will take to get the studies to the final stage is anyone's guess at this point therefore having the "draft" copies will at least provide baseline data.

Thank you,
Barane McCartney

----- Original Message ----- 
From: <feedback@activeearth.ca>

To: "Barane" <annybub@shaw.ca> 

Sent: Monday, June 04, 2012 8:56 AM

Subject: Re: SIA Open House May 31st

I am sure we can get you a hard copy of it as well, or even give you one of the two copies at the Open House. I'm just waiting to hear back from the person who prepared those and I will get back to you.

With respect to the technical studies... Reports submitted to MOE to date have been in draft form. The final technical assessment report is current being compiled and is expected to be complete in the coming weeks. A copy of this report can be made available to interested parties. We will get back to you shortly to arrange access to this information.

Dave

Good morning and thank you for your efforts.
In the interest of saving time and a little money I was hoping for a hard copy but a PDF will be fine.

Have you been able to look into getting me copies of all the studies?

Please keep me posted.

Regards,
Barane McCartney

----- Original Message ----- 
From: <feedback@activeearth.ca>

To: "Barane" <annybub@shaw.ca>

Sent: Saturday, June 02, 2012 3:35 PM

Subject: Re: SIA Open House May 31st

Got it. I know which package that was. I didn't prepare it, but I believe it was a printed version of all the billboards presented that night.
Good afternoon Mr. Mitchell,

Thank you for your prompt response and I apologize for not being more clear.
The brochure was laying on the table next to the entrance. The only information I wrote down was the title at the top and it included Q&As maps, etc.

Regards,
Barane McCartney

----- Original Message ----- 
From: <feedback@activeearth.ca >
To: "Barane" <annybub@shaw.ca >
Sent: Friday, June 01, 2012 8:29 AM
Subject: Re: SIA Open House May 31st

Barane,

Thank you for speaking with me last night and for your email.
I am not sure which brochure you are referring to. Was it one of the billboards?
With respect to copies of the technical reports, I will look into that and get back to you shortly.

Regards,
David Mitchell
Active Earth Engineering

Good Morning,

I spoke with your company representative Mr. David Mitchell last night at the SIA open house.
At his suggestion, I am asking for some additional information regarding this application.
First, would you please send me a hard copy of the large brochure that was displayed last night? The title at the top read "Public Information Meeting" and I believe it was produced by your company. My address is:
Ms. Barane McCartney
1388 Campbell Rd. RR# 1
Cobble Hill B.C.
V0R 1L6

Second, could you please email me copies of all the studies done
to date that were part of the complete Technical Assessment mandated by MOE?
This includes studies done on the surface water, hydrology, soil analysis, air quality, etc. I was told they were posted on the SIA website but Mr. Mitchell informed me I had to request them.

While the SIA/MOE/Active Earth representatives present last night were very cordial and helpful, the amount of information to digest was simply overwhelming. It will take time for myself and I'm sure other members of the general public to analyze and properly respond to the sheer volume of data. I hope we are afforded that time.

Also, I overheard many residents negatively commenting on the format of the meeting. It seems they were expecting more of a "question and answer" debate. I believe having a "public meeting" as opposed to an open house would have enabled these residents to obtain more accurate information than they came away with last night. One big issue in particular seems to revolve around the "monitoring process" of the contaminated soil itself as well as the groundwater leaving the site which then is allowed to flow into the tributary of Shawinigan Creek.

Regards,
Barane McCartney
Please see the attached correspondence from Mr. Warren Jones, CAO, CVRD.

If you require further information or clarification, please do not hesitate to contact me.

Allison Nelson
Executive Assistant
Cowichan Valley Regional District
175 Ingram Street, Duncan, BC V9L 1N8
e-mail: anelson@cvrd.bc.ca
Tel: 250.746.2502 / Toll Free: 1.800.665.3955 / Fax: 250.746.2513

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Take Address
Good morning David,

The MoE has received this message below. Please consider this message as part of the Public Consultation process. I cc’d this message to the feedback email as well.

I attended the open house at the Shawnigan Lake Community Centre and I thought I would send my concerns to you as per your request. I must admit looking at your business card I have a sense of hope with your division Environmental Protection. I do think that the business plan for South Island Aggregates makes all the sense in the world for them. They need to fill an enormous pit, which would be a very expensive endeavor and there is a need for disposal of waste fill. They have a need and so do many other business owners, financially it makes perfect sense.

I just can not get past the environmental risk of having a waste fill in our watershed. The Ministry of Environment does not have the resources to police the activity that the company must adhere to and from what I understand that would not be the mandate. South Island Aggregates would have to hire a company to ensure that every operator/vehicle showing up at the pit has been tested or is being honest with what materials they have. Human beings are historically greedy and take the path of least resistance. I do not believe for a second that untested hazardous waste will not be dumped there. When South Island Aggregate is finished with their pit they will have no interest in the long term implications of this site. Safety checks will be done, what happens if there is leakage, it is then too late for our watershed. The bladders that they intend to use, great plan but if there is a problem with the deepest bladder, then what.

This kind of waste needs to end up in an area that does not have populations and fresh water lakes close by. I have never written to anyone about an issue and have always tried hard to not have the attitude of "not in my backyard" but this issue is way too important to have a great business deal for a company trump the valid concerns of citizens and the environment.

Luc Lachance, P.Eng
Sr. Environmental Protection Officer

Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Richard,

Thank you for your email.

These terms have specific and legal definitions in the Contaminated Sites Regulation under the Environmental Management Act. A link to this is provided below, the definitions of which are provided in Section 1.

The short answer is:

- Residential: Suitable for usage on residential lands
- Industrial/Commercial: Suitable for usage on industrial/commercial lands
- Waste: Not generally suitable for usage on residential, industrial or commercial lands.

The Contaminated Sites Regulation provides soil standards for various contaminants (e.g., hydrocarbons, metals) under different land use categories (e.g., Residential, Industrial) in Schedules 4 and 5 (See link above).

These standards are derived by toxicologists using very conservative exposure scenarios to ensure human health and environmental safety. In many cases, further technical assessment and risk management can demonstrate that soils are safe for different uses, despite testing above scheduled standards. A good example of this would be the Dockside Green site in Victoria. In the case of that property, contaminated soils remain in the ground but are deemed to be safe to residents because humans cannot be exposed to the soils. For example, a clean soil cap and hard surfaces could prevent inhalation of dusts. This approach has been successfully used 100's, if not 1000's of times in BC.

I hope that answers your question. Please let me know if you would like further clarification.

Regards,

Dave Mitchell
Active Earth Engineering

> Good Morning
> > Regarding the SIA application could you please tell me what constitutes
> > "Residential, Commercial/Industrial, and Waste". There seems to be some
> > very divergent and speculative theories going around on the street
> > regarding what exactly makes up these different categories.
> > > Thank you
> > Richard Pope
For the most part, the billboards were prepared by us.

Yes, the vandalism is very unfortunate. Even more alarming is the arson. Hopefully the RCMP find the responsible party.

Are these items official CVRD positions? I believe the public meeting was a proposal from Bruce Fraser (an Area Director), while the proposed moratorium was a recommendation from a sub-committee that has yet to be voted on by the Board. Regardless of this, we don't have a position on the proposals referenced.

Dave

> Good morning Dave,
> 
> I will keep monitoring the SIA website - thanks for the head's up.
> As far as the package of info that you sent me the PDF of, was it prepared by your company?
> 
> There have been some "developements" lately with respect to SIA, the CVRD, and the surrounding community.
> The vandalism was highly unfortunate and those responsible need to be held accountable. I certainly hope the police can make an arrest.
> 
> As well, there is a request for a moratorium and a public meeting being brought forward by the CVRD.
> 
> Any thoughts on the 2 CVRD proposals? I know you cannot speak for either Michael Kelly or Marty Brock but I would like your opinion.

> Thanks Dave,
> Barane

> ----- Original Message ----- 
> From: <feedback@activeearth.ca>
> 
> To: "Barane" <annybub@shaw.ca>
> 
> Sent: Friday, June 08, 2012 10:53 AM
> Subject: Re: SIA Open House May 31st

>> FYI... Our intent is to post a Q&A Section on the website in the near future to address some of the FAQs. That will probably predate the Consultation Report.
>>
>> Dave
>>
>> Dave,
>> Okay, I have the billboard information now - thanks.
>> The technical report in it's final stage will be forthcoming hopefully next week.
>> And, I am on the list to receive the comments plus answers to them when your company collates that information.
>>
>> Think that's it for now.
Will be in touch again after I receive your final reports.

Thank you for all your assistance,

Barane

----- Original Message ----- 
From: <feedback@activeearth.ca >
To: "Barane" <annybub@shaw.ca >
Sent: Wednesday, June 06, 2012 8:47 AM
Subject: Re: SIA Open House May 31st

We are still collating the comments and questions from the Open House and trying to aggregate similar questions. We plan to provide a full response to each question as part of the consultation. We can put you on the list to have that information. In the meantime, the SIA website has an open discussion board to which we have been replying to questions.

http://sialtd.ca/~sialtd/online_discussion.html

There should be a new set of answers today to all outstanding questions.

I appreciate that there is a lot of information to digest. I am glad to see that some people are interested in reviewing it and looking at the details.

Thanks,

Dave

Good morning Dave,

Thank you very much for the info - much appreciated. There is a lot to digest here! One thing I would like to know more about is from the statement "Any interested individuals can SIGN UP to receive copies of the submitted comments and input summary directly". Where do I sign?

Must have missed that part at the open house. Please let me know how I can obtain copies of the comments.

Thanks also for the update on the reports. I will wait for a copy of these instead of asking specific questions now.

Regards,

Barane

----- Original Message ----- 
From: <feedback@activeearth.ca >
To: "Barane" <annybub@shaw.ca >
Sent: Tuesday, June 05, 2012 11:28 AM
Subject: Re: SIA Open House May 31st

The information that was printed off was just a printed version of the boards placed at the meeting, which can be accessed as follows:


WRT to the final report, we are expecting completion next week.
Good morning again,
A hard copy or a PDF would be fine, either way could you please just send possibly by the end of business today?

As for the technical studies, it has been my experience that "draft" and "final" technical assessment reports don't actually end up looking all that different. To that end, I would like a copy of the studies you have done to date even if they are in draft form. How long it will take to get the studies to the final stage is anyone's guess at this point therefore having the "draft" copies will at least provide baseline data.

Thank you,
Barane McCartney

------ Original Message ------
From: feedback@activeearth.ca
To: "Barane" <annybub@shaw.ca
Sent: Monday, June 04, 2012 8:56 AM
Subject: Re: SIA Open House May 31st

I am sure we can get you a hard copy of it as well, or even give you one of the two copies at the Open House. I'm just waiting to hear back from the person who prepared those and I will get back to you.

With respect to the technical studies... Reports submitted to MOE to date have been in draft form. The final technical assessment report is current being compiled and is expected to be complete in the coming weeks. A copy of this report can be made available to interested parties. We will get back to you shortly to arrange access to this information.

Good morning and thank you for your efforts.
In the interest of saving time and a little money I was hoping for a hard copy but a PDF will be fine.
Have you been able to look into getting me copies of all the studies?
Please keep me posted.

Regards,
Barane McCartney

------ Original Message ------
From: feedback@activeearth.ca
To: "Barane" <annybub@shaw.ca
Sent: Saturday, June 02, 2012 3:35 PM
Subject: Re: SIA Open House May 31st
Got it. I know which package that was. I didn't prepare it, but I believe it was a printed version of all the billboards presented that night. I will confirm with the person who prepared it and email a PDF of it over.

Dave

Good afternoon Mr. Mitchell,

Thank you for your prompt response and I apologize for not being more clear. The brochure was laying on the table next to the entrance. The only information I wrote down was the title at the top and it included Q&As, maps, etc.

Regards,

Barane McCartney

----- Original Message -----  
From: <feedback@activeearth.ca >
To: "Barane" <annybub@shaw.ca>
Sent: Friday, June 01, 2012 8:29 AM
Subject: Re: SIA Open House May 31st

Barane,

I am not sure which brochure you are referring to. Was it one of the billboards?

With respect to copies of the technical reports, I will look into that and get back to you shortly.

Regards,

David Mitchell

Active Earth Engineering

Good Morning,

I spoke with your company representative Mr. David Mitchell last night at the SIA open house. At his suggestion, I am asking for some additional information regarding this application.

First, would you please send me a hard copy of the large brochure that was displayed last night? The title at the top read "Public Information Meeting" and I believe it was produced by your company. My address
Ms. Barane McCartney  
1388 Campbell Rd. RR# 1  
Cobble Hill B.C.  
V0R 1L6  

Second, could you please email me copies of all the studies done to date that were part of the complete Technical Assessment mandated by MOE? This includes studies done on the surface water, hydrology, soil analysis, air quality, etc. I was told they were posted on the SIA website but Mr. Mitchell informed me I had to request them.

While the SIA/MOE/Active Earth representatives present last night were very cordial and helpful, the amount of information to digest was simply overwhelming. It will take time for myself and I'm sure other members of the general public to analyze and properly respond to the sheer volume of data. I hope we are afforded that time.

Also, I overheard many residents negatively commenting on the format of the meeting. It seems they were expecting more of a "question and answer" debate. I believe having a "public meeting" as opposed to an open house would have enabled these residents to obtain more accurate information than they came away with last night. One big issue in particular seems to revolve around the "monitoring process" of the contaminated soil itself as well as the groundwater leaving the site which then is allowed to flow into the tributary of Shawinigan Creek.

Regards,

Barane McCartney
Luc, thank you for copying us on your email response.

Wendy, your comments have been received and will be included within the Public Consultation report that will go to the Ministry.

If you have any specific questions that you would like to have answered by us, please let us know what they are.

I would also like to draw your attention to the Online Discussion on the SIA webpage which provides answers to a number of questions provided to us via that forum:

http://sialtd.ca/~sialtd/online_discussion.html

In addition to the above, our intent is to post a Q&A Section of the website in the near future that provides answer to Frequently Asked Questions.

Thank you,
Dave Mitchell
Active Earth Engineering

Dear Wendy,

Thank you for your questions regarding SIA's applications.

As you may know, SIA's application is in preparation. Technical information has been presented to the Ministry of Environment (MoE) and additional information has been requested to SIA to complete their application. MoE comments to the proponent includes a wide range of aspects, including the points you have mentioned in your message below.

All risks are being assessed as part of the adjudication process.

SIA has proposed a comprehensive water and groundwater monitoring program in their application. The preliminary monitoring sites include the discharge point, on and off site monitoring wells as well as upstream and downstream sites along relevant drainage systems. Sampling frequency will be used at the proposed range of continuous monitoring to annual monitoring. BC Water Quality Guidelines (WQG) and Contaminated Sites Regulation fresh water Aquatic Life standards will be applied to the proposed water discharge.

In order to obtain detailed information on the monitoring program proposed by SIA, I suggest that you can contact their consultant, Active Earth Engineering at feedback@activeearth.ca as you already did.

Lastly, results from the monitoring program will be available to the public on request.

Please feel free to contact me as needed if you have any additional questions,
Kind regards,

Luc Lachance, P.Eng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Nanaimo BC V9T 6J9

24-hour Spill/Environmental Emergency Reporting: 1-800-663-3456
(People's Emergency Program)
24-hour RAPP (Report All Poachers and Polluters) tip-line: 1-877-952-7277
(Conservation Officer Service)
www.gov.bc.ca/env

Please consider the environment before printing this email

From: Brent and Wendy Davis [mailto:wbdavis@shaw.ca]
Sent: Tuesday, June 5, 2012 2:24 PM
To: Lachance, Luc ENV:EX
Cc: Feed Back
Subject: Contaminated Soil Dumping

Mr. Lachance,

I am writing as a very concerned citizen of Shawnigan Lake. My concern is the contaminated soil dumping in the Shawnigan Water shed. My understanding is that the water will be tested once a year. This is in my opinion unacceptable. I think that an independent water specialist should be hired right now to tell us what is happening to the water in Shawnigan Creek at this time. We are not just talking about drinking water, but fish habitat and other wild life as well. The resulting levels should be made public.

Can it be proven that the contamination of this site will not in the future show up in drinking wells, where the water sometimes comes from miles away?

Contamination may take years to get rid of. If this water shows any sign of it now, what is the alternative drinking source?

Is there absolute proof that the contaminated soil is not leaching into the Victoria watershed as well? Therein lies a whole other can of worms, so to speak.

I would think it prudent to re-examine this whole situation thoroughly, at this time, than to have regrets and recriminations down the road.

Looking forward to your reply,

Wendy Davis
As directed by Mr. Allan McCammon (Ministry of Environment-CVRD Regional Services Committee Meeting –May 23, 2012) and South Island Aggregates (SIA) website I am providing my feedback in regards to SIA’s permit application to expand its quarry operation to include storing 5 million tons of contaminated soil in the headwaters of the Shawnigan Lake drinking-water watershed.

I do not support this permit application.

My comments include:

The Federal Government recently reported that over 22,000 known contaminated sites have been left by previous generations for our generation to contend with. It is increasingly clear that we Canadians are now required to develop a strategic plan, if we are to co-ordinate the action required to manage this tsunami of contaminated soil, both on our island and across Canada.

What are we going to do with the decisions that we are faced with?

Are we going to learn from our past? Are we going to recreate the past and leave an additional legacy of more contaminated soil sites? In this case, 5 million tons of contaminated soil stored in the headwaters of the Shawnigan Lake drinking-water watershed for present and future generations to contend with.

It seems to me that now is the time for our Provincial Government, Ministry of Environment and Ministry of Energy & Mines, to work closely together with our Local Government (CVRD) and Community Members to develop a cohesive plan for managing the relocation, storage and remediation of contaminated soil, whatever level of contamination.

The location of these contaminated soil dumping, storage and remediation sites requires thorough planning by all key stakeholders to ensure the provision of maximum service for surrounding locations throughout all of British Columbia AND be assessed and situated in locations that have absolutely zero risk of contaminating drinking-water watersheds.
Consideration for the location of these contaminated soil dumping, storage, and remediation sites needs to ensure that the present and future generations of community members’ quality of life is protected. We Canadians consider this our basic right. We consider the protection and purity of drinking-water watersheds, and of our drinking water, a right and a responsibility.

Our Local Government, in relationship with Community Members, will monitor and ensure the health and wellness of our community. We, after all, are the ones who live here.

Are we fated to continue to make the same mistakes as those before us? Will we learn from their mistakes? Will our government learn from these mistakes? Will our Provincial Government work with our Local Government, the Cowichan Valley Regional District (CVRD), and Community Members to make the right decision for our community?

We are asking the Ministry of Environment to work with us, to collaborate with us, and to make informed decisions that are right for our community.

Minister Terry Lake has agreed to work with us in this way.

We are requesting this of you as well.

Thank you,

Dr. Mackenzie Brooks

(250) 888-0517

Click here to learn more about my workshop offerings
Mr. Lachance,

I am writing as a very concerned citizen of Shawnigan Lake. My concern is the contaminated soil dumping in the Shawnigan Water shed. My understanding is that the water will be tested once a year. This is in my opinion unacceptable. I think that an independent water specialist should be hired right now to tell us what is happening to the water in Shawnigan Creek at this time. We are not just talking about drinking water, but fish habitat and other wild life as well. The resulting levels should be made public.

Can it be proven that the contamination of this site will not in the future show up in drinking wells, where the water sometimes comes from miles away?

Contamination may take years to get rid of. If this water shows any sign of it now, what is the alternative drinking source?

Is there absolute proof that the contaminated soil is not leaching into the Victoria watershed as well? Therein lies a whole other can of worms, so to speak.

I would think it prudent to re-examine this whole situation thoroughly, at this time, than to have regrets and recriminations down the road.

Looking forward to your reply,

Wendy Davis
Thank you for your email Mary and for meeting with us. I am glad to hear that you feel our dialogue has been open.

I don't believe you were at the meeting last night, but we had a very large turnout of people, beyond what I would have guessed. I feel that we had some very good discussions with the local community and it seems most felt the information provided was well presented, whether or not they supported the application. We received a lot of feedback, which we will be going through over the coming days.

As to your questions, we will provide a response to you when we are able. I can't guarantee a timeline given that we have had many questions in the last 24 hours.

With respect to government contaminated sites, I believe the report you cite only relates to federal government sites. In addition to Federal sites, all other levels of government and First Nations are facing these same issues, including the CVRD. Having the proposed facility would help to reduce many of these liabilities in the South Island Region, which would enable more sites to get cleaned up. We consider that this will produce a net environment benefit to the people and environment in the Region. It's also worth noting that many stakeholders affected by contaminated sites are just regular people or small businesses. It could be your neighbour with a heating oil tank, or a small family that ran a dry-cleaner their whole life, not realizing the potential liabilities. As a point of interest, I ran a search on Registered sites within 5km of the Community Hall and 20 turned up. Of course, there are many more that have yet to be listed.

I think we might try to create an FAQ section of the SIA website to quickly address some of the more frequent and common questions.

Regards,
Dave Mitchell
Active Earth Engineering

---

Dear Representatives of Active Earth,

Thank you for being open to dialogue and for hosting me on two separate occasions to discuss the South Island Aggregates (SIA) application for authorization to discharge waste at 460 Stebbings Road, Shawnigan Lake, BC. More specifically, the application for Amendment to the Permit approving the Mine Plan and Reclamation Program (Permit Q-8-094) under the Provision of the Mines Act being made by SIA.

Even with the information I have received from you and the website to date, I still feel I can NOT support your application.

Firstly, I am concerned about the nature and scope of this application for the specific location.

I do believe that you are trying to do your best but I am still concerned that it may not be enough to protect the next generations from a large liability for clean up in the future. It seems as though the idea is to shuffle the location of this problem, the contaminated waste soil from numerous locations to one, in the hope that it is forgotten or does not
raise its ugly head until the far away future.

I realize you have tried to provide reassurances but with the recent news of issues across Canada with contaminated sites it seems this will not be resolved but the issue put off for our children or grandchildren to deal with.


OTTAWA — The federal government is facing $7.7 billion in environmental liabilities for approximately 22,000 federal contaminated sites across the country and a funding shortfall to clean up the polluted lands, the commissioner of the environment and sustainable development warned Tuesday in a new report.

I am also concerned regarding the drinking water and the short and long term plans for monitoring, 20 - 50 years does not seem sufficient as the soil will remain contaminated forever. Shouldn't monitoring be provided for as long as the soil stays in this location? This risks are not acceptable to me.

I am worried about the cost to tax payers in regard to this liability as well as the ongoing costs to our tax payers regarding the road maintenance or potential site clean up. If the area was incorporated the applicant would have to at least contribute to road repairs. I feel Regional Districts are left powerless by the current legislation, unable to represent on behalf of residents (rural tax payers) or to ensure proper compensation for damages directly to the community impacted.

So far, I have not heard or read about any emergency or contingency plans? What if there is an accident on the way to the site and material is spilled in a sensitive area or for that matter on site? What plans will be put in place for a potential emergency or issue? I feel a plan is necessary for "if this engineered facility or soil relocation process fails".

How much money would really be needed to clean up the site and the watershed if there is a problem? Is this money being set aside by SIA and for how long? What could be the health implications to residents if this waste material did impact the aquifer?

I am not confident that the criteria for closing a contaminated site is even sufficient or that there is an acceptable set of criteria from the federal perspective.

The neighbours of SIA do and will have to endure noise, dust and air pollution as well as the danger of mixing with this industrial traffic on our roads, I do feel it takes away from their quality of life. There should be compensation for them. I do believe that this application is and will have a negative impact on property values in our area and our quality of life.

I am also very anxious about this issue being politicized before a provincial election and the damage it could cause our community.

It seems as though there is a lot of confusion in our community about how to be heard by our provincial government regarding this application. It would be appreciated if this was clarified and the public consultation and notification process was extended beyond the 30 day minimum. Most people seem to feel uncomfortable sending their information to Active Earth as they see them as contracted to SIA. Most people do not seem to understand that Active Earth is beholden to their professional association and the government not just to SIA.

Thank you for being approachable and open to reasonable dialogue. I appreciate that the owners of SIA contribute not only from this business but from their other enterprises to our community.

I look forward to your response.

Regards,
Mary Ann Watson
250-217-1491
Linnea,

Thank you for your feedback. We will include this in our final consultation report.

Regards,
David Mitchell
Active Earth Engineering

> I do not agree with putting a contaminated fill site in our drinking water, water shed. I can’t even believe that anybody is considering this. I am absolutely against this. I have lived in Shawnigan lake all my life, it is the most beautiful place on the island, and let’s not ruin that. I say NO to the SIA fill site.
Dr. Brooks,

Thank you for your email and providing your feedback and questions.

I completed a quick review of your email and it appears that most or all of your questions were addressed to the Province. Please confirm if you would like a response from us regarding any questions, or portions thereof, that we are able to answer.

Also, I wanted to follow up on my prior email regarding our offer to sit down with you to solicit further feedback and questions. If this is of interest, please let us know and we can line something up.

Thanks,
Dave Mitchell
Active Earth Engineering

Hello,

As directed by South Island Aggregates (SIA) website and Mr. Allan McCammon (Ministry of Environment-CVRD Regional Services Committee Meeting, May 23, 2012) I am e-mailing to uncategorically state that I DO NOT SUPPORT South Island Aggregate’s application to expand its’ quarry operations to include operating as a Contaminated Soil Remediation and Storage Site in the Headwaters of Shawnigan Lake’s Drinking Watershed.

Actually, I find it rather inconceivable that I am having to even engage in this conversation with you.

The questions I have include:

1. How is it even possible that we, as residents in this community, are having to join forces against our own Provincial Government, the Ministry of Environment, Environmental Protection, to try to STOP you from saying, ‘yes’ to a business permit application to store 5 million tons of contaminated soil and fill in the Shawnigan Lake Drinking Watershed for present and future generations? The Federal Government’s recent media release reported that there are now over 22,000 known contaminated sites across Canada which were approved by experts and government officials as being sustainably safe. Yet, here we are – the next generations - having to deal with this tsunami of contaminated soil and fill left by previous generations to be ‘managed’ by the current generations. Are we doomed to recreate our past, rather than learn from it?

2. What contaminated soil remediation and storage dump sites currently exist in the Capital Regional District’s Drinking Watershed?

3. Would you permit this application to be considered in the Capital Regional District’s Drinking Watershed?

4. How many applications for contaminated soil remediation and storage sites have been made and approved in the Capital Regional District’s Drinking Watershed?
5. How come it is acceptable to our Provincial Government, the Ministry of Mines, and the Ministry of Environment that Cowichan Valley continues to be the dumping ground for Victoria’s contaminated soil and fill?

6. How is it possible that contaminated and brown sites in Victoria are cleaned by sending your contaminated fill to the Cowichan Valley?

7. How is it environmentally responsible to clean one contaminated site by creating other contaminated sites?

8. How come our local government (CVRD) has no say over what happens in our drinking watersheds in the Cowichan Valley? How is this even possible?

9. What is the business practice and quality control history for South Island Aggregates with the Ministry of Environment?

10. Does South Island Aggregates have any past and current environmental violations?

11. If yes, what are these citations?

12. If yes, how do members of the public access the record of these violations?

I look forward to your response.

Thank you,
Dr. Mackenzie Brooks

Dr. Mackenzie Brooks
(250) 888-0517
mailto:mackenzie@mackenziebrooks.com
www.DrMackenzieBrooks.com
Click here to learn more about my workshop offerings
Hi Shawn,

Here is the more extensive answers:

Surface water bodies in the vicinity of the proposed facility include Shawnigan Creek and its tributaries. Shawnigan Creek flows through the legal parcel to the east of the Proposed Facility. All surface water shallow seepage and potential leachate will be managed within the footprint of the existing Quarry, treated, tested, and discharged a near the western property line. Surface water quality in the area has been evaluated as part of the permit application process in order to establish baseline conditions. These conditions would be compared to regular monitoring results to evaluate potential impacts during the life of the Proposed Facility. The Proposed Facility would include paved areas for managing and treating soils, with surface water diversion and leachate control measures including berms, trenches, catch basins, holding ponds, treatment vessels and monitoring locations. The Proposed Facility design incorporates redundant water treatment capabilities and water monitoring locations prior to discharge. The Proposed Facility design also minimizes the production of leachate through the use of intermediate soil covers at active management and treatment areas. The encapsulation cells are also designed to eliminate the creation of leachate. Any leachate generated would be collected, treated and tested prior to discharge.

With respect to air quality and vapours potentially generated from the Proposed Facility, vapour management at the Proposed Facility has been considered at great length. It is an important issue in terms of worker health and safety as well as potential impacts to the local air shed. SIA, through Active Earth, subcontracted the services of a Toxicologist, specializing in Air Dispersion Modelling in order to try to predict air quality, both within the confines of the Proposed Facility, as well as off-Site. We have proposed to establish a network of automated air monitoring stations, which will automatically assess air quality at a pre-determined frequency. This data will be used to determine if and when mitigation measures are implemented to reduce vapour contaminant concentrations to acceptable levels as outlined in the Contaminated Sites Regulation. Proposed mitigation measures may include covering soil stockpiles, limiting the amount of soil containing volatile contaminants (e.g. Benzene), and a vapour capture and treatment system.

Thank you for your questions. If you would like further details or clarification, please let us know.

Regards,

David Mitchell, P.Eng., CSAP

160 – 2250 Boundary Road
Burnaby, BC, V5M 3Z3
phone 778.866.0064
fax 778.737.3488
email david.mitchell@activeearth.ca
Subject: RE: Feedback on SIA MOE Application

Hi Shawn,

Thank you for your email and your questions / concerns.

The quick answer is that we have definitely considered and addressed these items. I will send your questions to staff in our firm who were responsible for each of those tasks to provide a more detailed answer and get back to you.

Thank you for keeping an open mind and being involved.

Regards,

David Mitchell, P.Eng., CSAP

Burnaby, BC, V5M 3Z3
phone 778.866.0064
fax 778.737.3488
email david.mitchell@activeearth.ca

Hello,

The application states the Shawnigan Creek runs directly through the property? Does this not pose significant risk not only locally, but further down stream?

Obviously there will be venting and odour problems, what will be done in this regard to control this and what study has been done on air quality for local residents?

Look forward to your reply and I retain an open minded attitude towards your application.

Sincerely,

Shawn Silva
Shawnigan Lake, B.C.
(250)743-5595
Subject: RE: Feedback on SIA MOE Application

Date: Friday, 25 May, 2012 9:53:56 AM Pacific Daylight Time

From: David Mitchell
To: smsilva@shaw.ca
BCC: feedback@activeearth.ca

Hi Shawn,

Thank you for your email and your questions / concerns.

The quick answer is that we have definitely considered and addressed these items. I will send your questions to staff in our firm who were responsible for each of those tasks to provide a more detailed answer and get back to you.

Thank you for keeping an open mind and being involved.

Regards,

David Mitchell, P.Eng., CSAP

Burnaby, BC, V5M 3Z3
phone 778.866.0064
fax 778.737.3488
email david.mitchell@activeearth.ca

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Look forward to your reply and I retain an open minded attitude towards your application.

Sincerely,
Shawn Silva
Shawnigan Lake, B.C.
(250)743-5595
Jennifer,

Thank you for your email and providing your feedback and questions.

We will respond to your questions as quickly as we can and get back to you. At this point, that's looking to be early next week.

It looks like your email was intended to be copied to the same parties as Dr. Brooks. I don't see that in the email header, so I thought I would mention this so that you can double check to ensure your email was sent to all parties you wanted it sent to, rather than to just this email address.

Regards,
Dave Mitchell
Active Earth Engineering

> Greetings:
> 
> Firstly, thank you to Dr. Brooks for including me in her letter with respect to NOT SUPPORTING SIA's application to include operating as a Contaminated Soil Remediation and Storage Site on Stebbings Road in the Shawnigan Lake Watershed District.
> I Do Not Support this application.
> 
> I have lived on South Shawnigan Lake Road for 25 years. My home was established before both SIA quarries were in place, and MIA Quarry was in place. To arrive at any quarry sites, the trucks must travel past my residence.
> 
> With respect to the remediation site application:
> Does this now mean that at least 1200 trucks full of contaminated fill-soil will be moving past my residence each month? This is a low estimate based on how many trucks with pups use South Shawnigan Lake Road and travel past my residence per month at this time.
> 
> What kind of air pollution and noise pollution will these massive trucks continue to contribute to MY way of life?
> 
> How will the Government and the Company monitor my health and my well being from the contaminants, from the quarries, and trucking?
> 
> How will the Government be monitoring the pollutants from these vehicles?
> 
> What or how does the Government plan on monitoring the sites so that the Hours of Work and other regulations are adhered to?
> 
> I thank the Company for hosting an "Open House" and I trust that this will be done in a professional manner without interjections from office staff.
> In the future, however, I would respectfully suggest to the Ministries that a Public Meeting would be more beneficial so that similar questions may be asked and answered. In this way, there may be an appearance of "transparency".
>
I look forward to your replies.

Sincerely

Jennifer Young

----- Original Message -----
From: Dr. Mackenzie Brooks
To: Active Earth ; Allan McCammon ; Bill Routley ; Cliff Evans ; Dave Coughlin ; Doug Walton ; Dr. Bruce Fraser ; Dr. Mackenzie Brooks ; Gerry Giles ; Jennifer Young ; John Ward ; Joseph E.L. Gollner ; Loren Duncan ; Mark Kissinger ; Mary Ann Watson ; Mike MacFarlane ; Mike Walker ; Peter Pauwels ; Randy Alexander ; Richard Dekelver ; Shawnigan Creek Protection Association ; Terry Lake ; Tom Anderson ; Vicki Bridge
Sent: Tuesday, May 29, 2012 5:04 PM
Subject: I DO NOT SUPPORT

Hello,

As directed by South Island Aggregates (SIA) website and Mr. Allan McCammon (Ministry of Environment-CVRD Regional Services Committee Meeting, May 23, 2012) I am e-mailing to uncategorically state that I DO NOT SUPPORT South Island Aggregate’s application to expand its’ quarry operations to include operating as a Contaminated Soil Remediation and Storage Site in the Headwaters of Shawnigan Lake’s Drinking Watershed.

Actually, I find it rather inconceivable that I am having to even engage in this conversation with you.

The questions I have include:

1. How is it even possible that we, as residents in this community, are having to join forces against our own Provincial Government, the Ministry of Environment, Environmental Protection, to try to STOP you from saying, ‘yes’ to a business permit application to store 5 million tons of contaminated soil and fill in the Shawnigan Lake Drinking Watershed for present and future generations? The Federal Government’s recent media release reported that there are now over 22,000 known contaminated sites across Canada which were approved by experts and government officials as being sustainably safe. Yet, here we are - the next generations- having to deal with this tsunami of contaminated soil and fill left by previous generations to be ‘managed’ by the current generations. Are we doomed to recreate our past, rather than learn from it?

2. What contaminated soil remediation and storage dump sites currently exist in the Capital Regional District’s Drinking Watershed?

3. Would you permit this application to be considered in the Capital Regional District’s Drinking Watershed?

4. How many applications for contaminated soil remediation and storage sites have been made and approved in the Capital Regional District’s Drinking Watershed?

5. How come it is acceptable to our Provincial Government, the Ministry of Mines, and the Ministry of Environment that Cowichan Valley continues to be the dumping ground for Victoria’s contaminated soil and fill?

6. How is it possible that contaminated and brown sites in Victoria are cleaned by sending your contaminated fill to the Cowichan Valley?

7. How is it environmentally responsible to clean one contaminated site by creating other contaminated sites?

8. How come our local government (CVRD) has no say over what happens in our drinking watersheds in the Cowichan Valley? How is this even possible?

9. What is the business practice and quality control history for South...
10. Does South Island Aggregates have any past and current environmental violations?

11. If yes, what are these citations?

12. If yes, how do members of the public access the record of these violations?

I look forward to your response.

Thank you,
Dr. Mackenzie Brooks

Dr. Mackenzie Brooks
(250) 888-0517
mailto:mackenzie@mackenziebrooks.com
www.DrMackenzieBrooks.com

Click here to learn more about my workshop offerings
Thank you for your email Mary Ann.

The Ministry of Environment contact is as follows:

Luc Lachance, P.Eng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Nanaimo BC V9T 6J9

Active Earth is also happy to receive any feedback and answer any questions you may have or provide you with further information.

Regards,
Dave Mitchell
Active Earth Engineering

Who is the Ministry of Environment contact for this application?
To everyone who signified their interest in receiving updates on the file mentioned in the title above,

As you know, South Island Aggregates (SIA) has applied for a refuse and water discharge permit under the Environmental Management Act as well as for an amendment of their current permit (Q-8-094) under the Mines Act. In order to make people aware of their proposal, SIA is required to post a sign (billboard type) at the entrance of the site and place adds in the BC Gazette and one or more newspaper relevant to the area. These requirements are prescribed under the Public Notification Regulation. In addition, the Ministry of Environment requested specific information to be included on the billboard and on the ads.

At this stage, I was told that the billboard was fabricated and was now ready to be installed. The ads will be published in the BC Gazette on May 10 and in the News Leader on May 9.

Additional information can now be found on SIA’s website (http://www.sialtd.ca/). You will see a link to the application on their home page, top right.

SIA has given the mandate to Active Earth Engineering (AEE), an environmental engineering consulting firm, to prepare the Technical Assessment report and coordinate the consultation process related this application. Therefore, please do not hesitate to contact them for additional technical information. Contact details are provided on the SIA website but are summarized here as well:

SIA c/o:
Active Earth Engineering Ltd.
4083 Shelbourne Road
Victoria, BC, V8N 5Y1
Email: feedback@activeearth.ca

In addition to the May 31 open house, SIA will be meeting with their immediate neighbours this evening, Tuesday
May 8. That being said and as mentioned on SIA’s website, you can also request a special meeting with the proponent (SIA) and AEE either through the MoE or by contacting AEE directly.

I have attached the Permit Application Process Flow Sheet for your information. Additional details can be found online at http://www.env.gov.bc.ca/epd/waste_discharge_auth/intro.htm

Please feel free to contact me throughout this process.

Best regards,

Luc Lachance, P.Eng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
ph (250) 751-7245 fax (250) 751-3103
2080A Labieux Road
Nanaimo BC V9T 6J9

Please consider the environment before printing this email
BC Pollution Free

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APPENDIX E
Q&A VIA MOE
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<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>Do you have background water quality data for the Shawnigan Creek upstream and downstream of the site? What are the sampling locations, who will be conducting the sampling and which analysis will be requested?</td>
<td>Yes. Sampling locations are included in the TAR. A qualified professional will be engaged to undertake all monitoring for a wide range of chemical parameters. This will be specified in the permit.</td>
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<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>How can SIA be confident that soil coming into the facility will not exceed criteria/will not be HW?</td>
<td>Prior to accepting any soil, SIA would require that soil be characterized by the Generator Site Consultant in accordance with methods prescribed by the MOE. Included in this characterization is a requirement that analytical testing is conducted by third party, accredited laboratory. The Generator Site Consultant will be required to provide original laboratory certificates and certify that soil is not hazardous waste and that it has been adequately characterized. SIA then conducts its own data quality check to verify the adequacy and accuracy of the provided information before accepting any material to its facility.</td>
</tr>
<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>Does SIA expect to import contaminated soil from BC mainland or from the United States?</td>
<td>No.</td>
</tr>
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<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>How will SIA ensure that the liner / cells are water tight, especially along welded seams? Will there be QA/QC control during construction of the cells and liners?</td>
<td>The liner will be installed by experienced professionals according to prescribed manufacturer installation methods. This includes overlapping and welding seams.</td>
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<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>What is the life expectancy of the liner?</td>
<td>The liner system is designed to last indefinitely.</td>
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<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>Have you considered third party monitoring data verification?</td>
<td>All monitoring will be undertaken by third-party, qualified professionals in accordance with permit requirements. All data is reported directly to MOE for review and verification.</td>
</tr>
<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>Have you considered third party certification such as ISO?</td>
<td>No.</td>
</tr>
<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>What is the potential for blasting to impact integrity of any contaminated soil storage works?</td>
<td>The proposed facility is designed to withstand a 1:200 year seismic event. Blasting will not affect the proposed facility</td>
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<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>Will blasting impact the containment cells during coincident operation of the mine?</td>
<td>No.</td>
</tr>
<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>What is the duration of the facility operation?</td>
<td>The mine life is anticipated to be 50 years. The facility will operate as long as there is a market-demand, or until the mine is closed, which ever comes first.</td>
</tr>
<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>Have you considered incidents such as a haul truck tipping over upstream or into Shawnigan Creek. What is your emergency response plan if something like this happens?</td>
<td>An Emergency Response Plan has been prepared as an amendment to the existing Mine Emergency Response Plan. The Plan envisions all such potential incidents, no matter how unlikely.</td>
</tr>
<tr>
<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>Is there any possibility of an accidental discharge to Shawnigan Creek (i.e. oil, chemicals, soils)? What are the scenarios and how</td>
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Page 1
### Appendix E – Summary of Questions & Responses Communicated via MOE

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<td>would SIA respond to those?</td>
<td>Both groundwater and surface water quality will be monitored regularly as part of the permit requirements. Monitoring points include those situated up-gradient/up-stream, on-Site, and down-gradient/down-stream. Monitoring results will be compared to baseline conditions established prior to the commencement of operations.</td>
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<td>Many water extraction licenses are in place along Shawnigan Creek and in Shawnigan Lake, how will water quality be monitored to ensure individual drinking water quality is maintained?</td>
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<td>Concerns about nutrient discharge levels relative to the blasting operations</td>
<td>Nutrients were monitored in surface water and groundwater as part of the baseline assessment. No detectable levels were found.</td>
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<td>May 31, 2012</td>
<td>Open House via MOE</td>
<td>What happens after the facility is closed?</td>
<td>The TAR includes a comprehensive decommissioning plan. Outputs from the proposed facility will be monitored in perpetuity at a frequency to be determined by the conditions of the permit.</td>
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<td>Have future generations been considered?</td>
<td>The proposed facility will result in a net environmental benefit to the South Island Region by facilitating the clean up of many contaminated sites which are currently impacting human health and the environment. We are confident that future generations will respect that we undertook to responsibly manage the previous generations’ legacy of creating contaminated sites.</td>
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<td>Why is this facility needed? Why here?</td>
<td>The Site being proposed is owned by SIA and is subject to an existing Mines Act Permit which requires that it be reclaimed. SIA has identified a need for viable, responsible contaminated soil disposal options within the South Island Region.</td>
</tr>
<tr>
<td>August 19, 2012</td>
<td>Emailed Letter to MOE</td>
<td>I am writing this letter to strongly protest the approval of the SIA application. It is most unfortunate that historical processes for such application requests could force a decision by the Statutory Decision Maker of the Ministry of Environment - an authority whose spirit is assumed to promote the well-being of our province’s environmental needs WHILE considering their human impact - could support such an application when modern day needs, moral considerations, and simple logic support its rejection. In fact, the logical and moral arguments surrounding this issue work ONLY to promote the protection of this community’s watershed, which supplies domestic water to approximately 5000 citizens. Do we really live in a world where these considerations...</td>
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<td>and the well-being of thousands are trumped by the legal rights of business owners and the fear of costly litigation?</td>
<td>The creation of a secure, engineered, monitored soil disposal facility will in fact serve to protect this, and other watersheds, where hundreds, if not thousands, of contaminated sites are currently impacting human health and the environment.</td>
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<td>Using logic only, I would argue that such watersheds ought to be protected - period. Additionally, representatives of the Ministry of Environment ought to work harmoniously and collaboratively with local government authorities - whom I understand hold no legal decision making power in this process - to proactively determine appropriate locations for such an operation rather than consider applications made in reactive and accidental opportunistic conditions. No one can deny the need for such facilities; however their location and long-term implications ought to be the primary consideration, NOT an application process that promotes an outcome of enormous financial wealth to the business owners, (a vast minority) and leaves a community (the vast majority) forever at risk of water contamination and a diversity of health problems. Having attended the public meeting surrounding the SIA application on July 12, 2012, the issue of the process evidently underlay the justification of its consideration. I listened to those who presented with an open mind and heart. I tried to believe the engineers who attempted to guarantee working conditions of their design to contain the proposed contaminants - engineers who obviously hold a bias based on whom they were hired to create such a design - and therefore, permanently sustain the water source in which this community relies. However, the reality is that human error, earthquake, climate change, and a variety of other potentials will at some point cause imposition, if not failure to their system. From where I sat, it was painfully apparent that the two engineers were very uncomfortable as they attempted to divert our attention to the mass of bedrock surrounding the facility, which they argued will never allow for water contamination. The reality is this: there are two water sources that feed directly into Shawnigan Lake, Shawnigan Creek to the east and a tributary to the west, and both run dangerously close to the borders of the SIA facility. Surface water will be diverted where</td>
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<td>The creation of the facility will promote the cleanup of contaminated sites, and will discourage unregulated dumping by providing a cost-effective alternative.</td>
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<td>Local government officials (i.e. CVRD Directors) were consulted early in the application process. They expressed their support for the application (both at a political and staff level) and indicated that the proposed facility was very much needed in the region. The CVRD itself has a legacy of contaminated sites which are currently impacting human health and the environment. One major hurdle standing in the way of addressing these sites is the cost associated with trucking contaminated soil up-Island to the only available facility in Strathcona. Not only is this existing facility costly, it is located within a highly productive, highly vulnerable aquifer and watershed (Vancouver Island – East Rivers), located less than 1km from Comox Lake, with unconfined groundwater at less than 6m below grade. The system has been designed with multiple, redundant layers. The proposal includes an Emergency Response Plan which addresses unforeseen events, no matter how unlikely they are.</td>
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<td>Shawnigan Creek is located to the east of the proposed facility, at an elevation significantly higher than any outputs from the proposed facility. In any case, Shawnigan Creek would be monitored downstream during, and following, the operation of the facility. The down-gradient tributary runs seasonally. Any inputs to this tributary would have been treated and tested prior to discharge. Surface water will be diverted where</td>
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runoff and aquifer leakage hold distinct concerns. As one member of Shawnigan Lake and a mother of two children who are intentionally being raised in this community, I cannot accept that my family - no ALL families - are being asked - NO expected - to accept this permanent risk and suffer the inevitable consequences of an inevitable problem. This simply makes no sense! Further, I am offended that your consideration and rationale is founded in a system of process rather than a sound moral and logical argument.

Rather than go on for pages outlining the many reasons why this application ought to be denied, I will instead stop and plead that you do what is right: deny the SIA application and seek an appropriate location whereby a domestic water supply would not be impacted should a worst case scenario prevail.

possible. Any water leaving the site will report to the treatment system and be tested prior to discharge. The Village of Shawnigan Creek has 20 sites listed on the BC Site Registry. A consequence of this facility may be that these likely-contaminated sites are addressed thereby removing these contaminant inputs to the Lake.

Contaminated soil is anticipated to be sourced from throughout the South Island Region. We have no information to indicate that the primary source will be the CRD.
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<td>Provincial Government documentation states that Community Watersheds &quot;serve as important water supplies for legally organized user groups such as municipalities, regional district areas, improvement districts, utilities and water users' communities.&quot; Multiple Ministries and Agencies have regulations and policy which acknowledge and intend that Community Watersheds should be protected. Liners Leak Environment Canada States &quot;It is now accepted that all landfills will eventually release leachate to the surrounding environment and therefore all landfills will have some impact on the water quality of the local ecosystem ... major knowledge gaps in our understanding include the long-term integrity of liner/cover system.&quot; Accidents Happen - Things Go Wrong More from Environment Canada: &quot;... we are facing a mounting threat as a result of improper waste management. Canadian citizens have been directly impacted by the consequences of improper waste disposal, and many of these have drawn widespread media attention. In the spring of 2000, seven people died and over 2000 took ill as a direct result of improper disposal of animal wastes in Walkerton, Ontario. Important drinking water sources at Elmira and Smithville, Ontario; Abbotsford, B.C.; and Ville Mercier, Quebec, have been destroyed as a result of poor waste disposal practices. Hazardous waste from the Sydney tar ponds, Nova Scotia, have contaminated groundwater and surface water in highly populated areas, and has resulted in the release of pollutants to the ocean. Millions of litres of contaminated water flowing daily from the waste rock of Britannia Mine, near Squamish, B.C., have caused large areas downstream to become void of life.&quot;</td>
<td>The system has been designed with multiple, redundant layers of protection. In addition, the creation of the facility will promote the cleanup of contaminated sites, and will discourage unregulated dumping by providing a cost-effective alternative. The liner specifications for the proposed facility are in accordance with MOE Protocol 15 Soil Treatment Facility Design and Operation for Bioremediation of Hydrocarbon Contaminated Soil and requirements of the BC Hazardous Waste Regulation. The proposed facility would address the issue of improper waste management by creating a centralized facility engineered to incorporate and manage contaminated soil from any number of mis-management sites throughout the Region. The Technical Assessment has undergone multiple reviews by Provincial Government scientists and engineers. Their comments and feedback has been incorporated into the final</td>
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<td><strong>for safeguarding our drinking water?</strong> Section 15 of the Public Health Act states that: &quot;A person must not willingly cause a health hazard, or act in a manner that the person knows, or ought to know, will cause a health hazard.&quot; Where are the departments responsible for the Drinking Water Protection Act? What about the Water Stewardship Branches or the Environmental Quality Sections within the Provincial Government? Has this application been referred to them and what do they have to say?**</td>
<td><strong>Local government officials (i.e. CVRD Directors) were consulted early in the application process. They expressed their support for the application (both at a political and staff level) and indicated that the proposed facility was very much needed in the region. The CVRD itself has a legacy of contaminated sites which are currently impacting human health and the environment. One major hurdle standing in the way of addressing these sites is the cost associated with trucking contaminated soil up-Island to the only available facility in Strathcona. Not only is this existing facility costly, it is located within a highly productive, highly vulnerable aquifer and watershed (Vancouver Island – East Rivers), located less than 1km from Comox Lake, with unconfined groundwater at less than 6m below grade.</strong></td>
</tr>
<tr>
<td>July 31, 2012</td>
<td>Emailed to MOE</td>
<td><strong>First off, I would like to offer my complete vote of support to all our Cowichan Valley Regional District’s elected politicians for taking the bull by the horns and taking a position in regards to protecting the Cowichan Valley and Shawnigan Lake drinking water from contaminated soil and fill for present and future residents. I congratulate them. They have my complete support. Other Regional Districts have taken charge of their own pure, fresh drinking water and now we must do so too. I still find myself incredulous and continue to ask the question, “How is it even possible that the best business practice for cleaning up Victoria contaminated sites by “upstanding” business men, and apparently supported by our Provincial Government, has included the practice of using the Cowichan Valley as their toilet and garbage pail? And, now, the solution is to approve a business proposal which would leave a deposit of 5 million tons of contaminated product in the headwaters of the Shawnigan Lake drinking watershed?</strong></td>
<td><strong>Local government officials (i.e. CVRD Directors) were consulted early in the application process. They expressed their support for the application (both at a political and staff level) and indicated that the proposed facility was very much needed in the region. The CVRD itself has a legacy of contaminated sites which are currently impacting human health and the environment. One major hurdle standing in the way of addressing these sites is the cost associated with trucking contaminated soil up-Island to the only available facility in Strathcona. Not only is this existing facility costly, it is located within a highly productive, highly vulnerable aquifer and watershed (Vancouver Island – East Rivers), located less than 1km from Comox Lake, with unconfined groundwater at less than 6m below grade. The creation of a secure, engineered, monitored soil disposal facility will in fact serve to protect this, and other watersheds,</strong></td>
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<td>July 30, 2012</td>
<td>Emailed to MOE</td>
<td>In reference to the public meeting hosted by the CVRD on July 12, regarding the proposed contaminated soil dump at the S.I.A. quarry on Stebings rd., Shawnigan lake, B.C. Some of you were at the meeting, I know Jean Crowder and Hubert Bunce were, for those not there, perhaps you could ask your public servants to update and inform you. The public consultation meeting was quite illuminating, left several impressions on me, and raised more concerns. The dept. of environment has been monitoring water quality around Shawnigan Lake since the 1970's. I counted 14 sites from the map displayed at the meeting but couldn't establish if they were ground water (and at what depth?) or surface water.</td>
<td>Where hundreds, if not thousands, of contaminated sites are currently impacting human health and the environment. The proposed facility would address the issue of improper waste management by creating a centralized facility engineered to incorporate and manage contaminated soil from any number of mis-management sites throughout the Region. Contaminated soil is anticipated to be sourced from throughout the South Island Region. We have no information to indicate that the primary source will be the CRD.</td>
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<td>.Upon questioning it was revealed that these sites were monitoring for fecal contamination only. This was put out as “good baseline data”. Also revealed at the meeting was the fact that in November 2010 a load or loads of industrial grade or worse contaminated soil was accepted at the site, without the benefit of the liner or leachate collection system being in place. was the testing of all of the Shawnigan lake water samples expanded to include the heavy metals and other toxic contaminants contained in that fill? If not, why not? If the dept. of environment is to use their samples as baseline data surely this must be done. The engineers hired by S.I.A. threw around some big numbers about the permeability of the bedrock (“100000 years to leach into the groundwater”) and the existence of low productivity fissured rock below 250”. I don’t think major assumptions like that should be left unquestioned and should be verified by an independent authority. How large is their sampling data? What do we know about the watershed down that deep? They admit that there is “potential to intercept deep water bearing fractures with the capacity to service single family residences “Most of us on subterranean wells around Shawnigan are deeper than 250” ours is at 350”, we are drinking from the fissures in that fractured rock. The same engineers are saying there will be” little or no leachate”, so with that assumption they will design containment tanks and a treatment system (“that’s the easy part”). So, they excavate a Brownfield site in Victoria in the pissing rain, load it on to an open truck and drive it over the Malahat in the pissing rain, then dump the saturated load in the open quarry in the pissing rain. How can there not be leachate from this scenario? We are talking about thousands of truckloads too. We have a wet climate, we can expect rain for 10 months of the year normally and with the expectation of extreme weather (courtesy of global climate change) we can expect a lot of rain at times. The previous 100 year flood may well be the 10 year flood now. If they undersize these containment tanks and the collection system is overwhelmed, the leachate flows into Shawnigan creek, naturally, as designed. They are not very specific as to</td>
<td>Shawnigan lake is located approximately 5km from the proposed facility, hydraulically separated by approximately 250 feet of competent bedrock. The soil in questions consisted of a few truckloads of waste-level contaminated soil, misrepresented by the generator as being Residential Quality. When SIA staff noticed an odour associated with the soil, they halted all shipments and notified MOE. Since then, SIA has addressed the contaminated soil and is seeking recourse against those responsible. In any case, the contaminants were in a solid phase, and non-leachable. As such, they would have no mechanism by which to migrate 5km to Shawnigan Lake. The calculation of groundwater flow times and aquifer properties is based on decades of scientific research and complex mathematical solutions. These are not assumptions but are instead measured and calculated values. The Technical Assessment found that bedrock below 250’ is generally fractured enough to be considered to provide sufficient yield to support domestic water supply. This has been well documented during the application process. This is why your well is at 350’, and is not completed in the upper 250’ which is generally competent, unfractured and therefore unproductive. One of the restrictions on imported material concerns moisture content. Soil would not be accepted if found to be overly saturated. However, saturation does not equal leachability. Also, all trucks (no matter if they’re hauling contaminated soil or simply clean sand), are required to be covered during transport. The Technical Assessment Report documents anticipated</td>
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<td>July 30, 2012</td>
<td>Emailed to MOE</td>
<td>As a citizen of Shawnigan Lake, I would like to convey my dismay and alarm at the prospect of South Island Aggregate, a company with a dubious track record of adhering to regulations, being entrusted with sixty years of receiving and storing five million tons of contaminated waste, immediately adjacent to Shawnigan Creek and subsequently, the Shawnigan Lake Watershed. I listen to the Active Earth engineers, employed by SIA, attesting to their design prowess of their brave new facility and I hear newspeak. The whole system is failproof, unless it rains, it seems.</td>
<td>SIA has an excellent regulatory track record and is inspected regularly and frequently as a condition of their Mines Act Permit. Saturating a non-leachable contaminant-containing soil will not...</td>
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### Appendix E – Summary of Questions & Responses Communicated via MOE

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<td>July 25, 2012</td>
<td>Emailed to MOE</td>
<td>The contaminated waste, when it arrives at the receiving station, must be kept dry or it leaches. Hmmm. In fact, we live in an ecosystem known as a temperate rain forest. It rains a lot here and it occasionally floods, especially if there is vast removal of the absorbing tree cover. There are 8000 people here who depend on Shawnigan Lake and its watershed for their wellbeing. It is egregious to even contemplate destroying the health of the lake for the inordinate profiteering of a very few people. I suggest South Island Aggregate could accept clean fill and still make a hefty profit. Then we would all be happy.</td>
<td>generate leachate. That is the principle of the standardized laboratory tests for determining leachability – soil containing contaminants is subjected to a weak acid solution (intended to simulate acid rain) and the resulting solution analyzed for concentrations of the specified contaminants. If the contaminants are not present, or are present at levels below leachate quality standards outlined in the BC Hazardous Waste Regulation, then they are considered non-leachable. Only non-leachable soils would be accepted. As such, the degree of precipitation which these soils are subjected to is irrelevant.</td>
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<td>July 16, 2012</td>
<td>Emailed to MOE</td>
<td>As an official comment to the SIA application and for all permit applications that go through the Ministry of Environment I would like to assert that &quot;a reasonable end date for the notification period required under the Public Notification Regulation&quot; should never be mid August. I would like to see the MoE take a progressive stance and set a fall or winter date for public consultation to properly function. A May-August public consultation period is insufficient for any application and it is entirely feasible for the MoE to set a standard public consultation date which applications of this scale could adhere to, one that respects the level of potential engagement of its residents and asks them to respond when they are not on vacation.</td>
<td>More than three times the minimum consultation period was allotted to this application (i.e. 104 days versus the minimum 30 days). The facility design has been ongoing for more than a year, incorporating multiple iterations of feedback.</td>
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<td>In my possible absence at the 2nd Public Hearing for SIA's application / proposal, on July 12, 2012, this will be short and simple. In no way, shape or form should this application be entertained in the headwaters of a Drinking Water Watershed for the Shawnigan Lake community. Enough said, the Greater Victoria Watershed should also be concerned, given the topography of the said lands. This whole thing wreaks of imminent danger no matter how it is sliced or carved up. SIA will not be properly regulated and by their documented (video taped) theft of community signs, can not be trusted to keep their &quot;hen house&quot; honest and clean. Who would trust such &quot;bully tactics&quot; by this company? This is such a serious matter, easily the most dangerous project - ever - being considered in my 19 years here and should receive the utmost attention from all the powers-to-be, especially the CVRD, despite what the Ministry will / should / or should not do. This must get</td>
<td>The creation of a secure, engineered, monitored soil disposal facility will in fact serve to protect this, and other watersheds, where hundreds, if not thousands, of contaminated sites are currently impacting human health and the environment. The creation of the facility will promote the cleanup of contaminated sites, and will discourage unregulated dumping by providing a cost-effective alternative.</td>
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<td>July 3, 2012</td>
<td>Emailed to MOE</td>
<td>&quot;thumbs down&quot; and be stopped at all cost to the health and well being of Shawnigan Lake and surrounding communities now and for generations to come. Actually, it is very simple because it concerns our drinking water supply. Enough said. I understand that you are currently the lead official on the file for South Island Aggregates application for a permit to proceed with their plans to dump contaminated soil into the Shawnigan Creek area and watershed. I would like to voice my strong opposition to this application and hope that the Ministry of Environment seriously examines the environmental impacts and future consequences to the drinking water and recreational opportunities in Shawnigan Lake. I understand the Ministry of Environment’s mandate is to protect the environment and provide stewardship in managing the province’s assets into the future and I hope your mandate provides clear direction in which to reject this application. I am also cc’ing this note to your Director, ADM and Minister so that they will ensure your office receives the proper direction and support in this matter. My husband and I live on the West Arm, Shawnigan Lake and use the lake as our main source of drinking water. We have lived in the area for over six years and plan on becoming full time residents next year when we are both retired. Approval of this application will seriously jeopardize our health and limit the recreational opportunities afforded to ourselves and many other families in this area. As well, the long term effects of dumping, gasoline/diesel exhaust and increased traffic will play havoc on this pristine area, which many residents such as ourselves settled here to get away from. Since this is the long weekend, I’m sure that you and others have spent a part of your weekend in a provincial park, recreational area or other such place to rest and relax. Would you like to have the quality of your drinking water or recreational area ruined with such hazardous waste. Or imagine something like this happening in your neighbourhood - I’m sure you would also be very concerned and would look to your elected and paid officials to manage and solve the issues. I am looking to you, your executive and Minister for that same</td>
<td>The creation of a secure, engineered, monitored soil disposal facility will in fact serve to protect this, and other watersheds, where hundreds, if not thousands, of contaminated sites are currently impacting human health and the environment. The facility is located approximately 5km from Shawnigan Lake and represents less than 1/100th of 1 percent of the total watershed area. Given the multiple levels of protection incorporated into the facility design, beginning with only accepting non-leachable soils, and ending with 250’ of competent, underlying bedrock, there is virtually no chance of the facility impacting Shawnigan Lake or the Community Aquifer. The Site is subject to an existing Mines Act Permit which requires that it be reclaimed by, in part, filling it back to near original grades. As such, the issuance of a Waste Management Act permit will have no net effect on the truck traffic. The only difference will be the quality of the soil contained within some inbound trucks.</td>
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<td>June 24, 2012</td>
<td>Emailed to MOE</td>
<td>direction. I also hope that you or your Executive will attend public meetings on this issue in the near future to hear from others like myself, who are very disturbed about this application.</td>
<td>The system has been designed with multiple, redundant layers of protection. The liner specifications for the proposed facility are in accordance with MOE Protocol 15 Soil Treatment Facility Design and Operation for Bioremediation of Hydrocarbon Contaminated Soil and requirements of the BC Hazardous Waste Regulation.</td>
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<td>June 12, 2012</td>
<td>Emailed to MOE</td>
<td>The attached Video tells it all. This proves that liners can leak. Why take a chance in the Shawnigan Lake watershed? Please do not approve any permits to dump contaminated soil in our drinking water source.</td>
<td>Precipitation falling onto all land reports to standing water bodies. As such, all land is within a watershed of some description. The Village of Shawnigan Creek has 20 sites listed on the BC Site Registry. A consequence of this facility may be that these likely-contaminated sites are addressed thereby removing these contaminant inputs to the Lake. Only non-leachable soils would be accepted at the proposed facility.</td>
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<td>June 6, 2012</td>
<td>Emailed to MOE</td>
<td>I live on “…Shawnigan Lake …it has been ours for “…yrs. I have watched my Lake suffer from the human and septic abuse it takes everyday. The fact that dumping Contaminated Soil is being considered in our watershed makes me wonder if anyone is thinking here. Hmmm contaminated soil in a watershed? Does that sound smart to you? Not to me. There is no benefit to our community having this dump here in our headwaters, only to line S.I.A.s pockets with money. Its like rolling a dice to see if this leaches into our drinking water. I would rather NOT roll that dice. Please deny this application as this will be playing with our drinking water in an irresponsible way.</td>
<td>I spoke with your colleague, Luc Lachance, at the SIA open house May 31st. We talked at great length about the approval process for this application including the public notification process used by SIA which he stated MOE had reviewed and found no problem with. However, he did mention that I could send him an email asking for the MOE consultation process with respect to public notification so, I am asking you if you could provide this information. I assume you are receiving many emails about this issue? I have spoken to a great deal of concerned citizens about this and it certainly is a hot button topic. Many people feel there will not be enough time allotted to adequately study the proposal, hold an appropriate public meeting (not an open house ) and gather all the facts before the SIAM application is possibly approved by your</td>
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<td>June 5, 2012</td>
<td>Emailed to MOE</td>
<td>I am writing as a very concerned citizen of Shawnigan Lake. My concern is the contaminated soil dumping in the Shawnigan Watershed. My understanding is that the water will be tested once a year. This is in my opinion unacceptable. I think that an independent water specialist should be hired right now to tell us what is happening to the water in Shawnigan Creek at this time. We are not just talking about drinking water, but fish habitat and other wild life as well. The resulting levels should be made public. Can it be proven that the contamination of this site will not in the future show up in drinking wells, where the water sometimes comes from miles away? Contamination may take years to get rid of. If this water shows any sign of it now, what is the alternative drinking source? Is there absolute proof that the contaminated soil is not leaching into the Victoria watershed as well? Therein lies a whole other can of worms, so to speak. I would think it prudent to re-examine this whole situation thoroughly, at this time, than to have regrets and recriminations down the road.</td>
<td>The frequency of surface water and groundwater testing is proposed to be significantly more frequent than annual. In addition, prior to any discharge from the facility, treated water would be batch-tested to ensure it meets stipulated quality guidelines. Baseline water quality data was collected as part of the application process – monitoring included both surface and groundwater, up-gradient, on-Site and down-gradient. The facility has been designed to incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak contaminants into the environment.</td>
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<td>June 3, 2012</td>
<td>Emailed to MOE</td>
<td>Hello Mr. Bunce: I attended the open house at the Shawnigan Lake Community Centre and I thought I would send my concerns to you as per your request. I must admit looking at your business card I have a sense of hope with your division Environmental Protection. I do think that the business plan for South Island Aggregates makes all the sense in the world for them. They need to fill an enormous pit, which would be a very expensive endeavor and there is a need for disposal of waste fill. They have a need and so do many other business owners, financially it makes perfect sense. I just can not get past the environmental risk of having a waste fill in our watershed. The Ministry of Environment does not have the resources to police the activity that the company must adhere to and from what I understand that would not be the mandate. South Island Aggregates would have to hire a company to ensure that every operator/vehicle showing up at the pit has been tested or is</td>
<td>Soils proposed to be received at the facility require characterization at the generator site by a qualified professional, in accordance with MOE Technical Guidelines. Analytical testing must be undertaken by a third party, accredited laboratory and laboratory reports are required to be submitted to SIA as part of the application process. SIA’s</td>
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<td>June 1, 2012</td>
<td>Emailed to MOE</td>
<td>I would like to express my family’s concern with regard to a proposed contaminated fill site being approved in the Shawnigan Lake Watershed. We understand the need to have such a facility but we don’t understand why anyone would consider it appropriate to have it inside a watershed, meters from a creek that flows into a lake that provides drinking water to residents. This is not just a case of “not in my backyard”. We purchased land and built our home knowing that there were two gravel pit operations nearby and we were okay with that. What we didn’t know was the extent of the other fill sites that are simply used to dump questionable fill next to residential homes. South Island Aggregates has to fill their quarry with something, but they do own other land that may be more appropriate for their contaminated waste operations. A location where the environmental risks may not be so great and a problem could be dealt with easier. At one of their public meetings, SIA stated that their proposal was new and unique. Is this the right location to try new and unique ways of dealing with contaminated waste?</td>
<td>Precipitation falling onto all land reports to standing water bodies. As such, all land is within a watershed of some description. The creation of the facility will promote the cleanup of contaminated sites, and will discourage unregulated dumping by providing a cost-effective alternative.</td>
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<td>May 31, 2012</td>
<td>Emailed to MOE</td>
<td>My home was established before both SIA quarries were in place, and MIA Quarry was in place. To arrive at any quarry sites, the trucks must travel past my residence. With respect to the remediation site application: Does this now mean that at least 1200 trucks full of contaminated</td>
<td>The proposed facility is within the traditional territory of the Malahat First Nation. The Malahat First Nation has expressed their support for the proposed facility, both verbally at the CVRD Public Meeting, and in writing to the CVRD and MOE.</td>
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<td>Emailed to MOE</td>
<td><strong>fill/soil</strong> will be moving past my residence each month? This is a low estimate based on how many trucks with pups use South Shawnigan Lake Road and travel past my residence per month at this time. What kind of air pollution and noise pollution will these massive trucks continue to contribute to <strong>MY way of life</strong>? How will the Government and the Company monitor my health and my well being from the contaminants, from the quarries, and trucking? How will the Government be monitoring the pollutants from these vehicles? What or how does the Government plan on monitoring the sites so that the Hours of Work and other regulations are adhered to? I thank the Company for hosting an &quot;Open House&quot; and I trust that this will be done in a professional manner without interjections from office staff. In the future, however, I would respectfully suggest to the Ministries that a Public Meeting would be more beneficial so that similar questions may be asked and answered. In this way, there may be an appearance of &quot;transparency&quot;.</td>
<td>The Site is subject to an existing Mines Act Permit which requires that it be reclaimed by, in part, filling it back to near original grades. As such, the issuance of a Waste Management Act permit will have no net effect on the truck traffic. The only difference will be the quality of the soil contained within some inbound trucks. Assessing noise and air pollution related to the trucks is beyond the scope of this assessment. The issue of airborne contaminants has been assessed extensively as part of the Technical Assessment Report. Monitoring and mitigation measures have been proposed which will ultimately become a requirement of the permit.</td>
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<td>Emailed to MOE</td>
<td>I have just returned from the SIA open house at the Shawnigan Lake community centre. I have filled in a comment form, but am not sure if SIA will communicate well with you. I am appalled at the temerity of suggesting a contaminated waste site in the headwaters of Shawnigan Creek. I am extremely concerned that the testing and monitoring will be left to SIA and its contractors. The purpose of the department of the environment is to protect the environment. Assisting industrial operations is up to an industry department. If you cannot commit to frequent, rigorous monitoring you fail in your mandate, and must refuse this application.</td>
<td>Monitoring at the site will occur under permit and be undertaken by third-party, qualified professionals. Results will be reported directly to MOE for review and verification.</td>
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<td>Undated</td>
<td>Emailed to MOE</td>
<td>I have concerns about the SIA application and provided feedback to SIA directly via their website. I'm not sure if you have received my message so I have copied it for you below. An additional question: I'm currently here at the meeting and have reviewed the drawings as you have encouraged me to do. I'm not convinced that the fill site would survive an earthquake should one occur. How would the contaminants be recovered if the site was</td>
<td>The proposed facility is designed to withstand a 1:200 year seismic event. An Emergency Response Plan has been prepared as an amendment to the existing Mine Emergency Response Plan. The Plan envisions all such potential incidents, no matter how unlikely</td>
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<td>Emailed to MOE</td>
<td>Given the location of the Stebbings Road SIA site, I have concerns about the acceptance of contaminated fill as well as the current status of this location. I realize a lot of effort is being made to address inquiries from the public. I feel that this application damages SIA’s business reputation since many local residents are resistant to the proposed site and, if the application is accepted, will not want to do business with SIA. Unfortunately this topic can make people very emotional because of the issues at hand: loss in potential income, loss in property value, concerns about short-term and longterm health, and safety issues. In light of the outcry that has resulted from the application, I think it would be best if this plan was abandoned and the site only accepts clean fill. There is an implicit trust between neighbouring properties that the activities of one will not adversely impact the other. Surely the employees and owners of SIA themselves would not want to live near a site accepting contaminated fill? In this situation, the fill site will potentially impact the entire watershed, not just the neighbouring properties. Even if the contaminated fill is perfectly managed, its presence adversely impacts the small community that is growing around the Malahat Centre. There are many other environmentally-friendly business initiatives that SIA can consider as alternative sources of income. Unfortunately, SIA is not located in an area that is strictly industrial and more homes will be built in the vicinity. Specifically, I would like to know the answers to the following questions: 1. Why has this site been chosen for this fill application? What are the alternative sites? I note that SIA has a second location in Nanaimo. Why is that site or any other not considered preferable? 2. What compensations will be offered to property-owners whose property is devalued by this action? 3. What is the appeal process against the application? In summary, I object to this application and respectfully request that it be dropped. I am available to discuss this further.</td>
<td>1. The Site being proposed is owned by SIA and is subject to an existing Mines Act Permit which requires that it be reclaimed. SIA has identified a need for viable, responsible contaminated soil disposal options within the South Island Region. 2. Property values are not anticipated to be affected since the operations will not change substantially from that of the operating aggregate mine.</td>
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<td>Letter to MOE</td>
<td>Letter 1 attached. Questions/Comments paraphrased as follows: I am appalled that SIA has applied to dump/store contaminated soil in [Shawnigan Lake] headwaters on our feeder creek. This is all about money. If approved, more applications will come forward. “When” the liner leaks it could leak into a crack in the facility has been designed to incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak.</td>
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<td>August 19, 2012</td>
<td>Letter to MOE</td>
<td>Rock or the well already drilled into the bowl of this pit and flow into our underground aquifer that most definitely feeds Sooke Lake reservoir as well as Shawnigan Lake. This permit should be denied.</td>
<td>The proposed facility does not contemplate a “dam”. Also, only solid waste would be permanently encapsulated. No liquid waste would be stored at the Site. The proposed facility is cited outside of the Shawnigan Community Aquifer. The nature of the proposed contaminants is outlined in detail within the Technical Assessment Report. Only non-leachable soils would be accepted (i.e. solid waste only). Solid waste does not “seep”.</td>
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<td>August 19, 2012</td>
<td>Letter to MOE</td>
<td>Letter 2 attached. Questions/Comments paraphrased as follows: When the dam they build breaks contaminated waters will head straight for us on Shawnigan Lake and Sooke Lake. We can’t forget the underground wells/springs that reside all over Shawnigan Lake; feeding the lake and providing my house and other residents with their drinking water. We don’t want to see all those nasty contaminants (which have failed to be identified) seep into our soils and thus contaminating those many underground springs. The facility should be located in Surrey since they are already an industrial area and they don’t really care about what is introduced to their surroundings. Are you willing to have that blood on your hands just for some big bucks? SIA proposal should be put to a vote (like Eco Depot).</td>
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<td>Letter to MOE</td>
<td>Letter 3 attached. Questions/Comments paraphrased as follows: South Shawnigan is an active and growing watershed and utilizes wells and the lake for residential, commercial and recreational use. The idea of “private for profit” is concerning, when money is involved, things happen. Self policing is also a concern. Weather a concern. Earthquakes a concern. Vote no. The province should purchase an abandoned mine and reclaim contaminated soil.</td>
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<td>June 28, 2012</td>
<td>Letter to MOE</td>
<td>Letter 4 attached. Questions paraphrased as follows: Concerned about contaminated soil leaching through the proposed liner. The community relies on Shawnigan Lake for water. What about homes with wells near the proposed facility? Have you considered toxic material that might be linked to cancer? Have you considered property values?</td>
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<td>The facility has been designed to incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak contaminants into the environment.</td>
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<td>The facility has been designed to incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak contaminants into the environment.</td>
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<td>this soil and as a result it gets dumped at unapproved sites where leakage could run into our water. I agree with SIA’s application to take contaminated soil and am relieved they have provided our community a solution for this problem.</td>
<td>The facility has been designed to incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak contaminants into the environment.</td>
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<td>July 18, 2012</td>
<td>Letter to MOE</td>
<td>Letter 6 attached. Questions/Comments paraphrased as follows: I have resided on the south end of Shawnigan Lake for 60 years. The condition of the water is a disgrace since the Patio Home Development. Increased silt and a lake bottom of fine mud all year round – worse in the summer due to motor boats. SIA has compounded the problem with dumping of soil near a main creek which used to have fish in it. Contaminated soil in containment cells or any other form is unbelievable. I say no to this proposal.</td>
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<td>July 10, 2012</td>
<td>Letter to MOE</td>
<td>Letter 7 attached. Questions/Comments paraphrased as follows: We live 1 km from the end of Shawnigan Lake. Every winter when the heavy rains start, the south end of the lake turns to muddy water as a result of the Patio Homes Development. One day last year, the creek was very muddy – I hiked for 3 hours and found the source to be SIA. Their operations have impacted the creek.</td>
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<td>June 18, 2012</td>
<td>Letter to MOE</td>
<td>Letter 8 attached. Questions/Comments paraphrased as follows: Writing regarding the immanent threat of contaminated soil dumping in Shawnigan Lake, at the south end by the water supply. I would love it if the permit for SIA was not issued as I have a well and use the supply.</td>
<td>The facility has been designed to incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak contaminants into the environment.</td>
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<tr>
<td>Undated</td>
<td>Letter to Premier Clark</td>
<td>Letter 9 attached. Questions/Comments paraphrased as follows: On June 23rd, Shawnigan Lake residents, whose drinking waters may well be endangered by this proposal will meet at the dump site for a tour. Suggest that the Premier attends the tour. Should talk to Mackenzie Brooks and Steve Eldridge and visit shawnigan creek protection website. We will have a range of media and environmental interest groups on the tour to expand this proposal into an embarrassing province wide issue.</td>
<td>We are not aware of this tour.</td>
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August 19, 2012

Attention: Hubert Bunce
Section Head, Business and Standards Regional Operations Branch
West Coast Region, Ministry of Environment

Re: SIA Application to receive contaminated soil on Stebbings Rd, Shawnigan Lake, BC

Dear Mr. Bunce;

I am writing this letter to strongly protest the approval of the SIA application.

It is most unfortunate that historical processes for such application requests could force a decision by the Statutory Decision Maker of the Ministry of Environment – an authority whose spirit is assumed to promote the well-being of our province’s environmental needs WHILE considering their human impact – could support such an application when modern day needs, moral considerations, and simple logic support its rejection. In fact, the logical and moral arguments surrounding this issue work ONLY to promote the protection of this community's watershed, which supplies domestic water to approximately 5000 citizens. Do we really live in a world where these considerations and the well-being of thousands are trumped by the legal rights of business owners and the fear of costly litigation?

Using logic only, I would argue that such watersheds ought to be protected - period. Additionally, representatives of the Ministry of Environment ought to work harmoniously and collaboratively with local government authorities – whom I understand hold no legal decision making power in this process - to proactively determine appropriate locations for such an operation rather than consider applications made in reactive and accidental opportunistic conditions. No one can deny the need for such facilities; however their location and long-term implications ought to be the primary consideration, NOT an application process that promotes an outcome of enormous financial wealth to the business owners, (a vast minority) and leaves a community (the vast majority) forever at risk of water contamination and a diversity of health problems.

Having attended the public meeting surrounding the SIA application on July 12, 2012, the issue of the process evidently underlay the justification of its consideration. I listened to those who presented with an open mind and heart. I tried to believe the engineers who attempted to guarantee working conditions of their design to contain the proposed contaminants - engineers who obviously hold a bias based on whom they were hired to
create such a design – and therefore, permanently sustain the water source in which this community relies. However, the reality is that human error, earthquake, climate change, and a variety of other potentials will at some point cause imposition, if not failure to their system.

From where I sat, it was painfully apparent that the two engineers were very uncomfortable as they attempted to divert our attention to the mass of bedrock surrounding the facility, which they argued will never allow for water contamination. The reality is this: there are two water sources that feed directly into Shawnigan Lake, Shawnigan Creek to the east and a tributary to the west, and both run dangerously close to the borders of the SIA facility. Surface runoff and aquifer leakage hold distinct concerns.

As one member of Shawnigan Lake and a mother of two children who are intentionally being raised in this community, I cannot accept that my family – no ALL families – are being asked - NO expected - to accept this permanent risk and suffer the inevitable consequences of an inevitable problem. This simply makes no sense! Further, I am offended that your consideration and rationale is founded in a system of process rather than a sound moral and logical argument.

Rather than go on for pages outlining the many reasons why this application ought to be denied, I will instead stop and plead that you do what is right: deny the SIA application and seek an appropriate location whereby a domestic water supply would not be impacted should a worst case scenario prevail.

Kelly Musselwhite, Jim Musselwhite, Brock Musselwhite (7), and Chase Musselwhite (6)
2640 Morgan Way
PO Box 384
Shawnigan Lake, BC
V0R 2W0
250-743-8112
Cc: Honourable Minister Terry Lake
Christy Clark
Bill Routley
Rob Fleming
Jean Crowder
Re: CVRD upcoming meeting August 1, 2012 (6:00 pm) regarding:
Contaminated Soils in the Cowichan Valley

"The Cowichan Valley Regional District is going to be debating motions in the coming weeks that could bring greater focus to its efforts to gain a measure of control over the movement and dumping of soils – contaminated and otherwise – in the Regional District."

http://www.cvrd.bc.ca/CivicAlerts.aspx?AID=642

First off, I would like to offer my complete vote of support to all our Cowichan Valley Regional District's elected politicians for taking the bull by the horns and taking a position in regards to protecting the Cowichan Valley and Shawnigan Lake drinking water from contaminated soil and fill for present and future residents. I congratulate them. They have my complete support. Other Regional Districts have taken charge of their own pure, fresh drinking water and now we must do so too.

I still find myself incredulous and continue to ask the question, "How is it even possible that the best business practice for cleaning up Victoria contaminated sites by “upstanding” business men, and apparently supported by our Provincial Government, has included the practice of using the Cowichan Valley as their toilet and garbage pail?

And, now, the solution is to approve a business proposal which would leave a deposit of 5 million tons of contaminated product in the headwaters of the Shawnigan Lake drinking watershed?

What kind of a society, in fact, what kind of government would say ‘yes’ to a business proposal resulting in the legacy of 5 million tons of contaminated product being stored in the headwaters of a drinking water shed, only a few meters away from a stream which flows directly into a drinking-water lake? How is it possible that, with all our education, both from ‘Academic Universities’ and from the ‘University of Life’ that we would say ‘yes’ to a business proposal which would leave 5 million tons of our contaminated product for the residents of Shawnigan Lake who will be living here in the future?

Were there not residents living on Vancouver Island and in Shawnigan Lake 1,000 and 2,000 years ago? Will there not be residents living in Shawnigan Lake 1,000 and 2,000 years from now? Do we have the right to defer the risk, resulting from our contaminated product, to those who will be living here in the future? Do we not have a responsibility to protect their right to fresh, pure drinking water?

As we are currently seeing with the repeated oil spills by Enbridge - whatever man and science builds, even with the best of intentions, - goes awry. We do not have the right to take this risk in our drinking watersheds.

As a society, and as a government, we are required to make decisions which will provide future Shawnigan Lake residents with fresh, pure water to drink.

As a resident and as a member of this society, I say, "No" to this proposal.

In reference to the public meeting hosted by the CVRD on July 12 ,regarding the proposed contaminated soil dump at the S.I.A. quarry on Stebbings rd.,Shawnigan lake, B.C..Some of you were at the meeting , I know Jean Crowder and Hubert Bunce were, for those not there , perhaps you could ask your public servants to update and inform you .The public consultation meeting was quite illuminating , left several impressions on me, and raised more concerns.

The dept. of environment has been monitoring water quality around Shawnigan Lake since the 1970’s .I counted 14 sites from the map displayed at the meeting but couldn’t establish if they were ground water (and at what depth?) or surface water .Upon questioning it was revealed that these sites were monitoring for fecal contamination only .This was put out as “good baseline data”. Also revealed at the meeting was the fact that in November 2010 a load or loads of industrial grade or worse contaminated soil was accepted at the site, without the benefit of the liner or leachate collection system being in place .was the testing of all of the Shawnigan lake water samples expanded to include the heavy metals and other toxic contaminants contained in that fill ? If not , why not ?If the dept.of environment is to use their samples as
The engineers hired by S.I.A. threw around some big numbers about the permeability of the bedrock ("100000 years to leach into the groundwater ") and the existence of low productivity fissured rock below 250'. I don’t think major assumptions like that should be left unquestioned and should be verified by an independent authority. How large is their sampling data? What do we know about the watershed down that deep? They admit that there is “potential to intercept deep water bearing fractures with the capacity to service single family residences “Most of us on subterranean wells around Shawnigan are deeper than 250’, ours is at 350’, we are drinking from the fissures in that fractured rock.

The same engineers are saying there will be” little or no leachate”, so with that assumption they will design containment tanks and a treatment system (“that’s the easy part”).

So, they excavate a Brownfield site in Victoria in the pissing rain, load it on to an open truck and drive it over the Malahat in the pissing rain, then dump the saturated load in the open quarry in the pissing rain. How can there not be leachate from this scenario? We are talking about thousands of truckloads too. We have a wet climate, we can expect rain for 10 months of the year normally and with the expectation of extreme weather (courtesy of global climate change) we can expect a lot of rain at times. The previous 100 year flood may well be the 10 year flood now. If they undersize these containment tanks and the collection system is overwhelmed, the leachate flows into Shawnigan creek, naturally, as designed. They are not very specific as to what they will be treating this unspecified amount of unidentified leachate for either. A Brownfield site could contain chlorobenzene, a DDT ingredient, hexachlorobenzene, a carcinogen, very toxic to aquatic creatures, persistent in the environment, biomagnification up the food chain does occur. Lindane and the chlorinated aliphatics are neurotoxins, banned in 52 countries including the U.S.A. A treatment plant implies that these chemicals and other nasty substances can be either removed, or neutralized completely by engineering genius, before it is released into our watershed. That is what S.I.A. is asking us to believe, they would gain enormously from this proposal, while we carry all of the risk.

I was impressed by the logic and passion of my fellow local residents, and the intelligence of their questions and comments. One man had independent data regarding the aquifers around the area, another asked for the engineers C.V.’s for designing sites of this size, both valid points. My final question of the two engineers from ‘active earth’ was ‘would you and your kids drink the water that came out of the back end of the leachate treatment plant?’ and they both said yes, on the public record. If this proposal is ever built, I will hold them to that. Not just a quick sip either, 12 months minimum. Perhaps that should be the standard for designing and approving such projects.

Without good baseline, pre-existing condition data, there can be no surety of the source of any contaminants coming into our wells, so S.I.A. would be off the hook legally. No lawyer could prove source and our water would be poisoned permanently. We don’t have another watershed, so please, do not approve this project.

Received July 30, 2012

As a citizen of Shawnigan Lake, I would like to convey my dismay and alarm at the prospect of South Island Aggregate, a company with a dubious track record of adhering to regulations, being entrusted with sixty years of receiving and storing five million tons of contaminated waste, immediately adjacent to Shawnigan Creek and subsequently, the Shawnigan Lake Watershed.

I listen to the Active Earth engineers, employed by SIA, attesting to their design prowess of their brave new facility and I hear newspeak. The whole system is failproof, unless it rains, it seems. The contaminated waste, when it arrives at the receiving station, must be kept dry or it leaches. Hmmm. In fact, we live in an ecosystem known as a temperate rain forest. It rains a lot here and it occasionally floods, especially if there is vast removal of the absorbing tree cover.
There are 8000 people here who depend on Shawnigan Lake and its watershed for their wellbeing. It is egregious to even contemplate destroying the health of the lake for the inordinate profiteering of a very few people. I suggest South Island Aggregate could accept clean fill and still make a hefty profit. Then we would all be happy.

Received July 25, 2012

As an official comment to the SIA application and for all permit applications that go through the Ministry of Environment I would like to assert that "a reasonable end date for the notification period required under the Public Notification Regulation" should never be mid August. I would like to see the MoE take a progressive stance and set a fall or winter date for public consultation to properly function. A May-August public consultation period is insufficient for any application and it is entirely feasible for the MoE to set a standard public consultation date which applications of this scale could adhere to, one that respects the level of potential engagement of its residents and asks them to respond when they are not on vacation.

Received July 16, 2012

In my possible absence at the 2nd Public Hearing for SIA’s application / proposal, on July 12, 2012, this will be short and simple.

In no way, shape or form should this application be entertained in the headwaters of a Drinking Water Watershed for the Shawnigan Lake community.

Enough said, the Greater Victoria Watershed should also be concerned, given the topography of the said lands. This whole thing smacks of imminent danger no matter how it is sliced or carved up. SIA will not be properly regulated and by their documented (video taped) theft of community signs, can not be trusted to keep their “hen house” honest and clean. Who would trust such “bully tactics” by this company?

This is such a serious matter, easily the most dangerous project - ever - being considered in my 19 years here and should receive the utmost attention from all the powers-to-be, especially the CVRD, despite what the Ministry will / should / or should not do. This must be altered and stopped at all cost to the health and well being of Shawnigan Lake and surrounding communities now and for generations to come. Actually, it is very simple because it concerns our drinking water supply. Enough said.

Received, July 3, 2012

I understand that you are currently the lead official on the file for South Island Aggregates application for a permit to proceed with their plans to dump contaminated soil into the Shawnigan Creek area and watershed.

I would like to voice my strong opposition to this application and hope that the Ministry of Environment seriously examines the environmental impacts and future consequences to the drinking water and recreational opportunities in Shawnigan Lake.

I understand the Ministry of Environment's mandate is to protect the environment and provide stewardship in managing the province's assets into the future and I hope your mandate provides clear direction in which to reject this application. I am also cc'ing this note to your Director, ADM and Minister so that they will ensure your office receives the proper direction and support in this matter.
My husband and I live on the West Arm, Shawnigan Lake and use the lake as our main source of drinking water. We have lived in the area for over six years and plan on becoming full time residents next year when we are both retired. Approval of this application will seriously jeopardize our health and limit the recreational opportunities afforded to ourselves and many other families in this area.

As well, the long term effects of dumping, gasoline/diesel exhaust and increased traffic will play havoc on this pristine area, which many residents such as ourselves settled here to get away from.

Since this is the long weekend, I'm sure that you and others have spent a part of your weekend in a provincial park, recreational area or other such place to rest and relax. Would you like to have the quality of your drinking water or recreational area ruined with such hazardous waste. Or imagine something like this happening in your neighbourhood - I'm sure you would also be very concerned and would look to your elected and paid officials to manage and solve the issues.

I am looking to you, your executive and Minister for that same direction. I also hope that you or your Executive will attend public meetings on this issue in the near future to hear from others like myself, who are very disturbed about this application.

Received June 24, 2012

The attached Video tells it all.
This proves that liners can leak. Why take a chance in the Shawnigan Lake watershed?

Please do not approve any permits to dump contaminated soil in our drinking water source.

Received June 12, 2012

I live on “...” Shawnigan Lake ...it has been ours for “...”yrs. I have watched my Lake suffer from the human and septic abuse it takes everyday. The fact that dumping Contaminated Soil is being considered in our watershed makes me wonder if anyone is thinking here. Hmmm contaminated soil in a watershed? Does that sound smart to you? Not to me. There is no benefit to our community having this dump here in our headwaters, only to line S.I.A.s pockets with money. Its like rolling a dice to see if this leaches into our drinking water. I would rather NOT roll that dice.

Please deny this application as this will be playing with our drinking water in an irresponsible way.

Received June 6, 2012

I spoke with your colleague, Luc Lachance, at the SIA open house May 31st.
We talked at great length about the approval process for this application including the public notification process used by SIA which he stated MOE had reviewed and found no problem with. However, he did mention that I could send him an email asking for the MOE consultation process with respect to public notification so, I am asking you if you could provide this information.

I assume you are receiving many emails about this issue? I have spoken to a great deal of concerned citizens about this and it certainly is a hot button topic. Many people feel there will not be enough time allotted to adequately study the proposal, hold an appropriate public meeting (not an open house) and gather all the facts before the SIAM application is possibly approved by your ministry and that of the Ministry of Mines.
Can you please comment on this?
Received June 5, 2012

I am writing as a very concerned citizen of Shawnigan Lake. My concern is the contaminated soil dumping in the Shawnigan Water shed. My understanding is that the water will be tested once a year. This is in my opinion unacceptable. I think that an independent water specialist should be hired right now to tell us what is happening to the water in Shawnigan Creek at this time. We are not just talking about drinking water, but fish habitat and other wild life as well. The resulting levels should be made public.

Can it be proven that the contamination of this site will not in the future show up in drinking wells, where the water sometimes comes from miles away?

Contamination may take years to get rid of. If this water shows any sign of it now, what is the alternative drinking source?

Is there absolute proof that the contaminated soil is not leaching into the Victoria watershed as well? Therein lies a whole other can of worms, so to speak.

I would think it prudent to re-examine this whole situation thoroughly, at this time, than to have regrets and recriminations down the road.

Received June 3, 2012

Hello Mr. Bunce: I attended the open house at the Shawnigan Lake Community Centre and I thought I would send my concerns to you as per your request. I must admit looking at your business card I have a sense of hope with your division Environmental Protection. I do think that the business plan for South Island Aggregates makes all the sense in the world for them. They need to fill an enormous pit, which would be a very expensive endeavor and there is a need for disposal of waste fill. They have a need and so do many other business owners, financially it makes perfect sense.

I just can not get past the environmental risk of having a waste fill in our watershed. The Ministry of Environment does not have the resources to police the activity that the company must adhere to and from what I understand that would not be the mandate. South Island Aggregates would have to hire a company to ensure that every operator/vehicle showing up at the pit has been tested or is being honest with what materials they have. Human beings are historically greedy and take the path of least resistance. I do not believe for a second that untested hazardous waste will not be dumped there. When South Island Aggregate is finished with their pit they will have no interest in the long term implications of this site. Safety checks will be done, what happens if there is leakage, it is then too late for our watershed. The bladders that they intend to use, great plan but if there is a problem with the deepest bladder, then what.

This kind of waste needs to end up in an area that does not have populations and fresh water lakes close by. I have never written to anyone about an issue and have always tried hard to not have the attitude of "not in my backyard" but this issue is way too important to have a great business deal for a company trump the valid concerns of citizens and the environment.

Received June 1, 2012

I would like to express my family's concern with regard to a proposed contaminated fill site being approved in the Shawnigan Lake Watershed. We understand the need to have such a facility but we don't understand why anyone would consider it appropriate to have it inside a watershed, meters from a creek that flows into a lake that provides drinking water to residents. This is not just a case of "not in my
"backyard". We purchased land and built our home knowing that there were two gravel pit operations nearby and we were okay with that. What we didn't know was the extent of the other fill sites that are simply used to dump questionable fill next to residential homes. South Island Aggregates has to fill their quarry with something, but they do own other land that may be more appropriate for their contaminated waste operations. A location where the environmental risks may not be so great and a problem could be dealt with easier. At one of their public meetings, SIA stated that their proposal was new and unique. Is this the right location to try new and unique ways of dealing with contaminated waste?

Received May 31, 2012

My home was established before both SIA quarries were in place, and MIA Quarry was in place. To arrive at any quarry sites, the trucks must travel past my residence.

With respect to the remediation site application:

Does this now mean that at least 1200 trucks full of contaminated fill/soil will be moving past my residence each month? This is a low estimate based on how many trucks with pups use South Shawnigan Lake Road and travel past my residence per month at this time.

What kind of air pollution and noise pollution will these massive trucks continue to contribute to MY way of life?

How will the Government and the Company monitor my health and my well being from the contaminants, from the quarries, and trucking?

How will the Government be monitoring the pollutants from these vehicles?

What or how does the Government plan on monitoring the sites so that the Hours of Work and other regulations are adhered to?

I thank the Company for hosting an "Open House" and I trust that this will be done in a professional manner without interjections from office staff. In the future, however, I would respectfully suggest to the Ministries that a Public Meeting would be more beneficial so that similar questions may be asked and answered. In this way, there may be an appearance of "transparency".

I have just returned from the SIA open house at the Shawnigan Lake community centre. I have filled in a comment form, but am not sure if SIA will communicate well with you.

I am appalled at the temerity of suggesting a contaminated waste site in the headwaters of Shawnigan Creek. I am extremely concerned that the testing and monitoring will be left to SIA and its contractors. The purpose of the department of the environment is to protect the environment. Assisting industrial operations is up to an industry department. If you cannot commit to frequent, rigorous monitoring you fail in your mandate, and must refuse this application.

I have concerns about the SIA application and provided feedback to SIA directly via their website. I'm not sure if you have received my message so I have copied it for you below.

An additional question: I'm currently here at the meeting and have reviewed the drawings as you have encouraged me to do. I'm not convinced that the fill site would survive an earthquake should one occur. How would the contaminants be recovered if the site was ruptured?

Given the location of the Stebbings Road SIA site, I have concerns about the acceptance of contaminated fill as well as the current status of this location. I realize a lot of effort is being made to address inquiries
from the public. I feel that this application damages SIA’s business reputation since many local residents are resistant to the proposed site and, if the application is accepted, will not want to do business with SIA. Unfortunately this topic can make people very emotional because of the issues at hand: loss in potential income, loss in property value, concerns about short-term and long-term health, and safety issues.

In light of the outcry that has resulted from the application, I think it would be best if this plan was abandoned and the site only accepts clean fill. There is an implicit trust between neighbouring properties that the activities of one will not adversely impact the other. Surely the employees and owners of SIA themselves would not want to live near a site accepting contaminated fill?

In this situation, the fill site will potentially impact the entire watershed, not just the neighbouring properties. Even if the contaminated fill is perfectly managed, its presence adversely impacts the small community that is growing around the Malahat Centre. There are many other environmentally-friendly business initiatives that SIA can consider as alternative sources of income. Unfortunately, SIA is not located in an area that is strictly industrial and more homes will be built in the vicinity.

Specifically, I would like to know the answers to the following questions:

1. Why has this site been chosen for this fill application? What are the alternative sites? I note that SIA has a second location in Nanaimo. Why is that site or any other not considered preferable?
2. What compensations will be offered to property-owners whose property is devalued by this action?
3. What is the appeal process against the application?

In summary, I object to this application and respectfully request that it be dropped. I am available to discuss this further.
Dear Luc Lachance

Here I sit looking out over Shawnigan Lake from my families property that was bought in 1941. I am overcome with gratefulness for her constant reminder of my happy memories of my Grandmother and my Mom who passed away and of watching my children grow up playing in her. I am watching her struggle with leaking septic fields of toxic cleaners and body-care products...she now leaves bubble trails when I take out my pedal boat. A large clear-cut is now my view across the lake. The abuse from us humans is putting her at a tipping point of no return. I am appalled that S.I.A. has applied to dump/store contaminated soil in her headwaters on our feeder creek. This scheme is so wrong in so many ways. This is our drinking water and opening up our headwaters to contaminated soil is insane and all about the money. If this is improved by this Government I am sure more applications for permits to dump/store contaminated soil will flow over your desk...making Shawnigan Lake the dumping grounds for pollutants, the argument will be, “keep all the toxic soil together”. S.I.A. may plan on doing this right but the next guy won’t. I would like to point out “when” not “if” the liner leaks it could very well leak into a crack in the rock or the well already drilled into the bowl of this pit and flow into our underground aquifer that most definitely feeds Sooke Lake reservoir as well as Shawnigan Lake. I have 3 springs off the end of my wharf. So now its not just Shawnigan Lake, Mill Bay and Cobble Hill effected but Greater Victoria. That’s a lot of drinking water.

This permit should be denied right now. This S.I.A. has already been caught lying and caught on tape stealing “say no to contaminated soil” signs. Here is the link in case you haven’t seen it
http://www.youtube.com/watch?v=D3fiki._gsE&feature=player_embedded
These are the very same people who say “trust us” I think not.

Please deny this permit and place a moratorium on dumping contaminants and protect our drinking water for future generations.
I am opposed entirely to the South Island Aggregate (S.I.A.) contaminated soil depot on Stebbings Road in Goldstream Heights

I beg you relocate the site and not threaten Shawnigan Lake and Victoria’s drinking water, because as everyone should very well know, the placement for the site is on a mountain with two water ways on either side. When the dam they have built breaks; and not if, when, those contaminated waters will head straight for us in Shawnigan Lake and Sooke Lake, A.K.A. Victoria’s drinking water. Also we can’t forget the underground wells/ springs that reside all over Shawnigan Lake; feeding the lake, and providing my house, and other residents with our drinking water. Now we wouldn’t want to see all those nasty contaminates (which have failed to be identified), seep in to our soils and thus contaminating those many underground springs.

I could list off other suitable places for this depot to be placed; for instance, let’s say Surrey, B.C., they are already an industrial area and from what I have seen of the town, they don’t really care what is introduced to their surroundings.

Caring; there is a problem that you will run into with the residents of Shawnigan Lake and once Victoria and other areas are informed, more so. We care about our water ways. Look at Sooke Lake, it is now a protected watershed used as drinking water for Victoria. Shawnigan Lake may not be quite as protected just yet, but nevertheless the Beach Estates and others use the lake's water as their drinking water. Not to mention the residents of Shawnigan Lake that swim regularly in, and live on the waters, and the “out of town” persons that commute all the way out to Shawnigan Lake for a good swim, with their children, their pets, and their families.

Are you really willing to have that blood on your hands, just for some big bucks?

It disappoints me that we are not able to put the S.I.A. proposal to a vote, like the Eco Depot (sneaky, sneaky), but instead write powerful letters and petitions in hopes that we will allow you to open your eyes and see that Shawnigan Lake will never be an industrial zone. Please find it in your hearts to see that the dollar is just paper, merely paper, but the environment, it’s full of life, nurturing without question, and doing whatever it can to repair the damage that MAN has inflicted in the name of greed. Please relocate your site to a more suitable zone, perhaps an industrial area.

“Only when the last tree has been cut down; Only when the last river has been poisoned; Only when the last fish has been caught; Only then will you find that money cannot be eaten.” - North American Aboriginal
I am writing to voice several concerns about South Island Aggregate, S.I.A. bid to change their quarry soil rehabilitation from residential to contaminated.

1) South Shawnigan is a very active and growing watershed. A community who utilizes both wells and the lake for residential, commercial and recreational use. As Dr. Patrick Lucey has stated water flows from varying directions and sources to this watershed. These streams, creeks, etc. can and do change course as necessary in reaction to a changed environment.

2) The idea of 'private for profit' is concerning, when money is involved, things happen....

3) Self policing is also a concern. Everyone is human, mistakes happen, liners leak. We just need to look South Of The Border for numerous examples of leaking. Subsequent sale of the quarry is another concern.

4) Environmental changes- as stated they would only accept contaminated soil during the dry months. This is the 'We(s)t Coast' a 'Temperate Rainforest' the weather is is not within our control. Where does all the soil sit and wait til fair weather appears? Honestly there are only 3 months of reasonably dry weather annually. How profitable is that?

5) Industry standards for a 1 in 1,000 event = 7.2 Richter quake. Not good enough for an Island surrounded by fault lines just waiting for the big one.

I vote NO

I am sure there is an abandoned quarry site on this 32,000 sq km Island that is not at the headwaters of an active and growing residential watershed which the Province of British Columbia can purchase for reclamation of contaminated soil.

I am praying You our elected representatives listen to Your constituents concerns. Democracy vs. profit is a very slippery slope.
Vancouver Island BC

Re: Permit to dump contaminated soil at the South Island Aggregate Site at South Shawnigan Water Shed

As I sit here writing this letter, I am reminded of the family members who have used and are still using our cottage - actually we are now onto the fourth generation.

I attended the meeting Thursday night July 12th at Kerry Park, Mill Bay and listened with interest to the speech by Hubert Bionce. I was absolutely horrified to think that this beautiful lake may become polluted due to the contaminated soil eventually leaking through the proposed liner that will be placed in the pit.

Why on earth would you even consider a permit for this project.
The properties surrounding the lake, the village, Shawungan schools, businesses, the farms all rely on Shawungan Lake for water. Also the houses and farms along the culflow to Mill Bay rely on Shawungan water.

What about the homes with wells and the Victoria watershed that are in close proximity to the S.I. A. site?

Have you taken into consideration the toxic material that may be linked to cancer? either in the water or in the air.

Have you considered what the pollution would do to our property values - not only on the lake but businesses and the surrounding areas?

A Concerned Shawungan Lake owner so please say NO to the Permit for the South Island Aggregates.
June 28, 2012

Ministry of Environment
West Coast Region
2080A Labieux Road
Nanaimo, BC  V9T 6J9

Attention:  Mr. Luc Lachance, P. Eng. Sr. Environmental Protection Officer

Reference:  SIA’s Reclamation Proposal

Dear Mr. Lachance,

My name is Richard Miller and I have lived and ran my business in Shawnigan Lake for 20 years. South Island Aggregate’s reclamation proposal is of particular interest to me as I own the Galley Marina and Fuel Dock and make my living off of this lake.

After looking into SIA’s project, and what they propose to do about the contaminated soil problem in the area, I am in support of their application. I believe SIA is a trustworthy company and has put a lot of effort into ensuring the science and safety of their site reclamation is sound. There is an existing need for a controlled site to accept this material and something needs to be done. I would much rather see it go to a properly run and well supervised site than to hide it and drop it at sites that will not treat it correctly. I rely on Shawnigan Lake for my living and it concerns me that companies do not have options for places to take this soil and as a result it gets dumped at unapproved sites where leakage could run into our water. I agree with South Island Aggregates’ application to take contaminated soil and am relieved they have provided our community a solution for this problem.
Re: Contaminated Soil

I reside on the South end of Shawinigan Lake and have for 68 years. The condition of our water is a disgrace since the Rivier Home development, we have run off silt and a lake bottom of fine mud all year round worst in the summer due to boat traffic (waves boating).

The addition of South Island aggregate has compounded this problem with the dumping of soil, near a main creek which runs through it.

Contaminated soil in contained cells or any other form is so unbelievable, where does it now go, once it enters, what now can be done. This we are interested, because it is our drinking water. How will it be replaced.

The CVRA is asking for your input so of course it's no in their proposal.
Re: Contaminated Soil

we live 1 KM from the end of Shawngar Lake, every winter when the heavy rains start, the south end of the lake turns to muddy water, this all happened with the construction of the Daties Horse Development in the South area, there were no precautions taken to stop the soil runoff from their site. Since that time, the lake gets worse every year. we now have several companies hauling soil from Victoria, dumping it in the same area. At one point last year it was extremely bad, Shawngar Creek was very high and straight mud. I kicked for this and found the source of it, it was S.I. & pit. The water was clear above their pits for years they have been dumping soil in their pit, with complete disregard of what happens when rain washes it away. The whole Dairying area slopes directly into the river. This whole operation drains directly into Shawngar creek, the main source of water for the lake and drinking water for thousands of people. This mud problem has not reached the north end of the lake yet, but it will.

Contaminated soil on the drum table will be dealing with areas too high this year, it had to be dug, before it was late, they have no regard to what happens down Stream.

An absolute waste of Contaminated soil being stored in a Water Shed Area
Pollutants leaking from Cache Creek landfill

ctvbc.ca

Updated: Fri. Mar. 20 2009 11:27 PM ET

A new study says a massive landfill near Cache Creek is leaching toxic pollutants into the south central British Columbia environment. March 20th, 2009.

A new study says a massive landfill near Cache Creek is leaching toxic pollutants into the south central British Columbia environment. March 20th, 2009.

Researchers say the landfill where Metro Vancouver has dumped nearly eight million tonnes of waste is leaking heavy metals, hydrocarbons and other chemicals.

The dump located near Ashcroft is sealed with a liner and supposed to be secure from leaks for at least 200 years. But environmental consultants found traces of leachate almost everywhere they looked outside the site, as well as in groundwater.

"I was quite floored by it," said Dr. Michael Easton President and CEO of International EcoGen Inc. during an interview with the Globe and Mail. His company investigated the site for the Nakal'pamux Nation Tribal Council, with funding from Health Canada.

Nakapamux Tribal Council Chief Bob Pasco and his colleagues say they have been trying for 20 years to tell the government about health concerns seeping out of the cache creek landfill.

"When we're left out, as we have been, then there's a problem," Pasco said.

Most landfills in B.C. are unlined

The Council hired its own scientist to test nearby wells and the results are hard to swallow.

"The current water, the raw water, the untreated water is undrinkable," said Dr. Easton.

Dr. Easton says he has found toxic pollutants in at least three wells used by First Nations communities.

"There was a presence of leachate in the groundwater. Leachate is the material that is produced by the bacteria in a landfill."

The study detected leachate in Bonaparte Creek and Thompson River. It was even found as far as six kilometres away from the landfill near Ashcroft.

Dr. Easton's report blames a faulty liner. He says it was intended to last 200 years. But 20 years later, with nearly eight million tonnes of waste breaking down on top of it, it's letting contaminants seep through into the groundwater below.

Council travelled to Vancouver

"Most landfills in British Columbia are unlined and leachate is leaking out of all of those landfills," Dr. Easton said.

B.C.'s Environment Minister Barry Penner hasn't seen this report yet and he says he'd like to. Cache Creek Mayor John Ranta says the 40 studies they've conducted over the last 20 years do not match with this report.

But Pasco said the Tribal Council would like to be part of those studies.

"It's very questionable how they do their work, and how they come to their conclusions. We don't know that, we're not part of the process and I guess this is the reason why we're here," Pasco said.

Council members travelled to Vancouver to file a petition with the B.C. Supreme Court that would allow them to participate in the environmental assessment process.

Since the site is expected to reach capacity by next year -- and there's talk of either moving or expanding it -- the First Nations communities want to make sure they have a say.

With a report by CTV British Columbia's Reshmi Nair
June 18, 2012

Hubert Bunce
Section Head, Business and Standards
Regional Operations Branch - West Coast Region
Ministry of Environment
2090 A Labieux Rd
Nanaimo, BC V9T 6J9

Mr. Bunce,

I am writing regarding the imminent threat of contaminated soil dumping in Shawnigan Lake, at the south end by the water supply.

I would love it if the permit for South Island Aggregate was not issued, so I have a well and use the water supply.

With great concern,
Sincerely,

[Handwritten note: Sign name]
The Government of British Columbia is actively considering a proposal that Five Million Tonnes of Contaminated Soil be dumped into the Shawnigan Lake Watershed.

Good Morning Premier Clark:

The subject of this facsimile may be known to you but certainly your Minister of Environment is well aware of this sensitive topic. He can appraise you on this topic as necessary. On 23 June interested residents from the Shawnigan Lake area, many of whose drinking waters may well be endangered by this proposal will meet at the dump site for a tour. May I suggest that you attend the tour personally and see for yourself what is proposed. Doing so I believe would be personally informative and show clear evidence that your Government still considers protection of our environment a serious matter.

Two knowledgeable residents that reside close to the proposed site are well worthwhile speaking with on this topic. Dr. Mackenzie Brooks 250-888-0517, and Mr. Stephen Eldridge 250-733-2169. A website at www.shawniganreekprotection.ca is worth a visit too. Look at the pictures. The pictures show the current situation at the site which adding five million tonnes of contaminated soil have the capacity to make unimaginably worse.

As an aside we expect that the full range of media and environmental interest groups will attend the tour with a view to expanding this unfathomable environmental proposal from a rural issue to an embarrassing province wide issue.

Thank you for attention Premier Clark, I hope to see you on 23 June.

Yours truly,

The Honourable Christy Clark
Premier of British Columbia
West Annex
Parliament Buildings
Victoria
## May 8, 2012 – Community Meeting

### Attendance List

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1 Pete and Deanna Collins</td>
<td><a href="mailto:collinspe@rogers.com">collinspe@rogers.com</a></td>
<td></td>
</tr>
<tr>
<td>2 Mackenzie Brooks</td>
<td><a href="mailto:dr@drmackenziebrooks.com">dr@drmackenziebrooks.com</a></td>
<td></td>
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<tr>
<td>3 Jen Young</td>
<td><a href="mailto:Jenyoung59@gmail.com">Jenyoung59@gmail.com</a></td>
<td></td>
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<tr>
<td>4 Kelly Musselwhite</td>
<td><a href="mailto:luvlife@shaw.ca">luvlife@shaw.ca</a></td>
<td></td>
</tr>
<tr>
<td>5 Bruce Fraser</td>
<td><a href="mailto:praier@sediment.com">praier@sediment.com</a></td>
<td>CVRD Area Director</td>
</tr>
<tr>
<td>6 David Coughline</td>
<td><a href="mailto:dave@drmackenziebrooks.com">dave@drmackenziebrooks.com</a></td>
<td></td>
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<tr>
<td>7 Linnea Goodson</td>
<td><a href="mailto:linneagoodson@hotmail.com">linneagoodson@hotmail.com</a></td>
<td></td>
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<tr>
<td>8 Mike Hanson</td>
<td><a href="mailto:bcporthas@gmail.com">bcporthas@gmail.com</a></td>
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<tr>
<td>9 Graham Ross-Smith</td>
<td><a href="mailto:rosssmith@shaw.ca">rosssmith@shaw.ca</a></td>
<td></td>
</tr>
<tr>
<td>10 Mike Walker</td>
<td><a href="mailto:mwalker@cvrd.bc.ca">mwalker@cvrd.bc.ca</a></td>
<td>CVRD Area Director</td>
</tr>
<tr>
<td>11 Alison and Alex Hill</td>
<td><a href="mailto:Anartwork@yahoo.com">Anartwork@yahoo.com</a></td>
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<tr>
<td>12 Shirley Crowley</td>
<td><a href="mailto:ssjcrowley@yahoo.ca">ssjcrowley@yahoo.ca</a></td>
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<tr>
<td>13 Ma Watson</td>
<td><a href="mailto:mawatson@shaw.ca">mawatson@shaw.ca</a></td>
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<tr>
<td>14 Gerry Giles</td>
<td><a href="mailto:Ggiles12@shaw.ca">Ggiles12@shaw.ca</a></td>
<td></td>
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<tr>
<td>15 Rob Hutchinson</td>
<td><a href="mailto:rhutchinson@ladysmith.ca">rhutchinson@ladysmith.ca</a></td>
<td>CVRD Board Chair</td>
</tr>
<tr>
<td>16 Steve &amp; Jennifer Eldridge</td>
<td><a href="mailto:Stebbings360@hotmail.com">Stebbings360@hotmail.com</a></td>
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MINE PERMIT AMENDMENT
TO INCORPORATE
CONTAMINATED SOIL DISPOSAL
IN RECLAMATION PLAN

SOUTH ISLAND AGGREGATES QUARRY
460 STEBBINGS ROAD, MALAHAT
ELECTORAL AREA B, SOUTH SHAWNIGAN LAKE, CVRD

The South Island Aggregates Site
PROPOSAL OVERVIEW AND SITE LOCATION

• APPLICATION FOR MINING PERMIT AMENDMENT – RECLAMATION
  • Change range of soil quality for pit backfill

• REQUIRES WASTE DISCHARGE AUTHORIZATION FROM MOE
  • Trigger for Technical Assessment Report
  • Technical Assessment Completed by Active Earth

• TECHNICAL ASSESSMENT REPORT INCLUDES
  • Evaluation of all applicable environmental factors
  • Detailed design of proposed facility

Where is the SIA Site?

The project property, the "Mineral Claims," is located at 306-308 Watership Road in the South Nanaimo Lake area in the central Nanaimo Valley Regional District.

The site is approximately 3 km south of Nanaimo Lake, 3 km west of Northhouse Lake, 1.5 km south of Towner Road, and 6 km east of Paris Road.

The site lies in the back of the south Nanaimo lake, comprising of poor topographic characteristics and topsoil and is expected to be a very difficult area for the completion of the road and construction of the facility.

The site comprises a local plane elevation of approximately 550 ft above sea level, and the general plane in the area gradually inclines to the south reaching plane elevations of 500 ft.
What is the SIA Quarry?

Sights are open at SIA Khovanov. The quarry is located on the north of Saint-Elmeau Lake, 9.5 km from the centre location, 28 km from Port French Harbour and 120 km from the centre of the island. The area is characterized by the presence of deposits of granite, gneiss, and gabbro. The granite is characterized by a light gray color and a high strength, making it suitable for the production of aggregates and concrete.

The quarry is equipped with modern machinery and has a workforce of over 500 employees. The production capacity is estimated at 1 million tons per year. The product is used for the construction of roads, bridges, and residential buildings.

Regulatory framework:
The quarry is subject to strict regulations under the jurisdiction of the BC Ministry of Mines, with a permit number 2021-03. The quarry operates under the Environmental Assessment Act of the Canadian government.
WATERSHED AND AQUIFER ASSESSMENT

• LOCATED IN UPPER REACHES OF SHAWNIGAN LAKE CATCHMENT
  • Site elevation reaches 340 m-geod.

• NO AQUIFER BENEATH SITE
  • Spectacle Lake/Cobble Hill Bedrock Aquifer mapped 1 km east
  • Shawnigan Lake/Cobble Hill Aquifer mapped to north 2 km north

• MONITORING WELLS DRILLED ON SITE AND NEARBY WATER WELLS
  • Shallow bedrock (0-250 ft) has extremely low permeability (K=8x10^{-10} m/s)
  • Deep bedrock (below 250 ft) has low permeability (K=2x10^{-7} m/s)

• GROUNDWATER TRAVEL TIMES
  • Greater than 100,000 years to flow vertically from ground surface to deep bedrock
  • Additional 3,000 years to flow laterally in deep bedrock to Shawnigan Lake
  • Would require 3,000,000 years to flow to Shawnigan Lake within upper bedrock
GROUNDWATER MONITORING

- **ON-SITE GROUNDWATER MONITORING WELLS**
  - 5 monitoring wells have been installed on the Site to date
  - Additional monitoring wells will be added as needed during operation

- **BACKGROUND MONITORING COMPLETED**
  - 5 Existing monitoring wells have been installed and sampled
  - Existing water wells upgradient and downgradient of the Site have been sampled

- **MONITORING PROGRAM**
  - Additional wells to be installed on-Site: upgradient and downgradient
  - Samples to be collected 2 times per year – high and low groundwater
SURFACE WATER

- **SHAWNIGAN CREEK**
  - Flows immediately east of SIA Quarry area
  - Restrictive Covenants enforce SPEA +/- 60 m width

- **EPHEMERAL TRIBUTARIES**
  - Located immediately west of Site
  - Ephemeral headwater located at edge of SIA Quarry
  - All stormwater discharged at this location

- **MONITORING PROGRAM**
  - Includes 5 locations
  - Sampled monthly; and weekly during peak and minimum flow events
  - Background sampling completed
• MULTI-BARRIER APPROACH
  - Site conditions highly favourable
  - Accepted soils to be non-leachable only
  - Clay liner over bedrock
  - 40 mil LLDPE synthetic base liner
  - Multiple 30 mil LLDPE synthetic cap liners
  - Final cap includes 1 m low permeability soil over synthetic liner
  - Leak detection system
  - Leachate detection system
  - Water treatment system

• KEY DESIGN DETAILS
  - Passive system
  - Use of cells limits climatic exposure and maximizes flexibility in construction
SOIL TREATMENT CONSIDERATIONS

- POTENTIAL TO ADD SOIL TREATMENT TO FACILITY OPERATIONS
  - Currently not a permitted activity
  - Would allow for beneficial re-use of suitable contaminated soil

- SOIL TREATMENT WOULD REQUIRE CONSTRUCTION OF BIOREMEDIATION AREA
  - Includes synthetic liner beneath asphalt liner with leak detection/collection

- MOE PERMIT APPLICATION INCLUDED TREATMENT FOR FLEXIBILITY
BENEFITS OF PROPOSED FACILITY

• ENVIRONMENTALLY RESPONSIBLE
  • Local solution to local issues
  • Ideal location, physiography and design

• BROWNFIELD REMEDIATION
  • Consistent with current BC Gov programs
  • Enable remediation of government sites – regional, provincial and federal

• GREEN HOUSE GAS REDUCTION
  • Decreased truck traffic on Island Highway
  • Only disposal site currently on Van Island is 7-Mile landfill in RDMW

• ECONOMIC STIMULUS
  • Will facilitate urban development – large spinoff effect
  • Jobs to operate facility
  • Increase tax revenue – environmental tipping fee
<table>
<thead>
<tr>
<th>Date Received</th>
<th>Source</th>
<th>Question</th>
<th>Response</th>
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<tbody>
<tr>
<td>May 8, 2012</td>
<td>Neighborhood Meeting</td>
<td>Have earthquakes been considered in the design?</td>
<td>Yes. The facility has considered seismic loads for a 1:200 year seismic event and has incorporated these considerations into the overall design.</td>
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<td>Have you evaluated the risk associated to earthquakes?</td>
<td>Surface water has been extensively analyzed to determine baseline conditions. The proposed facility has been designed such that all surface water encountering the Site reports to a common collection and treatment system. All water will be treated and tested prior to discharge. Surface water will also be regularly monitored as part of the facility permit requirements.</td>
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<td>Has the watershed and surface water been considered?</td>
<td>Groundwater has been extensively analyzed to determine baseline conditions. In addition, the underlying aquifer characteristics have been tested and documented. No aquifers are mapped beneath the Site and approximately 250’ of competent, relatively impermeable bedrock separates the surface of the proposed facility from a semi-productive bedrock aquifer found at depth. Groundwater will also be regularly monitored as part of the facility permit requirements.</td>
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<td>Has drinking water been considered?</td>
<td>The facility design incorporates multiple protective layers to ensure long-term safety and stability.</td>
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<td>How do we know this facility is safe for the long-term?</td>
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APPENDIX G
SUMMARY OF INFORMAL MEETINGS
Tuesday, May 29, 2012
Meeting at SIA Office

2:00 – Meet with Mary Ann Watson of Shawnigan Lake (Beach Estates)
Present: Matt Pye, Jeff Taylor, Marty Block
Summary:
- Mary is concerned that technology associated with the landfill is unproven.
- Concerned about her property value – mostly related to the putting up of signs around the area.
- Concerned with location of landfill in proximity to Shawnigan Creek and at the top of the watershed.
- Asked what level of monitoring is planned for the landfill.
- Other than these concerns, Mary Ann didn’t have specific questions.
- Warned that “Eco-Depot” Group was planning to disrupt Open House by arriving en-mass at 7pm. Indicated that this group wasn’t interested in hearing about the application but was feeling empowered by their recent derailing of the Eco Depot project and was intent to stop any form of local Industrial/Commercial activity.
- Warned that the Eco-Depot Group had resorted to violence in the past and suggested that security and cameras should be utilized at the Open House.

3:30 – Meet with Georgia Collins, Chair of the Shawnigan Lake Watershed Roundtable
Present: Matt Pye, Jeff Taylor, Marty Block
Summary:
- Generally discussed the proposed facility design as it relates to protection of surface water and groundwater.
- Ms. Collins asked about the proposed design and inquired whether Active Earth’s design criteria was contingent upon how much money they were being paid.
- Ms. Collins asked specific questions relating to the financial implications of the Permit to SIA and their business operations.
APPENDIX H
OPEN HOUSE
The purpose of this Public Information Meeting is to present the Mine Reclamation Plan to members of the community and to provide an opportunity for the exchange of information regarding the Waste Discharge Permit Application by South Island Aggregates (SIA) to the Ministry of Environment (MOE).

MEETING FORMAT

Today’s Public Information Meeting is structured as a drop-in session from 4 pm - 9 pm, allowing members of the community to access information and provide input.

The technical details of the application are presented on the following boards. Community members will be able to ask questions and it is our hope that with the information provided today, attendees will be able to gain an understanding of the application and SIA’s long-term goals with regard to the commitment to regulating the dumping of contaminated soils in the CVRD.

RESOURCES

Individuals in attendance today include:

• Representatives from South Island Aggregates Ltd., the Applicants;
• Engineers from Active Earth Engineering Ltd., the environmental engineering firm that has completed the technical assessment and facility design proposal; and,
• Representatives from the Ministry of Environment, the government agency responsible for reviewing the application.

CONTACT INFORMATION

Mail to:
SIA c/o Active Earth Engineering Ltd.
4083 Shelbourne Road
Victoria, BC, V8N 5Y1

Email to:
feedback@activeearth.ca

OPPORTUNITIES FOR INPUT

You can ask questions of the Applicants, the Engineers and Ministry of Environment staff during the open house session.

You can provide comments by completing the COMMENT FORM or by posting your thoughts at the FEEDBACK STATION.

SIA/ Active Earth will record questions, concerns, and comments that any member of the public may have regarding the application. In the event that an answer is incomplete or cannot be provided immediately, SIA/ Active Earth will follow up and ensure resolution with a follow-up phone call or alternative.

NEXT STEPS

All comments and questions from today’s meeting will be forwarded to the Ministry of Environment to inform their review of the application.

A summary of the public comments, along with copies of all original submissions, will be shared with all stakeholders and posted to the project website.

Any interested individuals can SIGN UP to receive copies of the submitted comments and input summary directly.

If you want further information, you can PRE-REGISTER to attend a focus group meeting with representatives from the Ministry of Environment and the Applicants, to be scheduled with interested individuals.

APPLICATION REVIEW PROCESS

The Ministry of Environment is reviewing the application and seeks public input as part of the process. The timing of next steps is unknown at this time, as it is expected that the Ministry will continue to review the application and consider input received as a result of this Public Information Meeting.

APPLICATION OVERVIEW

SIA is proposing to develop a soil treatment facility to become a regulated receiving site for Waste soils. An Application for a Waste Discharge Permit has been submitted to the Ministry of Environment for review and consideration.

PROBLEM:

Recent community, government and media attention to the illegal dumping of contaminated soils in the Cowichan Valley reflects years of mounting concern regarding the unregulated disposal of ‘dirty soils’ and the subsequent impact on the environment and on the community.

OPERATIONAL NEED:

SIA is required to backfill the pits and reclaim the land to the end of the lifecycle of the quarry operations.

POTENTIAL SOLUTION:

The current SIA application, if approved by the MOE, presents a potential solution that would result in an engineered and monitored facility for the treatment and beneficial re-use of suitable contaminated soils as part of the mine reclamation process.
The status quo involves long-distance trucking of soils to one of limited options. If removal of contaminated soils is required, there are and practices. Remediation is required prior to redevelopment for new community use. If removal of contaminated soils is required, there are limited options.

The status quo involves long-distance trucking of soils to one of the three existing soil remediation facility on Vancouver Island; the transport off-island to facilities on the Lower Mainland; or, in some instances, the illegal, unregulated dumping of contaminated soils on private lands.

The SIA mine site is required to be backfilled as part of the land reclamation process and rather than filling with clean soil, there is an opportunity to receive and treat select contaminated soils in an environmentally-responsible manner.

Q. Why is the facility needed? Why here?

A. The application proposes a long-term, local solution to the ongoing problem of illegal dumping of contaminated soils on the South Island. The CVRD and the CRD are experiencing population growth and community development. There are a number of brownfield sites and community use. If removal of contaminated soils is required, there are limited options.

Q. What are contaminated soils and what type of soils are proposed to be received at the SIA site?

A. Contaminated soils are generally classified according to the standards outlined in the BC Contaminated Site Regulation and the BC Hazardous Waste Regulation.

These categories include:

- Residential Quality
- Industrial/Commercial Quality
- Waste
- Hazardous Waste

The proposed Soil Management Facility would accept soils up to the Waste category. Hazardous Waste, which has the potential to produce "leachable" will not be accepted (See also the "Soil Classifications and Remediation" board for further information).

Q. What is “leachate”?

A. Leachate is formed when water dissolves contaminants attached to soil particles. Although leachable soils will not be accepted at the facility, the design provides for assurance through leachate detection and monitoring. A water treatment system is designed to handle any potential leachate.

Q. How long will the mine operate? What is the life expectancy of the facility and the liner proposed to be used?

A. The mine life is anticipated to be 50-60 years. The facility would operate for the duration of the mine life, or as long as there is a demand for a local soil treatment facility. The proposed facility includes engineered "cells" which incorporate multiple layers of containment including bedrock, compacted till, and a 40mil Linear Low-Density Polyethylene (LLDPE) Liner. Liners have been successfully used at landfills for decades. Their lifespan is considered indefinite, particularly if the application includes a physical separation of the Waste from the liner (as has been incorporated at the proposed facility).

Q. What is the impact of the proposal on future generations?

A. The creation of an engineered and monitored facility will contribute to certainty in environmental protection for future generations. The Ministry's responsibility is to ensure public safety and their review of the application will address how to limit or mitigate any impacts on the environment.

Further, ongoing monitoring by the Ministry of Environment will safeguard against environmental impacts.

Q. Will there be impacts on the watershed (Shawnigan Creek and Lake) and on drinking water?

A. The proposed facility has been designed with multiple layers of protection to ensure surface water and groundwater is adequately protected.

These measures include:
1. Adequately screening soil prior to acceptance to ensure it does not contain “leachable” contaminants.
2. Employing measures to prevent surface runoff and precipitation from coming into contact with exposed soils to prevent the creation of potential leachate.
3. The cells include engineered liners and caps.
4. The facility has been designed to include leachate detection and collection.
5. The facility is proposed to be sited over competent bedrock which provides significant, natural protection.

As part of the application process, Active Earth was engaged to collect baseline groundwater and surface water quality data. This data will be compared to monitoring results during the operation, and following closure of the facility to demonstrate compliance. Monitoring data will be publicly accessible and SIA will publish this data annually in a user-friendly format.

Q. Will there be an impact on the aquifers?

A. The MOE has mapped aquifers across the province through an extensive analysis of well logs. No aquifer is mapped beneath the site because information from all existing wells indicates that the bedrock is not sufficiently productive to be considered a groundwater resource and therefore it is not identified as an aquifer.
Community Questions and Comments

INITIAL NEIGHBOURHOOD MEETING

A meeting with neighbourhood stakeholders was hosted earlier this month. A number of questions and comments were raised at that meeting and are summarized here for your information.

Q. Have earthquakes been considered in the design?
A. There are no mapped fault lines within the vicinity of the proposed facility. That said, seismic activity is unpredictable. The engineered cells include a flexible geomembrane liner which could reasonably be expected to withstand movement. These liners are designed to be tear and puncture resistant. In the event of a significant earthquake, the integrity of the facility would be inspected and repaired as needed.

Q. How do we know this facility will be safe for the long-term?
A. The proposed facility has been designed to include a number of safety measures to ensure leachate is not created and the local groundwater and surface water are not impacted.

As a backup, leachate detection, collection and treatment systems are included in the design. Finally, the underlying bedrock provides a tertiary means of protecting the area aquifers from potential surface impacts.

Q. What is SIA doing to address the contaminated soil that was erroneously deposited on its other quarry property?
A. These soils have recently been excavated and temporarily stockpiled. SIA has initiated legal action against the individuals involved with mis-representing the quality of these soils.

Q. Why is the community only being consulted now?
A. The Applicants have been working with the Ministry of Environment in preparing the technical application to address the regulatory requirements of the legislation. MOE requires that the public be consulted as part of the process; however, the Applicants are hosting this Public Information Meeting earlier in the process than would be typical to ensure the community and interested stakeholders have an opportunity to learn about the application and to provide input to MOE.

The Applicants are also required to seek approval from MOE prior to initiating consultation. These consultations have therefore been conducted according to the timeline dictated by MOE.

Q. Have First Nations been consulted?
A. The Ministry of Environment is responsible for referrals of all applications to First Nations for review and input. In addition, the Applicants have met with the Malahat First Nation and the Cowichan Tribes to share information about the proposed project and application.

Q. How do I provide input to the process?
A. The purpose of today’s Public Information Meeting is to provide community members with an opportunity to learn about the project and to discuss the Application with representatives from SIA, Active Earth and the Ministry of Environment.

There is a COMMENT FORM that can be used to provide any questions or concerns to the team and the Ministry. A summary of the community input received, along with copies of all original submissions, will be provided to MOE to inform the Application review process.

WE WANT TO HEAR FROM YOU

We invite you to access project information by reading the presentation boards, asking questions of the representatives in attendance and by providing your comments on the COMMENT FORM and at the FEEDBACK STATION.
What is a Mine Reclamation Plan?

LIFE-CYCLE PLANNING

The process of mining aggregate disturbs the natural state of the land. Best practices include considering long-range planning for the full life-cycle of a mining operation, including the eventual reclamation process whereby the land is returned to its near-natural state following completion of the mining activities.

The reclamation process includes the replacement of quarried rock with fill materials and the re-vegetation of the land with suitable plant species to recreate landscapes and habitat areas.

The Quarry’s reclamation plan requires that the quarried portions of the property be backfilled with soils, returned to near its original grade and vegetated.

Reclamation from active quarry...

...to replanted land for open space
Where is the SIA Site?

SITE LOCATION

The Proposed Facility is located at 460 Stebbings Road, in the South Shawnigan Lake Area within the Cowichan Valley Regional District. It is approximately 5 kilometers south of Shawnigan Lake and more than 3 kilometers west of Finlayson Arm.

The Proposed Facility is located in the upper reaches of the South Shawnigan Lake Watershed Catchment. The area is underlain by bedrock as expressed through steep slopes and significant rises in elevation. The actual site is a local peak with an elevation of approximately 340 meters above sea level. Peaks of up to 640 meters are found throughout the area.

SITE GEOLOGY

The Proposed Facility is situated within a very hard granitic bedrock formation that has resisted erosion and resulted in a local, knob-shaped, topographic high. This hard Granite, as well as the Wark Gneiss, are the source materials for the Quarry.

There are no faults mapped beneath the Proposed Facility, and the nearest fault is located approximately 3 kilometers to the southwest. The Shawnigan Fault is located approximately 6 km northwest of the Site.

The Proposed Facility provides a conservative engineered design that incorporates a multi-barrier approach for protection of the environment. The facility is situated in an ideal geological environment, with hundreds of feet of extremely robust bedrock protecting the underlying groundwater resource.

CLIMATE

The closest Climate Station to the Site is located at Shawnigan Lake. The total annual precipitation recorded at the Shawnigan Lake Climate Station is approximately 1,248 mm/yr (1,172 falling as rain and 75.5 as snow). The average monthly precipitation (approximately 80%) falls between October and March, and the summers are relatively dry. The Shawnigan Lake Climate Station is located approximately 10 km north...
Physical Description

HYDROGEOLOGY

The groundwater flow regime in the vicinity of the Site is predominantly via fractured flow within a deep bedrock aquifer. Limited overburden soils are present in the region, and are generally not sufficient for development of overburden aquifers. The BC Ministry of Environment has mapped two bedrock aquifers in the region:

• The Spectacle Lake/Malahat Bedrock Aquifer is located approximately 1 km east of the Site, and is rated as moderate productivity and low demand.

• The Shawnigan Lake/Cobble Hill Bedrock Aquifer is located approximately 2 km north of the Site, and is rated as low productivity and moderate demand.

The MOE has mapped aquifers across the province through an extensive analysis of well logs. No aquifer is mapped beneath the site because information from all existing wells indicates that the bedrock is not sufficiently productive to be considered a groundwater resource and therefore it is not identified as an aquifer. However, there is the potential to intersect deep water-bearing fractures with sufficient capacity to service a single-family residence.
What is the SIA Quarry?

OPERATIONAL DESCRIPTION

The South Island Aggregates Quarry is a 50-acre property currently extracting rock that is crushed to manufacture gravel for roads, rip-rap, concrete aggregate and landscape rock.

The rock extracted from the Quarry has been proven to be extremely hard and is considered of the highest quality in the South Island Region.

The Quarry operates under the jurisdiction of the BC Ministry of Mines (Permit Number Q-8-094).

The property is located within Electoral Area B of the CVRD and is zoned F-1 Primary Forestry.
NAME: DAVE HUTCHINSON
ADDRESS: 2116 CULLIN RD.
CONTACT: dave.shawigan@shaw.ca

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

MANY TOO MANY TO LIST

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

RESPONSIBLE WASTE MGMT IS NECESSARY
 BUT IT IS COMPLETELY PREPOSTEROUS THAT
 ALLOWING HIGHER LEVELS OF CONTAMINANTS
 INTO AN ALREADY FRAGILE WATERSHED IS
 EVEN BEING CONSIDERED.

SIA SHOULD NOT BE PERMITTED TO DUMP
 INDUSTRIAL/COMMERCIAL FILL. HOW WAS THIS
 ALLOWED IN THE FIRST PLACE.
Please provide any other comments here.


Any interested individuals can SIGN UP FOR MORE INFORMATION to receive copies of the submitted comments and input summary directly. If you want further information, you can PRE-REGISTER to attend a focus group meeting, to be scheduled with interested individuals.

PROJECT WEBSITE:
www.sialtd.ca/moe_home.html

PROJECT CONTACT INFORMATION:
SIA c/o Active Earth Engineering Ltd. 4083 Shelbourne Road Victoria, BC, V8N 5Y1
feedback@activeearth.ca
COMMENT FORM
South Island Aggregate Waste Discharge Permit Application to the Ministry of Environment
May 31, 2012 PUBLIC INFORMATION MEETING

Please Provide Your Name and Contact Details:

<table>
<thead>
<tr>
<th>NAME:</th>
<th>Paul HARDMAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>2270 E. Shuwanigan Lake Rd.</td>
</tr>
<tr>
<td>CONTACT:</td>
<td><a href="mailto:P-hardman@hotmail.com">P-hardman@hotmail.com</a></td>
</tr>
</tbody>
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Very simple - why put this in a watershed?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

The lake is at a tipping point for water quality. Please look into this and the information from Dr. Hurzander of UVic. If anything we should be taking steps to improve and protect rather than possibly harm.
Please provide any other comments here.

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<tr>
<th>NAME:</th>
<th>DAVID ABT</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>754 LORIMER RD/1635 W. SHAUNIAWW RD</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250 474 5042 (HOME) 250 213-9745 (MOB)</td>
</tr>
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*Do you have any questions about the application that were unanswered at the Public Information Meeting?*

1. **How do we guarantee drinking water will not be affected?**

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*Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?*

The Proposal "looks" well thought out but low risk is too much when health & drinking water are involved. This is in a watershed & I don't see how it is a no risk situation.
Please provide any other comments here.

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<thead>
<tr>
<th>NAME:</th>
<th>Joseph Solottur</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>100 Jovis Ave, Cattle Hill</td>
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<tr>
<td>CONTACT:</td>
<td><a href="mailto:jsolottur@telus.net">jsolottur@telus.net</a></td>
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The forum was set up to meet the minimum standard and achieved its goal. Most people could not see the information board and hear the speaker, who commenced at 6:45 pm when half of those present departed.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

A continued poorly set up session that provides little information to the public. The MOE staff did their best to the best of my knowledge the MOE representative was not present. Minister, we need a public meeting with some senior government officials to ensure a fair presentation to the public is provided.
Please provide any other comments here.

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I feel that all my questions were answered and I have all the information I need to make an educated decision.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I have thought about it a lot, and I feel that this is a positive plan to take care of an existing problem.

However, I do feel that certain groups are involved in fear mongering and are causing people not to express a petition before they had their questions answered.
Please provide any other comments here.

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<tr>
<th>NAME:</th>
<th>A. EVANS</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>2059 Sweetshade Pl</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-743-4196</td>
</tr>
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Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I do not approve. How can we be sure that every truckload of fill can be checked. Nothing like this should be allowed in the watershed of Shawnigan Lake. Would it be allowed in the Sproat Lake watershed - I think not!
Please provide any other comments here.

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>Pamela Evans</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>2059 Sweetgale Place</td>
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<tr>
<td>CONTACT:</td>
<td>742-4196</td>
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**Do you have any questions about the application that were unanswered at the Public Information Meeting?**

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**Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?**

This could be a very good system in the right place. But not in the Snowy River watershed.
Please provide any other comments here.

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<thead>
<tr>
<th>NAME:</th>
<th>Roswynne Convert</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>Box 218 Stronghurst, ON</td>
</tr>
<tr>
<td>CONTACT:</td>
<td><a href="mailto:Roswynne@telus.net">Roswynne@telus.net</a></td>
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SIA c/o Active Earth Engineering Ltd. 4083 Shelbourne Road Victoria, BC, V8N 5Y1
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glenda woodley

2270 E. Shawnigan Lake Rd

glenda.woodley@yahoo.ca

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I don't trust Michael Kelly - his access building lifted over the fence and put down at the lakeshore on Shawnigan Lake next to the galley is illegal. He couldn't get anyone to build it so he turned off hydro for 2 hours and lifted it over the fence. I saw it!!

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

Your integrity is on the line. The school has asked you many times for a bus turnaround at Shawnigan Station and you have ignored the School Board requests. You are not a community person and your true colours are showing!!
Please provide any other comments here.

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>ROCKIE COLLINS</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>343 BAY ST.</td>
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<td>CONTACT:</td>
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NO. I THINK IT WAS A GOOD PRESENTATION.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I THINK THE LOWER ISLAND NEEDS A SITE TO TAKE THIS MATERIAL TOO. IT WILL ALLOW MATERIAL TO BE HANDLED PROPERLY. SOME OF THE LOCAL SITES AREAS WILL BE ABLE TO CLEAN UP THEIR SITES AND DEVELOP THEM. AT THIS TIME IT IS TOO EXPENSIVE TO DO SO BECAUSE OF THE DISTANCE THE MATERIAL HAS TO GO. MATERIAL IS NOT BEING DISPOSED OF PROPERLY BECAUSE OF THE COSTS.
Please provide any other comments here.

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<thead>
<tr>
<th>NAME:</th>
<th>BRUCE STEVENS</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>1975 E. SHANNONIAN LAKE RD SHANNON LAKE</td>
</tr>
<tr>
<td>CONTACT:</td>
<td><a href="mailto:jenniebruce1@gmail.com">jenniebruce1@gmail.com</a></td>
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Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I DON'T UNDERSTAND HOW A PROPOSAL SUCH AS THIS IN A KNOWN WATERSHED COULD POSSIBLY BE CONSIDERED. THE MINISTRY MUST HAVE GUIDELINES THAT WOULD STOP A PROPOSAL LIKE THIS ONE IN ITS TRACKS.
Please provide any other comments here.

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May 31, 2012 PUBLIC INFORMATION MEETING

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<tr>
<th>NAME:</th>
<th>Jennifer Young</th>
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<tr>
<td>ADDRESS:</td>
<td>670 Snowbank Lake Rd</td>
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<tr>
<td>CONTACT:</td>
<td>250-743-7101</td>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

- Why was there not a Public Meeting with a Question and Answer period so that there is an appearance of transparency?

- Would any of the MOE like to drink the water from the creek beside the Railway Tracks?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?
Please provide any other comments here.

Any interested individuals can SIGN UP FOR MORE INFORMATION to receive copies of the submitted comments and input summary directly. If you want further information, you can PRE-REGISTER to attend a focus group meeting, to be scheduled with interested individuals.

PROJECT WEBSITE:
www.sialtd.ca/moe_home.html

PROJECT CONTACT INFORMATION:
SIA c/o Active Earth Engineering Ltd. 4083 Shelbourne Road Victoria, BC, V8N 5Y1
feedback@activeearth.ca
**COMMENT FORM**

South Island Aggregate Waste Discharge Permit Application to the Ministry of Environment
May 31, 2012 PUBLIC INFORMATION MEETING

Please Provide Your Name and Contact Details:

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<tr>
<th>NAME:</th>
<th>Maureen Mark</th>
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<tr>
<td>ADDRESS:</td>
<td>Box 95</td>
</tr>
<tr>
<td>CONTACT:</td>
<td><a href="mailto:maureenmark@shaw.ca">maureenmark@shaw.ca</a></td>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

- Who will monitor the company's actions? Self-monitoring is not enough.

- How will the public know what contaminants are going into the site (have gone in—we don't know what is already in it.)

- What is the impact of airborne contaminants when soils are left exposed for "reclamation"?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

- A full review of the suitability of this site at the headwaters of Shaunigan Lake needs to be done.

- The track record of this company needs to be examined—have they been in compliance in other areas of their operations?

- Why has this company been allowed to dump on park land? (Check the photos.)
* Contaminated waste sites need to be set up in areas evaluated safe environmentally—not in a watershed for a major water supply.

* Would Victoria allow a contaminated waste site in their watershed?
Do you have any questions about the application that were unanswered at the Public Information Meeting?

The reps from Active Earth helped to fill in some of the questions I have regarding how the non-labour soil is to be treated. It was important to learn that slurry bed rock are also part of the process.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I have been informed that the CVRD has several sites where contaminated soil has been deposited. Since our district needs a safe site - it seems reasonable to try to restrict the trickle dumping these loads to that soil found in our district. The CVRD should provide it’s own site. This pays for the site, development and then monthly. Once the mine is closed the SIA Company may be short of money. Then
Please provide any other comments here.

1. Who monitors where the soil comes from and how it will interact with the site?

2. Who ensures that the company will follow through and do what they have promised to do?

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<tr>
<th>NAME:</th>
<th>BARRY GATES</th>
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<tr>
<td>ADDRESS:</td>
<td>264 STEBBINGS RD</td>
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<tr>
<td>CONTACT:</td>
<td>250-704-9469</td>
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MOST QUESTIONS REMAIN UNANSWERED

VERY POOR PUBLIC FORMAT

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

WE NEED DIRECT CONTACT WITH MOE TO VOICE OUR CONCERNS, NOT THROUGH THE APPLICANT
Please provide any other comments here.

INADEQUATE

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

________________________________________________________________________________________________________________________________________________________________________________________

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

**IT IS UNFORTUNATE THAT WE EVEN ALLOW AN APPLICATION FOR CONTAMINATED WASTE TO BE DISPOSED OF IN ANY WATERSHED. TO GIVE SIA THIS PERMIT WOULD BE AN INJUSTICE TO EVERYONE WHO DEPENDS ON THIS WATERSHED. THE PROPOSAL AS THE SITE LOOKS SOLID, MY ONE**
CONCERN IS ITS LOCATION. THE IDEA OF USING A MINE SITE AS A CONTAMINATED SOIL DEPANNING SITE IS EXCELLENT AGAIN THE TROUBLE NEAR HERE IS LOCATION. WE MUST DEAL WITH CONTAMINATED SOILS, BUT BURYING THEM WITHIN ANY WATERSHED IS CRIMINAL. THE MOE JUST STATED THAT THEY WOULD NOT PREJUDGE ANY PERMIT APPLICATIONS. I AM IN AWE THAT THE MINISTRY OF ENVIRONMENT WOULD EVEN CONSIDER AN APPLICATION WITHIN THE WATERSHED BOUNDARIES.

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<tr>
<th>NAME:</th>
<th>E.E. White</th>
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<tr>
<td>ADDRESS:</td>
<td>2643 Wyldwood, Sheringham Lake</td>
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<td>CONTACT:</td>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

Many. Why was a site so close to Sheringham Creek & its headwater creeks chosen?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

This proposal's advantages are all to the benefit of the applicant. It already has the site, needs fill, can get it from Cap Regal Dist. 4. Move to South Coquihalla, I am extremely doubtful about a facility where all the monitoring & reporting is done by the applicant.
Please provide any other comments here.

Please see comments on the front.

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<table>
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<tr>
<th>NAME:</th>
<th>Erika Ferguson</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>2865 Lonsdale Place, Shawnigan Lake, BC</td>
</tr>
<tr>
<td>CONTACT:</td>
<td><a href="mailto:efergus@gmx.com">efergus@gmx.com</a> / (250) 886-0896</td>
</tr>
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**Do you have any questions about the application that were unanswered at the Public Information Meeting?**

1) How long will it take for surface water to travel in the tributary by the water filter/container to the lake?

2) Will property values be considered? The stigma around this is very negative & I fear my property value will be affected by the “100,000 tons of waste dumped annually”. Eww. Sounds bad.

**Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?**

1) I'm concerned about the fibre-glass water containment unit that will be located above the tributary at the site. This container will have 2nd/overflow containment but it's just fiberglass and will be outside. Currently there is no plan to protect this container from the trucks driving past it, or flying rocks, etc, etc. Also what sort of regular maintenance will this container receive?
Please provide any other comments here.

Also, the rate of surface water flow in this tributary can be estimated to a couple days at most. So if something happens to this container, the contaminants will be throughout the creek, tributary, and lake before anyone can do anything.

2) The soil being dropped at the facility will only be covered by tarps!?? And only in the winter. And it will be the responsibility of the workers on shift to "judge" if it will rain & pull the tarp over when they feel it necessary! This is too risky and the drop site really needs to be within a permanent shelter. Also, how long will this soil sit under these tarps before it is tested for leaching compounds? It's possible that rainwater will hit this soil before it's tested & contained, and that will be too late.

Too much risk! Put this facility further away from our creeks & tributaries. Please.

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

Yes. I found your "information boards" very pretty and shiny, but not so informative. You managed to say quite a lot while explaining very little.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I find it very mis-informative the way that SIA portrayed the problem of contaminated soil entering into the Shawnigan watershed. They portrayed it as our problem that they were providing a very pretty solution to. My question is, where is this contaminated soil coming from and why is it being put in our watershed?

I live in Shawnigan. I get my water directly from the lake. There is only so much that a filter can do to clean it. I shower in this water, I brush my teeth with it. I don't want the word "contaminated" anywhere near it.
Please provide any other comments here.


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<tr>
<th>NAME:</th>
<th>Thomas Pebernat</th>
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<td>ADDRESS:</td>
<td>2753 Forest Grove Lane</td>
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<tr>
<td>CONTACT:</td>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

WHAT ARE THE RISKS OF SURFACE WATER CONTAMINATION IF TESTING IS NOT PROPERLY DONE & MONITORED

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

ARE THERE APPLICATIONS FOR OTHER SITES ON THE SOUTH ISLAND?

IF YES ARE THEY BY THE SAME COMPANY?
Without a commitment for 100% risk free contamination, the owners & company benefit at the risk of the residents - this needs to be addressed head on.

Thank you for the chance to comment & the provision of information.

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<tr>
<th>NAME:</th>
<th>Georgia Collins</th>
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<tr>
<td>ADDRESS:</td>
<td>1730 McKerman Road</td>
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<tr>
<td>CONTACT:</td>
<td>250-208-9904</td>
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I think that a much more rigorous public consultation is necessary. The community of Shawnigan Lake did not have enough time to consider the facts (or get educated on the facts) in order to respond sufficiently.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?
Please provide any other comments here.

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<tr>
<th>NAME:</th>
<th>Allie Claire Sleighthome.</th>
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<tr>
<td>ADDRESS:</td>
<td>Norbury Road</td>
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<tr>
<td>CONTACT:</td>
<td><a href="mailto:hello.allie@gmail.com">hello.allie@gmail.com</a></td>
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There was a question that was not clear to me: "will there be impacts on the watershed and on drinking water?" You never answered the question. In the case of a natural disaster any number of things could happen to contaminate the water I bathe and wash dishes in.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

It has come to my attention that 125 tons (?) have been shipped to the dumping site to this point. You have a lot of guts to do so before the people have had a say. It is unfair to send your dirty business to beautiful Shawnigan Lake. You say the smell that will be keeping everything in is superman material well how is that 100% and when has something like this ever worked? In the case of an accident what do you expect to do and how will you fix it? Currently the waste is being transported in a dump truck.
Please provide any other comments here.

with a tarp. How can we be sure that there is no under cover work of already contaminated toxic substances in the dumptrucks. Seriously I am a 45 year old girl, I have lived in Shawnigan Lake for the past 9 years. The change I have seen in that short amount of time is extraordinary. From a sweet quiet village with few people to an urbanized loud and busy wreck. Boats are leaking oil into the lake now you want to send crap into it as well?

Thank you it so very much appreciated. ---*sigh*

I am very shocked with the human race lately. My generation is trying to save the world by recycling EVERYTHING we use from batteries to styrofoam. I fail to understand why you (SIA and friends) are taking the easy and destructive way out. I am highly disappointed in you and your choices.

Please reconsider for the people, for the earth, for humanity! If you do this and it fails it will harm many people. Karma will get ya :)

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I hope you do this correctly, if it goes wrong keep trustworthy workers.
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<tr>
<th>NAME:</th>
<th>Shayla Brown</th>
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"Is there anyway the system could leak?" Like anyway at all? and if so I think we deserve to know what.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

Yes, already a large amount of residential and industrial soil has been placed in the area. I know there is a small chance that it could include contaminants, but what if it does, I live in this area and don't need or want water
Please provide any other comments here.

Problems. Now I've been told that there is a chance that leached soil can be placed in the containment center. The system is very well built, the design seems well built. I appreciate the effort you've put into ensuring that this will be safe. But I still don't agree with it. Put contaminated soil so close to everything and everyone. I'm a tad upset this is happening.

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<th>NAME:</th>
<th>Janet Cundall</th>
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<tr>
<td>ADDRESS:</td>
<td>2652 Morgan Way Box 206 56</td>
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- ecological treatment of waste water before discharge into the lake needs to be investigated. see e.g. www.livingwater.org.uk with wetlands naturally cleaning waste water, more ways to cleaning water are made possible. wetlands doing clean
  water have mine could be created. they also produce useful products as well as clean water

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

- please look at www.livingwater.org.uk as they treat waste water from BP, body shop, fish canning, other industries using recycling waste knowledge in plants. microorganisms that grow by removing pollution & creating clean water, much as green plants trees take in co2 produce o2
SOUTH ISLAND AGGREGATES | MINE RECLAMATION PLAN
operational update for sustainable land reclamation

Please provide any other comments here.

Earthquake zone issues.
Soda Lake Reserve has nothing to do with us @ S.I.A.
Ecological water treatment in conjunction with suggestions to reduce B.C.O.D. here can help!

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<tr>
<th>NAME:</th>
<th>Judith Maria</th>
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<td>ADDRESS:</td>
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<td>CONTACT:</td>
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As you remove the rock from the mine, can you fill at the same rate and as you go along remove one load and fill one load or when does the filling commence?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?
Please provide any other comments here.

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<tr>
<th>NAME</th>
<th>Brian Martin</th>
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<td>ADDRESS</td>
<td>5120 Wildview Crst. Saanich</td>
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<td>CONTACT</td>
<td>250 479 3366</td>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

No

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I live in Saanich but I have property interest on Shawnigan Lake. I find SIA's material thorough and informative. I trust that the engineers and MEC will monitor the site to ensure that it remains a contained site. I live less than one kilometre from the Hartland Rd dump in the Prospect Lake watershed. I use and drink well water that is downgrade from the existing dump and have for more than 30 years. The engineering and monitoring works here. I have no problem with Shawnigan residents continuing to send their trash to the dump.
Please provide any other comments here.

I am disappointed in the approach that have posted signs (with skull and crossbones) before coming to the forum and and informing themselves of the proposal.

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Please Provide Your Name and Contact Details:

| NAME: | CONNIE MAGNUSSON |
| ADDRESS: | 2258 NADONVIEW ROAD |
| CONTACT: | 1547576070 @ SHAW.CA |

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

_The question of why this S.I.A. site, as proposed, is the best solution for the disposal of contaminated waste has not been addressed._

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

_by disposing waste in the Shannigan watershed, at any point, one may as well dump waste directly into the lake, as that is the tertiary drainage point of water for the consumption on Shannigan Lake's citizens._

_The proposed dumping of contaminated waste would not be tolerated in any other watershed jurisdiction on Vancouver Island, not to mention this capital regional district watershed that is heavily gated and guarded by threatening forces._
Please provide any other comments here.

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**COMMENT FORM**

South Island Aggregate Waste Discharge Permit Application to the Ministry of Environment
May 31, 2012 PUBLIC INFORMATION MEETING

Please Provide Your Name and Contact Details:

<table>
<thead>
<tr>
<th>NAME:</th>
<th>DOUG MAKAROFF</th>
</tr>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>Lot B EPP#334</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-386-6600</td>
</tr>
</tbody>
</table>

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

I am opposed to this
I want a public hearing to really hear from the public

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?
Please provide any other comments here.


Any interested individuals can SIGN UP FOR MORE INFORMATION to receive copies of the submitted comments and input summary directly. If you want further information, you can PRE-REGISTER to attend a focus group meeting, to be scheduled with interested individuals.

PROJECT WEBSITE:
www.slatec.ca/moe_home.html

PROJECT CONTACT INFORMATION:
SIA c/o Active Earth Engineering Ltd. 4083 Shelbourne Road Victoria, BC, V8N 5Y1
feedback@activeearth.ca
**SOUTH ISLAND AGGREGATES | MINE RECLAMATION PLAN**
operational update for sustainable land reclamation

**COMMENT FORM**
South Island Aggregate Waste Discharge Permit Application to the Ministry of Environment
May 31, 2012 PUBLIC INFORMATION MEETING

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>Tim Taylor</th>
</tr>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>2787 Gregory Road, Shawnigan Lake</td>
</tr>
<tr>
<td>CONTACT:</td>
<td><a href="mailto:taylor@enttechniques.com">taylor@enttechniques.com</a></td>
</tr>
</tbody>
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How can the MOE properly protect and monitor this development. For decades to come? I feel it is impossible and unlikely for proper protection of our drinking water to be implemented and maintained into the long term future.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I feel that drinking water is too precious to risk contamination and that the current forest and mining operations in the area have already polluted our water to the point that any more fill is unacceptable.

Please say NO to any fill other than clean fill rated for residential use.
I cannot accept that with a diminishing number of staff of Provincial and Federal scientific resources will be able to effectively protect/monitor this proposed development.

How can any guarantee be made that the engineered "cells" will not break down or be "cheapened" to help the company's bottom line?

I would like to see a formal public meeting or series of meetings to address this proposal before its approval/disapproval.

I also object to any industrial activity in the Shawnigan Lake that has any risk to the quality of the drinking water in our area. This includes housing/developments in the upstream area of the lake, logging on hillsides and active mining in the area as well.

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www.sialtd.ca/moe_home.html

PROJECT CONTACT INFORMATION:
SIA c/o Active Earth Engineering Ltd. 4083 Shelbourne Road Victoria, BC, V8N 5Y1
feedback@activeearth.ca
NAME: Rick Sanders
ADDRESS: 1190 Lower Ridge Rd, Shaunner Lake
CONTACT: Rick.Sanders@Shaunner.c.com

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I need to know the percentage of chance this will impact Shaunner Lake's watershed!
Take water quality site.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I personally recognize the need for a sustainable waste sustainable land reclamation site.
Please what I don't understand why you would consider putting anywhere near a lakeside community.
Please provide any other comments here.

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<thead>
<tr>
<th>NAME:</th>
<th>Brian Scione</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>3504 Happy Valley Rd</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-883-7721</td>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?


Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

Better dumped in a controlled Biocell than in the yards Dump sites.
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What guarantee do we have that monitoring will continue properly in future?

Every environmental disaster engineers presentations convincing people that it was safe. Find a site nowhere near my drinking water.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I think there are many areas that are not endangering a community water source. I have seen 40 mil polyliners leak even if not exposed to UV due to puncture or leaks. I do not trust the monitoring process at a time when changes to the Fisheries Act are endangering non-commercial fisheries, environmental personnel are laid off and Coast Guard stations are closing. Find another site!
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Please Provide Your Name and Contact Details:

| NAME:          | TANYA GILLESPIE |
| ADDRESS:       | 3240 BIRCH RD. |
| CONTACT:       | gillespietanya@gmail.com |

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

________________________________________________________________________
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Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I Grew up on Shawnigan Lake. The thought that there would be a dumpsite remotely close to this area makes me feel sick. It is also insulting. You wouldn't want someone shitting in your back yard, even if it was through a "very good filter" would you?

SINCERLY, TANYA GILLESPIE
Please provide any other comments here.


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<tr>
<th>NAME:</th>
<th>BRANDON FOREMAN</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>265 TRANS-CANADA</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-508-3299</td>
</tr>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

What is being done to identify the challenges or environmental impact of the trucks transporting this waste over the malahat. With the highway having so many accidents, how can we be sure that this waste will not end up in Gold stream or Spectacle Lake.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I believe that any waste site proposed by SIA should not be considered given the track record of the company. Stop this!
Please provide any other comments here.

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<tr>
<th>NAME:</th>
<th>David Coughlin</th>
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</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>770 Shawnigan Lake Rd</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-567-7367</td>
</tr>
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How can anyone consider refilling the mine with soil a lesser quality than what was there originally?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

Do not let them potentially destroy our Community. Please.
Please provide any other comments here.

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

I wouldn't really call it a meeting: There were way too many people, I couldn't even find anyone to talk to. So, yes, all my questions went unanswered.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

Why would you even consider an application to put any kind of contaminated fill near a town's watershed? - We drink out of that water!
I am absolutely against this! It is so disrespectful to even consider something like this.

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>MARKE NOBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>2310 RENFREW RD</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>MARKE <a href="mailto:NOBLE@TELUS.NET">NOBLE@TELUS.NET</a></td>
</tr>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

[Handwritten: USELESS]  
I want an open forum meeting with the decision makers present.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

[Handwritten: We don’t need another Waterston. Any effect on the runoff into Shawnigan Lake has not been considered. More study and public consultation should occur before making this through.

[Signature: J. Nobles]
Please provide any other comments here.

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>Debbie Noble</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>2318 Renfrew Rd.</td>
</tr>
<tr>
<td>CONTACT:</td>
<td><a href="mailto:debbie.noble@gmail.com">debbie.noble@gmail.com</a></td>
</tr>
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No, there needs to be a forum for discussion. Information was not accessible. No information. This was not helpful. We need a public open discussion forum.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

Shocked at the disregard of the safety of clean drinking water. For the people, does Walkerton bring back memories?

Signature: [Signature]
Please provide any other comments here.


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Do you have any questions about the application that were unanswered at the Public Information Meeting?

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Why are they moving contaminated soil from the CRD in areas where there are no wells, nor watershed or sources of water that they drink and moving that soil to our watershed (right beside a main feeder creek to the lake) in which we draw our drinking water. Seems to me they want their soil cleaner than need be and don't care about the protection of our watershed.

If this was an application to dump on the Sooke watershed it would have been flatly turned down. Considered the chart when I am a second class citizen.
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<tr>
<th>NAME:</th>
<th>Peter Nordbrugget</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>Shawnigan Hala</td>
</tr>
<tr>
<td>CONTACT:</td>
<td><a href="mailto:nordbrugget@shaw.ca">nordbrugget@shaw.ca</a>.</td>
</tr>
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SIA c/o Active Earth Engineering Ltd. 4063 Shelbourne Road Victoria, BC, V8N 5Y1
feedback@activeearth.ca
NAME: Miriam Cooke-Dallin
ADDRESS: 2056 Cullin Rd Shawnigan Lake
CONTACT: 778-977-2903 or wroandhim@yahoo.com

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

- what is non-leachable soil?
- is this possible?
- doesn't all soil dissolve & leach out elements?
- at the end of 50+ years when the site is exhausted (fuel?) what happens to it? won't the liner material eventually breakdown?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I would like to be guaranteed that there will be adequate government stay to monitor the site. Recent cut backs to government services suggest the future is uncertain for all programs that ensure our environmental safety.
Please provide any other comments here.

Any interested individuals can SIGN UP FOR MORE INFORMATION to receive copies of the submitted comments and input summary directly. If you want further information, you can PRE-REGISTER to attend a focus group meeting, to be scheduled with interested individuals.

PROJECT WEBSITE:
www.sla ltd.ca/moe_home.html

PROJECT CONTACT INFORMATION:
SIA c/o Active Earth Engineering Ltd. 4083 Shelbourne Road Victoria, BC, V8N 5Y1
feedback@activeearth.ca
**COMMENT FORM**

South Island Aggregate Waste Discharge Permit Application to the Ministry of Environment
May 31, 2012 PUBLIC INFORMATION MEETING

Please Provide Your Name and Contact Details:

<table>
<thead>
<tr>
<th>NAME:</th>
<th>Gordon E. Palmier</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>1650 E. Shawnigan Lake Rd.</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>Shawfair @shaw.ca</td>
</tr>
</tbody>
</table>

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*Do you have any questions about the application that were unanswered at the Public Information Meeting?*

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*Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?*  

We do not feel that any dumping should be allowed in a water shed, this is our drinking water, everything contaminated or not will end up in the lake with heavy rains, common sense.
Please provide any other comments here.

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>Goroj Cukrovich</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>2664 Crystagree Dr</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-380-8901</td>
</tr>
</tbody>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

No

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

A Good Site to Accomodate A Well Needed Disposal Area for Contaminated Material
Please provide any other comments here.

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>Jim Green</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>2210 Kenfro Rd</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>604-321-4288</td>
</tr>
</tbody>
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Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

The proposal is based on "error-free" management. Very little supervision. Assumed responsibility. This firm can "sell" their contract - is that wise or without MOE agreement.

If this proposal was on the south side of the hill it could reach into Victoria water supply.

It would not be approved. Think about it!
Please provide any other comments here.

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<thead>
<tr>
<th>NAME:</th>
<th>Christine Hollned</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>1401 Lovers Lane</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>743-6736 <a href="mailto:pacwavecorp@telus.net">pacwavecorp@telus.net</a></td>
</tr>
</tbody>
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Springs - the entire area is fed by springs. The rock formations, altitude or soil/clay conditions have no relevance in this situation.

Spillage: One load of contaminated soil spilt outside of area will create contamination the complete watershed.

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

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<thead>
<tr>
<th>NAME:</th>
<th>Jeremy McSherry</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>1559 West Shearwater Lake Rd</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-213-3557</td>
</tr>
</tbody>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

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Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I am in the construction industry and believe that this would be great for the south end of the island. Due to the fact that the only dump site is upland, I think people don't dispose of their solid properly and it should be dumped in a safe and controlled environment.
Please provide any other comments here.

Any interested individuals can SIGN UP FOR MORE INFORMATION to receive copies of the submitted comments and input summary directly. If you want further information, you can PRE-REGISTER to attend a focus group meeting, to be scheduled with interested individuals.

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<thead>
<tr>
<th>NAME:</th>
<th>Darrell Murray</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>2655 Courtney Way</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250 882 9392.</td>
</tr>
</tbody>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

No

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I think it's a good choice for our community & local economy. I am excited to see this go through and the opportunities for employment it will create.
Any interested individuals can SIGN UP FOR MORE INFORMATION to receive copies of the submitted comments and input summary directly. If you want further information, you can PFE-REGISTER to attend a focus group meeting, to be scheduled with interested individuals.

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PROJECT CONTACT INFORMATION:
SIA c/o Active Earth Engineering Ltd, 4083 Shelbourne Road Victoria, BC, V8N 5Y1
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<table>
<thead>
<tr>
<th>NAME:</th>
<th>Brad Martin</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>700 Shawinigan Lk. Rd.</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-418-5522</td>
</tr>
</tbody>
</table>

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

No everything was very well presented!

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I fully support this proposal. It has been my experience that the cost prohibitive nature of dumping "contaminated soil" is so high that most of it is being illegally dumped in god knows where. Hopefully this will lead to most if not all of the contaminated soil in the lower island to be dumped appropriately and regulated by professional engineers.
Please provide any other comments here.


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PROJECT WEBSITE:
www.sialtd.ca/mce_home.html

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>Kent Sheldrake</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>692 Shennigan Lake Rd.</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>250-213-5478</td>
</tr>
</tbody>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

[No]

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I think the proposed is good for the community, I think the people opposed are misinformed.

Thanks.
Please provide any other comments here.

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feedback@activeearth.ca
**COMMENT FORM**

South Island Aggregate Waste Discharge Permit Application to the Ministry of Environment
May 31, 2012 PUBLIC INFORMATION MEETING

Please Provide Your Name and Contact Details:

| NAME:     | R Pope  |
| ADDRESS:  | 2125 Renfrew Rd, Shawnigan Lake, BC V0R 2W1 |
| CONTACT:  | poppa@gmail.com |

All written comments and submissions will be forwarded to the Ministry of Environment to inform their review of the Application. A summary of the input received, along with copies of all original submissions, will be shared with stakeholders and posted to the project website.

_Do you have any questions about the application that were unanswered at the Public Information Meeting?_

---

_Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?_

After reading the information I feel the reaction from the community recall the "No Contaminated Soil" sign is similar to the world reaction following the Japanese earthquake and tsunami in March 2011. That is...all nuclear power plants - regardless of where they were located were put on notice of closure. I don't think there were many or indeed if any people here in Shawnigan who had any idea what "Contaminated Soil" is. This is blown out of proportions. Give them...
SOUTH ISLAND AGGREGATES | MINE RECLAMATION PLAN
operational update for sustainable land reclamation

Please provide any other comments here.


Any interested individuals can SIGN UP FOR MORE INFORMATION to receive copies of the submitted comments and input summary directly. If you want further information, you can PRE-REGISTER to attend a focus group meeting, to be scheduled with interested individuals.

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May 31, 2012 PUBLIC INFORMATION MEETING

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<table>
<thead>
<tr>
<th>NAME:</th>
<th>Joseph Soldier</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>1401 Lovers Lane, Cable Hill</td>
</tr>
<tr>
<td>CONTACT:</td>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

I want to know the likely impact of a level three near surface earthquake and a level five medium depth earthquake on the subsurface soil structure below the mine site?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

In 2012 I found it unfathomable that the MTL would ever entertain the proposal to dump five million tonnes of contaminated soil in the Cowichan Valley Regional District.
Any interested individuals can SIGN UP FOR MORE INFORMATION to receive copies of the submitted comments and input summary directly. If you want further information, you can PRE-REGISTER to attend a focus group meeting, to be scheduled with interested individuals.

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feedback@activeearth.ca
COMMENT FORM
South Island Aggregate Waste Discharge Permit Application to the Ministry of Environment
May 31, 2012 PUBLIC INFORMATION MEETING

Please Provide Your Name and Contact Details:

| NAME:           | Peter Wainwright, Te’mexw Treaty Assoc. |
| ADDRESS:        | 9485 Greenlade Rd, Sidney, V8L 3T6 |
| CONTACT:        | pauwright@islandnet.com, 250-656-1908 |

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Do you have any questions about the application that were unanswered at the Public Information Meeting?

Can I get a copy of the materials presented at the open house?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

Te’mexw and Malahat First Nation will be reviewing this information and meeting with SIA. We will be providing comments on the referral. The information at the open house was informative and the proponents staff were helpful.
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<tr>
<th>NAME:</th>
<th>Aaron Jones</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td>2990 Leigh Rd</td>
</tr>
<tr>
<td>CONTACT:</td>
<td>(90) 715-7008</td>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

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Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

I think it is great SIA is taking a pro-active approach to properly dispose of materials. I believe they have done more than their due diligence and suggest they be granted their application for this much needed facility!
Please provide any other comments here.

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<tr>
<th>NAME:</th>
<th>S. Henderson</th>
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<tr>
<td>ADDRESS:</td>
<td></td>
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<tr>
<td>CONTACT:</td>
<td>250 713-4580</td>
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*Do you have any questions about the application that were unanswered at the Public Information Meeting?*


*Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?*
- No concerns. Well prepared proposal.
- A good alternative to illegal dumping.

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<tr>
<th>NAME:</th>
<th>Shawnigan Village Waterworks</th>
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<tbody>
<tr>
<td>ADDRESS:</td>
<td></td>
</tr>
<tr>
<td>CONTACT:</td>
<td>Rod Lidstone 250-860-2516</td>
</tr>
</tbody>
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Do you have any questions about the application that were unanswered at the Public Information Meeting?

- Will the Ministry of Environment be actively involved during the construction phase to ensure quality controls?
- Now are the samples & applications for soils being submitted to Ministry of Environment?

Do you have any comments you wish to share with the Ministry of Environment to inform their review of the application?

- We are very impressed with the design of the project.
- We are especially impressed with the multiple layers of protection.
- The ongoing sampling and many different sample points was very important to us and we were happy to see that all of the potential points of contamination are being checked.
Please provide any other comments here.

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<thead>
<tr>
<th>QUESTIONS</th>
<th>RESPONSES</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIA should not be permitted to dump industrial/commercial fill. How was this allowed in the first place?</td>
<td>Any previous imported industrial/commercial quality fills have been under the authorization of a project-specific Contaminated Soil Relocation Agreement.</td>
<td>Responsible waste management is necessary but it is completely preposterous that allowing higher levels of contaminants into an already fragile watershed is even being considered.</td>
</tr>
<tr>
<td>Why put this in a watershed?</td>
<td>Precipitation falling onto all land reports to standing water bodies. As such, all land is within a watershed of some description.</td>
<td>The lake is at a tipping point for water quality. Please look into this and the information from Dr. Murzunder of UVic. If anything we should try taking steps to improve and protect rather than possibly harm.</td>
</tr>
<tr>
<td>How do we guarantee drinking water will not be affected?</td>
<td>Surface water and groundwater quality monitoring will be included as permit requirements. The monitoring points are designed to provide significant early warning in the event that water quality is being affected, such that drinking water resources can be adequately protected.</td>
<td>The proposal &quot;looks&quot; well thought out but low risk is too much when health and drinking water are involved. This is in a watershed and I don't see how it is a no risk situation.</td>
</tr>
<tr>
<td>I feel that all my questions were answered and I have all the information I need to make an educated decision. I have thought about it a lot and I feel that this is a positive plan to take care of an existing problem. However, I do feel that certain groups are involved in fear mongering and are coercing people with signing a petition before they had their questions answered.</td>
<td>I do not approve. Nothing like this should be allowed in the watershed of Shawnigan Lake. Would it be allowed in the Southlake watershed - I think not!</td>
<td>The forum was set up to meet the minimum standard and achieved its goal. Most people could not see the information boards, hear the speaker who commenced at 6:45pm when half at least the public had departed. A contrived, poorly set up session that provided little information to the public. The M of F staff at least tried but to the best of my knowledge the (?) representative was not present. Minister we need a public meeting with some senior government involvement to ensure a fair presentation to the public is provided.</td>
</tr>
<tr>
<td>How can we be sure that every truckload of fill can be checked.</td>
<td>Appropriate controls and checks are proposed to ensure that soil quality is adequately characterized at the source site. This characterization is further confirmed through a proposed QA/QC</td>
<td></td>
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## QUESTIONS

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<tr>
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<th>RESPONSES</th>
<th>COMMENTS</th>
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<tr>
<td>program which will include collecting and analyzing periodic samples from material as it is brought to the facility.</td>
<td>This could be a very good system in the right place. But not in the Shawnigan Lake watershed.</td>
<td></td>
</tr>
<tr>
<td>Have you forgotten Walkerton?</td>
<td>I don't trust Michael Kelly - his accessory building was lifted over the fence and put down at the lakeshore on Shawnigan Lake next to the gallery is illegal. He couldn't get anymore to build it so he turned off Hydro for 2 hours and lifted it over the fence. I saw it!! Your integrity is on the line. The school has asked you many times for a bus turnaround at Shawnigan Station and you have ignored the school board requests. You are not a community person and your true colors are showing!!</td>
<td></td>
</tr>
<tr>
<td>No, I thought it was a good presentation. I think the lower island needs a site to take this material to. It will allow material to be handled properly. Some of the local areas will be able to clean up their sites and develop them. At this time it is too expensive to do so because of the distance the material has to go. Material is not being disposed of properly because of the costs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I don't understand how a proposal such as this in a known watershed could possibly be considered. The Ministry must have guidelines that would stop a proposal like this one in its tracks.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Open House Forum was envisioned to allow one-on-one discussions with stakeholders and Technical Specialists such that questions and concerns could be assessed. In any case, a Public Meeting was subsequently organized by the CVRD in response to this request.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring at the site will occur under permit and be undertaken by third-party, qualified professionals. Results will be reported directly to MOE for review and verification. The types and concentrations of allowable contaminants will be specified within the permit. The issue of airborne contaminants when soils are left exposed</td>
<td>A full public review of the suitability of this site at the headwaters of Shawnigan Lake needs to be done. The track record of this company needs to be examined - have they been in compliance in other areas of their operations? Contaminated waste sites need to be set</td>
<td></td>
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## RESPONSES

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<tr>
<th>RESPONSES</th>
<th>COMMENTS</th>
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<tbody>
<tr>
<td>program which will include collecting and analyzing periodic samples from material as it is brought to the facility.</td>
<td>This could be a very good system in the right place. But not in the Shawnigan Lake watershed.</td>
</tr>
<tr>
<td>I don't trust Michael Kelly - his accessory building was lifted over the fence and put down at the lakeshore on Shawnigan Lake next to the gallery is illegal. He couldn't get anymore to build it so he turned off Hydro for 2 hours and lifted it over the fence. I saw it!! Your integrity is on the line. The school has asked you many times for a bus turnaround at Shawnigan Station and you have ignored the school board requests. You are not a community person and your true colors are showing!!</td>
<td></td>
</tr>
<tr>
<td>No, I thought it was a good presentation. I think the lower island needs a site to take this material to. It will allow material to be handled properly. Some of the local areas will be able to clean up their sites and develop them. At this time it is too expensive to do so because of the distance the material has to go. Material is not being disposed of properly because of the costs.</td>
<td></td>
</tr>
<tr>
<td>I don't understand how a proposal such as this in a known watershed could possibly be considered. The Ministry must have guidelines that would stop a proposal like this one in its tracks.</td>
<td></td>
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<tr>
<td>The Open House Forum was envisioned to allow one-on-one discussions with stakeholders and Technical Specialists such that questions and concerns could be assessed. In any case, a Public Meeting was subsequently organized by the CVRD in response to this request.</td>
<td></td>
</tr>
<tr>
<td>Monitoring at the site will occur under permit and be undertaken by third-party, qualified professionals. Results will be reported directly to MOE for review and verification. The types and concentrations of allowable contaminants will be specified within the permit. The issue of airborne contaminants when soils are left exposed</td>
<td>A full public review of the suitability of this site at the headwaters of Shawnigan Lake needs to be done. The track record of this company needs to be examined - have they been in compliance in other areas of their operations? Contaminated waste sites need to be set</td>
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<td>for &quot;reclamation&quot;?</td>
<td>contaminants has been assessed extensively as part of the Technical Assessment Report. Monitoring and mitigation measures have been proposed which will ultimately become a requirement of the permit. A past slope failure, during a period of high precipitation, resulted in the deposit of some fill soils onto adjacent lands. A reclamation plan was determined and implemented in consultation with the CVRD. The CVRD has confirmed the successful reclamation of this area of slope failure.</td>
</tr>
<tr>
<td>Who pays for the site development and then monitoring? Once the mine is closed the SIA company may be short of money. Then what? Who monitors where the soil comes from and how and with what it is contaminated with? Who ensures that the company will follow through and do what they promised to do?</td>
<td>All works and monitoring would be the responsibility of SIA. A mine closure plan has been prepared. This includes appropriate bonding to ensure that sufficient funds are available to monitor the Site for as long as is deemed necessary. Source site soil must be appropriately classified in accordance with MOE requirement. This data is reviewed by SIA’s technical specialists prior to acceptance. The MOE serves as the regulating body to ensure that permit requirement are being met.</td>
</tr>
<tr>
<td>Why was a site so close to Shawnigan Creek and it's headwater creeks chosen?</td>
<td>The Site being proposed is owned by SIA and is subject to an existing Mines Act. This proposal's advantage are all to the benefit of the applicant (it already has</td>
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<tr>
<td>How long will it take for surface water to travel in the tributary by the water filter/container to the lake? Will property values be considered? The stigma around this is very negative and I fear my property value will be affected by the &quot;100,000 tons of waste dumped annually.&quot; Eww - sounds bad.</td>
<td>Travel times for surface water along the tributary are dependent upon the time of year. During summer months, most inputs along the tributary would be expected to infiltrate within several meters of the point of discharge. During winter months, when the tributary is flowing, travel times would be hours or days. Property values are not anticipated to be affected since the operations will not change substantially from that of the operating aggregate mine. An Emergency Response Plan has been prepared as an amendment to the existing Mine Emergency Response Plan. The Plan envisions all such potential incidents, no matter how unlikely.</td>
</tr>
<tr>
<td>My question is, where is this contaminated soil coming from and why is it being put in our watershed? There is only so much a filter can do to clean it. I shower in this water, I brush my teeth with it. I don't want the word &quot;contaminated&quot; anywhere near it.</td>
<td>Contaminated soil is anticipated to be sourced from any number of contaminated sites throughout the South Island Region. The water treatment employed will be sufficient to ensure that discharge water quality objectives, specified in the permit, are being met.</td>
</tr>
<tr>
<td>What are the risks of surface water contamination if testing is not properly</td>
<td>Given that only non-leachable soils will be accepted to the facility, impacts to</td>
</tr>
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<td>done and monitored? Are there applications for other sites on the south island? If yes, are they by the same company?</td>
<td>surface water quality are anticipated to be negligible. In any case, all surface water will report to a common collection and treatment system. Water will be tested in accordance with the permit requirements prior to discharge. We are only aware of the application at hand.</td>
</tr>
<tr>
<td>There was a question that was not clear to me. &quot;Will there be any impacts on the watershed and on drinking water.&quot; You never answered the question. In the case of a natural disaster any number of things could happen to contaminate the water I bathe and wash dishes in. It has come to my attention the 125 tons (?) have been shipped to the dumping site to this point. You have alot of guts to do so before the people have had a say. It is unfair to send your dirty business to beautiful Shawnigan Lake. You say the shell that will be keeping everything in is superman material, well how is that 100% and when has something like this ever worked? In the case of an accident, what do you expect to do and how will you fix it. Currently the waste is being transported in a dump truck with a tarp. How can we be sure that there is no undercover work or already contaminated toxic substances in the dumptrucks.</td>
<td>The facility has been designed such that there will be no impacts to surface water or groundwater. Monitoring will be carried out to demonstrate and confirm this in accordance with the permit requirements. The site regularly receives residential quality fill as a condition of its reclamation plan. Any industrial quality soil brought to the site has been under the authorization of a Contaminated Soil Relocation Agreement issued under the Waste Management Act. Natural disasters, such as earthquakes, have been considered and incorporated into the facility design. An Emergency Response Plan has been prepared which specified measures to be undertaken associated with any number of scenarios. All modern landfills employ similar design characteristics including synthetic liners and leachate detection/collection systems.</td>
</tr>
<tr>
<td>Is there any way the system could leak?</td>
<td>The facility has been designed to</td>
</tr>
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<td>Like anyway at all? And if so, I think we deserve to know what.</td>
<td>incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak contaminants into the environment.</td>
</tr>
<tr>
<td>Ecological treatment of waste water before discharge into the lake needs to be investigated. See <a href="http://www.livingwater.org.uk">www.livingwater.org.uk</a> with wetlands naturally cleaning waste water. More ways of cleaning water are made possible. Wetlands already clean water but mine could be (?). They also provide useful products as well as clean water.</td>
<td>The treatment system proposed is a conventional system with proven, highly effective results.</td>
</tr>
<tr>
<td>As you remove the rock from the mine, can you fill at the same rate and as you go along ex. remove one load and fill one load or when does the filling commence?</td>
<td>A larger area will be mined and prepared for cell construction. The sequencing will not be based on truck-for-truck.</td>
</tr>
<tr>
<td>I am disappointed in the opponents that have posted signs (with skulls and crossbones) before coming to the forum and informing themselves of the proposal.</td>
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<td>The question of why this SIA site, as proposed, is the best solution for the disposal of contaminated waste has not been addressed.</td>
<td>The Site being proposed is owned by SIA and is subject to an existing Mines Act Permit which requires that it be reclaimed. SIA has identified a need for viable, responsible contaminated soil disposal options within the South Island Region.</td>
</tr>
<tr>
<td>I am opposed to this. I want a public hearing to really hear from the public.</td>
<td></td>
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<tr>
<td>I need to know the percentage of chance this will impact Shawnigan Lake's watershed, lake water quality etc.</td>
<td>The facility is located approximately 5km from Shawnigan Lake and represents less than 1/100th of 1 percent of the total watershed area. Given the multiple</td>
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<td>What guarantee do we have that monitoring will continue properly in the</td>
<td>The facility will require bonding in accordance with the permit requirements. This will ensure that sufficient funds are available for monitoring and decommissioning should the site owners not follow through on long-term commitments.</td>
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<td>future?</td>
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<tr>
<td>What is being done to indentify the challenges or environmental impact of</td>
<td>Currently, most septic systems along Shawnigan Lake are directly hydraulically connected to the Lake. Monitoring over the past decades has found high levels of fecal coliform and other bacteria indicating that those who “grew up on Shawnigan Lake” have, and continue to, impact the lake through their own domestic sewage. The facility is located 5 km from Shawnigan Lake, and is hydraulically separated by 250’ of competent bedrock. As such, unlike residences along the Lake, it will not result in impacts to the Lake.</td>
</tr>
<tr>
<td>the trucks transporting this waste over the Malahat. With the highway</td>
<td>Truck traffic along the Malahat Highway is beyond the scope of this application. The permit will not result in a net increase to truck traffic and as such, it does not result in an increased risk of accidents. Considering the current alternative of trucking contaminated soil to Cumberland, the facility will actually result shorter travel times for trucks containing contaminated soil. As such, the probability of an accident will be similarly reduced.</td>
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<tr>
<td>having so many accidents, how can we be sure that this waste will not</td>
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<tr>
<td>How can anyone consider refilling the mine with soil a lesser quality than what was there originally?</td>
<td>The mine was filled with rock. Rock is not considered soil in accordance with the Contaminated Sites Regulation definitions.</td>
</tr>
<tr>
<td>More than three times the minimum consultation period was allotted to this application (i.e. 104 days versus the minimum 30 days). The facility design has been ongoing for more than a year, incorporating multiple iterations of feedback.</td>
<td></td>
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<tr>
<td>Why are they moving contaminated soil from the CRD in areas where there are no well, nor watersheds or sources of water that they drink and moving that soil to our watershed (right beside a main feeder creek to the lake) in which we draw our drinking water.</td>
<td>Contaminated soil is anticipated to be sourced from various communities throughout the South Island. There are an estimated 1,000-2,000 contaminated sites within the South Island region alone. These include many sites within the CVRD such as the many former incinerator ash sites created through the incineration of CVRD residents’ domestic refuse.</td>
</tr>
<tr>
<td>Yes - I am concerned about the residual nitrate left in the ground post blast. Leaching into the aquifer is a common problem in the blasting industry. What effect is this causing? There have been noticeable algae bloom that are not typical of previous decades.</td>
<td>Baseline surface water and groundwater monitoring, conducted as part of the application and environmental impact assessment found concentrations of all nutrients (including Nitrate and Nitrite) to be within Drinking Water Standards (for groundwater) and BC Approved Water Quality Guidelines (for surface water).</td>
</tr>
</tbody>
</table>
### What is non-leachable soil?

*Is this possible?*

Doesn't all soil dissolve and leach out elements?

At the end of 50+ years when the site is exhausted (full?), what happens to it?

Won't the liner material eventually break down?

---

**Leachability** is tested using standardized laboratory methods, the most common of which is known as the Toxicty Characteristic Leaching Procedure (TCLP). This test exposes soil to a weak acid solution for a specified period and analyzes the resulting solution for concentrations of dissolved contaminants. The weak acid is meant to simulate worst-case, atmospheric conditions (i.e. acid rain). The BC Hazardous Waste Regulation establishes dissolved phase concentrations limits to determine when contamination is considered “leachable” and “non-leachable”.

The liner system is designed to remain competent for an indefinite period. The underlying bedrock, which serves as the final layer of protection, is a bedrock known as Wark Gneiss, a mafic unit of an early Paleozoic metamorphic complex. It has been in place, and remained competent, for several hundred million years.

---

**I** would like to be guaranteed that there will be adequate government staff to monitor the site. Recent cut backs to gov't services suggest the future is uncertain for all programs that ensure our environmental safety.

---

**We do not feel that any dumping should be allowed in a watershed. This is our drinking water, everything contaminated or not, will end up in the lake with heavy rains - common sense.**

---

A good site to accommodate a well needed disposal area for contaminated material.

---

**The proposal is based on ”error free” management. Very little supervision. Assumed responsibility. This firm can ”sell” their contract - is that with or without MOE agreement.**

If this proposal was on the Sooke side of the hill and could leach into Victoria's water supply it would not be approved. Think about it!

---

**Springs - the entire area is fed by springs. The rock formations altitude or soil/clay conditions have no relevance in this situation. Spillage - One load of contaminated soil spilt outside of area will contaminate the complete watershed.**

---

We are not aware of any springs in the area.

An Emergency Response Plan has been prepared which specified measures to be undertaken associated with any number of scenarios.

---

I am in the construction industry and believe that this would be great for the south end of the island, Due to the fact
<table>
<thead>
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<th>Question</th>
<th>Response</th>
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<tr>
<td>that the safe only dump site is upland. I think people don't dispose of their soil properly and it should be dumped in a safe and control environment.</td>
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<tr>
<td>I think it's a good choice for our community and local economy. I am excited to see this go through and the opportunities for employment it will create.</td>
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<tr>
<td>Everything was very well presented. I fully support this proposal. It has been my experience that the cost prohibiteness of dumping &quot;contaminated soil&quot; is so high that most of it is being dumped illegally, dumped in god knows where. Hopefully this will lead to most if not all of the contaminated soil in the lower island to be dumped appropriately and regulated by professional engineers.</td>
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<tr>
<td>I think the proposal is good for the community. I think the people opposed are misinformed. Thanks.</td>
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<tr>
<td>After reading the information I feel the reactions from the community, i.e. all the &quot;no contaminated soil&quot; signs is similar to the world’s reaction following the Japanese earthquake and tsunami in March 2011. That is - all nuclear power plants - regardless of where they were located were put on Notice of Closure. I don't think there were many indeed, if any people here in Shawnigan who had any idea of what &quot;contaminated&quot; soil is. This is blown out of proportion.</td>
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<tr>
<td>I want to know the likely impact of a level three near surface earthquake and a level five medium depth earthquake in the sub surface soil structure below the mine site</td>
<td>The facility has considered seismic loads for a 1:200 year seismic event and has incorporated these considerations into the overall design.</td>
</tr>
<tr>
<td>Can I get a copy of the materials (boards) that were presented at the open house?</td>
<td>The boards are available on the SIA Application website found at the following web address: <a href="http://www.sialtd.ca/~sialtd/moe_home.html">http://www.sialtd.ca/~sialtd/moe_home.html</a></td>
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<td></td>
<td>Te'mexw and Malahat First Nations will be reviewing this information and meeting with SIA. We will be providing comments on the referral. The information at the open house was informative and the proponent’s staff were helpful.</td>
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<td></td>
<td>I think it is great SIA is taking a pro-active approach to properly dispose of materials. I believe they have done more than their due diligence and suggest they be granted their application for this.</td>
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<tr>
<td>Will the Ministry of Environment going to be actively involved during the construction phase to ensure quality control? How are the samples and applications for soils being dumped submitted to Ministry of Environment.</td>
<td>No concerns. Well proposed proposal. A good alternative to illegal dumping. We are very impressed with the design of the project. We are especially impressed with the multiple layers of protection. The ongoing sampling and many different sample points was very important to us and we were happy to see that all of the potential points of contaminating are being checked.</td>
</tr>
<tr>
<td>Soils proposed to be received at the facility require characterization at the generator site by a qualified professional, in accordance with MOE Technical Guidelines. Analytical testing must be undertaken by a third party, accredited laboratory and laboratory reports are required to be submitted to SIA as part of the application process. SIA’s technical representatives then review the data and determine whether or not the soil should be accepted, rejected or characterized further. Soil characterization will be further confirmed through a proposed QA/QC program which will independently verify the quality of some proportion of soil coming into the facility.</td>
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# Focus Group Meetings (to be scheduled)

## PRE-REGISTRATION FORM

<table>
<thead>
<tr>
<th>NAME:</th>
<th>ADDRESS:</th>
<th>CONTACT (phone or e-mail):</th>
<th>Would you like to Attend a Focus Group Meeting?</th>
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<tbody>
<tr>
<td>Jim Green</td>
<td>2210 Learmonth Rd</td>
<td>250-743-6555</td>
<td>❑</td>
</tr>
<tr>
<td>Dave Hutchinson</td>
<td>2116 Cullin Rd</td>
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<tr>
<td>Brent Beach</td>
<td>1656 E Shaunigan Lake</td>
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<td>Janet Neiksen</td>
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<td>Daphne Moldowin</td>
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<td>✓</td>
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<tr>
<td>Valerie Logan</td>
<td>2465 Lulain Rd</td>
<td>250-743-4340</td>
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<tr>
<td>Kym Smith</td>
<td>661 TCH</td>
<td>250-391-0205</td>
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<tr>
<td>Brandon Foreman</td>
<td>265 Trans Canada</td>
<td>250-508-3299</td>
<td>✓</td>
</tr>
<tr>
<td>Vlad Vagel</td>
<td>1519 Thaw Rd, St. Lahi</td>
<td>250-743-1214</td>
<td>✓</td>
</tr>
<tr>
<td>Geoff MacKenzie</td>
<td>646 Frazer Rd</td>
<td>250-516-4231</td>
<td>✓</td>
</tr>
<tr>
<td>Steve &amp; Jen Eldridge</td>
<td>360 Stabbings Rd</td>
<td>250-733-2169</td>
<td>✓</td>
</tr>
<tr>
<td>Ben Pollock</td>
<td>1659 W. Shaunigan Rd</td>
<td>250-929-8700</td>
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</tr>
<tr>
<td>Erika Ferguson</td>
<td>2865 Lonsdale Place</td>
<td>250-886-0896 /eferguson@gmx.com</td>
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<tr>
<td>Nigel Hayes</td>
<td>1714 Wilmet Ave</td>
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<td>Janet Cowell</td>
<td>2652 Morgan Bx, 206 S.L</td>
<td>250-712-3190</td>
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<td>Thom Perrott</td>
<td>2753 Forest Grove Ln</td>
<td><a href="mailto:tpeb@shaw.ca">tpeb@shaw.ca</a></td>
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<tr>
<td>NAME</td>
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<tr>
<td>Judi Stewart</td>
<td>2214 Shaw Lk Rd</td>
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<td>☑️</td>
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<tr>
<td>Wayne Stewart</td>
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<td>J. Magnusson</td>
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<tr>
<td>Nicola Craig</td>
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<td>Erina Ferguson</td>
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<tr>
<td>Sydney Brown</td>
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<td></td>
<td>☑️</td>
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<td>Cindy Larr</td>
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<tr>
<td>Lynn Shields</td>
<td>1716 Robin Hill Dr</td>
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<tr>
<td>Rev McCoy</td>
<td>2639 Rauden Rd, S.L.</td>
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<td>☑️</td>
</tr>
<tr>
<td>Doyle Child</td>
<td>2675 Mill Dry Rd</td>
<td>dogleecrisland.ca</td>
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<tr>
<td>NAME</td>
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<tr>
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<tr>
<td>Robert Leete</td>
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<td>✓</td>
</tr>
<tr>
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<td>Matt Segar</td>
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<td>Les Dawes</td>
<td>2172 Mclaren Rd St</td>
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<td>Yes</td>
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<td>Tim Taylor</td>
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<td>Tony More '495 Goldstream Heights</td>
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<td>Wilma Coleman</td>
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<td>Cruise Braider</td>
<td>2485 Recreation Rd</td>
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<td>Jane Barton</td>
<td>3570 Telegraph Rd</td>
<td>743 6127</td>
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<td>D. Jones</td>
<td>Wyldewood</td>
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<td>Steve Krause</td>
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<td>Nigel Mayes</td>
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<td>Linnec Johnson</td>
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<td>Trotter</td>
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<td>Rod Heere</td>
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<td>Ann A Wilcox</td>
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APPENDIX I
CVRD PUBLIC FORUM, JULY 12, 2012
AMENDMENT
to incorporate
CONTAMINATED SOIL DISPOSAL
in reclamation plan

SOUTH ISLAND AGGREGATES
QUARRY
460 Stebbings Road, Malahat
Electoral Area B, South Shawnigan Lake, CVRD
PRESENTATION OVERVIEW

- Context
  - Watershed/Aquifer
  - Contaminated Sites

- Overview of Permit Application
  - Waste Discharge Authorization Application
  - Proposed Facility Design

- SIA Operations
  - Overview of Mine Operations and Mine Life
  - Operational Issues of Concern
WATERSHED AND AQUIFER ASSESSMENT

- LOCATED IN UPPER REACHES OF SHAWNIGAN LAKE CATCHMENT
  - Site elevation reaches 340m (geodetic).

- NO AQUIFER BENEATH SITE
  - Spectacle Lake/Cobble Hill Bedrock Aquifer mapped 1 km east
  - Shawnigan Lake/Cobble Hill Aquifer mapped to north 2 km north

- MONITORING WELLS DRILLED ON SITE AND NEARBY WATER WELLS
  - Shallow bedrock (0-250 ft) has extremely low permeability ($K=8\times10^{-10}$ m/s)
  - Deep bedrock (below 250 ft) has low permeability ($K=2\times10^{-7}$ m/s)

- GROUNDWATER TRAVEL TIMES
  - Greater than 100,000 years to flow vertically from ground surface to deep bedrock
  - Additional 3,000 years to flow laterally in deep bedrock to Shawnigan Lake
  - Would require 3,000,000 years to flow to Shawnigan Lake within upper bedrock
CONTAMINATED SITES IN BC

- Approximately 15,000 sites registered in the BC Sites Registry
- Estimate 4,000-6,000 Brownfields in BC
- BC has over 4,000 contaminated sites on Federal Land (the most in Canada)
- Federal Government has allocated $15B to clean up Federal Contaminated Sites
- Province estimates 2,000-3,000 contaminated sites on Provincial Crown Land
- BC has spent several hundred million – has not fully accounted for all liabilities
- Estimate that many thousand more contaminated sites on private land are unregistered
- Estimate 1,000-2,000 contaminated sites within the South Island Region
- 20 registered sites within 5km of Shawnigan Lake Village centre
Contaminated Sites pose a risk to human health and the environment

Many are actively impacting drinking water resources and aquatic receiving environments

Remediation involves reducing risk to acceptable levels – often involves removal of contaminated soil

Currently, remediation in South Island Region is inhibited by high costs associated with trucking contaminated soil up-Island or barging to the Mainland

In other parts of the Province (Lower Mainland, Interior, Okanagan, North) there are several viable, economical options for soil treatment and management
OVERVIEW OF PERMIT APPLICATION

- APPLICATION FOR MINING PERMIT AMENDMENT – RECLAMATION
  - Change range of soil quality for pit backfill

- REQUIRES WASTE DISCHARGE AUTHORIZATION FROM MOE
  - Trigger Effluent Discharge Application
  - Trigger for Technical Assessment Report
  - Technical Assessment Completed by Active Earth

- TECHNICAL ASSESSMENT REPORT INCLUDES
  - Evaluation of all applicable environmental factors
  - Detailed design of proposed facility
  - Final Report near completion – incorporates MOE review and other stakeholder feedback
Where is the SIA Site?

SITE LOCATION
The subject property (the “Site”) is located at 693 Stebbings Road, in the South Shawngian Lake Area (Electoral Area B) within the Cowichan Valley Regional District.

The Site is approximately 5.0 km south of Shawngian Lake, 3.5 km west of Finnigan Arm, 1.5 km north of Devereaux Lake and 5.5 km east of Sockeye Lake.

The Site is located in the upper reaches of the South Shawngian Lake catchment. The area is terrain by shallow bedrock as expressed through steep slopes and significant rises in elevation.

The Site comprises a local peak elevation of approximately 340 m.NAD, and the ground surface in the area generally rises to the south reaching peak elevations of 640 m.NAD.
ON-SITE GROUNDWATER MONITORING WELLS
- No viable aquifer mapped beneath the Site
- Drilling on Site has shown 250 feet of extremely low permeability bedrock
- Upper bedrock has negligible yield, lower rock has very low yield
- Equivalent of 2,000 times level of protection required by MOE for protecting drinking water aquifers (permeability and thickness)

BACKGROUND MONITORING COMPLETED
- Five existing monitoring wells have been installed and sampled to establish baseline groundwater quality
- Existing water wells up-gradient and down-gradient of the Site have also been sampled to establish off-Site baseline conditions

MONITORING PROGRAM
- Technical Assessment Report has proposed bi-annual monitoring and reporting of groundwater quality – this will be stipulated in the permit
SHAWNIGAN CREEK
- Flows immediately east of SIA Quarry area
- Approximately 17m higher than Proposed Surface Water Discharge point (i.e. current ephemeral headwater)
- Restrictive Covenants enforce SPEA +/-60 m width

EPHEMERAL TRIBUTARIES
- Located immediately west of Site
- Ephemeral headwater located at edge of SIA Quarry
- All stormwater from proposed facility would be discharged at this location

MONITORING PROGRAM
- Includes u/s and d/s locations, sampled monthly; and weekly during peak and minimum flow events
- Baseline sampling and monitoring completed
PROPOSED FACILITY DESIGN
KEY DESIGN CONSIDERATIONS

- Site Preparation
- Soil Receiving and Treatment Area
- Cell Design and Construction
- Leachate Prevention, Detection, Collection and Treatment
- Water Treatment and Discharge
- Final Cap, Closure and Monitoring
SOIL TREATMENT CONSIDERATIONS

- POTENTIAL TO ADD SOIL TREATMENT TO FACILITY OPERATIONS
  - Would allow for beneficial re-use of suitable contaminated soil

- SOIL TREATMENT WOULD REQUIRE CONSTRUCTION OF BIOREMEDIATION AREA
  - Includes synthetic liner beneath asphalt liner with leak detection/collection

- MOE PERMIT APPLICATION INCLUDES OPTION TO TREAT SOIL
CELL DESIGN AND CONSTRUCTION

- MULTI-BARRIER APPROACH
  - Site conditions highly favourable
  - Accepted soils to be non-leachable only
  - Clay liner over bedrock
  - Drainage layer (leak detection)
  - 40 mil LLDPE synthetic base liner (per MOE Guidance)
  - Drainage layer (leachate detection)
  - Multiple 30 mil LLDPE synthetic cap liners
  - Final cap includes 1 m low permeability soil over synthetic liner
  - Water treatment system

- KEY DESIGN DETAILS
  - Passive system
  - Use of cells limits climatic exposure and maximizes flexibility in construction
BENEFITS OF PROPOSED FACILITY

- ENVIRONMENTALLY RESPONSIBLE
  - Local solution to local issues
  - Ideal location, geology, hydrogeology and design

- BROWNFIELD REMEDIATION
  - Consistent with current BC Government programs
  - Enable remediation of government sites – Regional, Provincial and First Nations and Federal

- GREEN HOUSE GAS REDUCTION
  - Decreased truck traffic on Island Highway
  - Only disposal site currently on Vancouver Island is 7-Mile landfill in RDMW

- ECONOMIC STIMULUS
  - Will facilitate urban development – large spinoff effect
  - Jobs to operate facility (estimate 10 FTEs)
What is the SIA Quarry?

**OPERATIONAL DESCRIPTION**
SIA’s main quarry at 640 Stebbings Road is a 50-acre site located x km south of South Shawnigan Lake Road. From this central location, SIA supplies products to the Greater Victoria and southern Vancouver Island region. The rock extracted from the SIA quarry has proven to be extremely hard and is considered of the highest quality. Products generated at the SIA quarry include:

- Road Bases
- Quarry Rock, Sand and Gravel
- Screenings
- Rip Rap
- Clear Crush
- Concrete Aggregate
- Landscape Rock

The Stebbings Road area is regarded for its production of high grade construction aggregates, at least five quarries currently exist within a 1.0 km radius of the Site.

**REGULATORY FRAMEWORK**
The Site is currently operated as a rock quarry under the jurisdiction of the BC Ministry of Mines permit number G 8-094.

The property is located within Electoral Area B of the CVRD and is zoned F1 Primary Forestry.
In November 2010, a local contractor contacted SIA to receive a quantity of soil represented as being clean and acceptable for the fill site. During the course of shipment, SIA staff observed the soils to be of questionable quality. At that time, shipment of the soil was halted. The soil was subsequently tested and determined to exceed Industrial Land Use standards. Analytical results showed that the soil was not Hazardous Waste. SIA continues to try to resolve the issue with the responsible parties. In the meantime, SIA voluntarily remediated the soils and this was successfully completed between April and June 2012. The soils are currently stored in a holding cell pending legal proceedings.
Operations can result in increased silt loads during heavy rainfall.
SIA contracted Active Earth to prepare a Sediment and Erosion Control Plan.
Key features include:
- Site clearing and grading during dry season
- Use of sediment traps, silt fencing, drainage swales and sediment ponds strategically placed to filter site runoff.
- Rip-rap channels constructed on steeper slopes to control erosion.
SIA has implemented Plan recommendations.
SEDIMENT AND EROSION CONTROL MEASURES
1. INDEPENDENT MONITORING
   § Permit monitoring will be undertaken by qualified professionals
   § Reporting will be prepared and submitted in accordance with permit requirements and will be publicly accessible
   § Ministry of Environment reviews compliance
   § SIA is proposing to fund independent, qualified, credible, third-party monitor

2. EARTHQUAKE / NATURAL DISASTER
   § No local faults – very hard, durable rock
   § Slopes designed to be geotechnically stable (slope 2.5:1) (modelled using XSTABL)
   § Designed to withstand a 1:1000 event
   § Water treatment facilities designed to accommodate 1:200 year event

3. HAZARDOUS WASTE
   § Will not be accepted at the proposed facility

4. VARIFICATION OF SOIL QUALITY
   § Must meet MOE Guidance for characterization
   § Receiver Site Professional must sign off on analytical results – will be reviewed by SIA Professional representative
   § Periodic quality checks will be undertaken at the facility
5. **BLASTING**
   - Blasts are not significant enough to de-stabilize cells
   - Blasts are focussed and targeted
6. **TRUCKING**
   - The quarry needs to be filled either way, so no change in trucking volume
7. **WHY THIS SITE?**
   - This is the Site which is owned by SIA
   - SIA can only make an application for a permit on property which they own
8. **WHERE ELSE HAS THIS TYPE OF FACILITY BEEN CONSTRUCTED?**
   - All modern municipal landfills employ similar design principles
   - Dozens of contaminated soil management facilities throughout Western Canada – hundreds throughout North America
   - Nearby example is the Hartland Landfill servicing the CRD (municipal refuse)
HARTLAND LANDFILL - CRD

- **Closed landfill area**
- **Active face**
- **Leachate lagoon**
- **Gas collection**
- **Leachate collection**
- **Lining system**
- **Gas utilization plant**
- **Monitoring well**
- **Final cover system**
- **Aggregate**
- **Landfill Cells**
- **Groundwater**
- **Temporary cover (tarp)**
- **Clean runoff to creek**

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**Clean runoff to creek**

**Monitoring wells** are used to monitor groundwater quality.

**Final cover system**

The lowest part of the landfill, usually sealed with a plastic liner and soil cover.

**Gas collection**

Gas is collected from the landfill and conveyed through piping to a gas treatment plant.

**Leachate collection**

Rainwater that seeps through the landfill and becomes contaminated.

**Lining system**

A series of horizontal liners to prevent groundwater below from entering the landfill.

**Gas utilization plant**

The gas is converted to energy for use.

**Leachate lagoon**

A man-made lagoon to collect and test leachate.

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**Monitoring well**

Monitoring wells are used to monitor groundwater quality.

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**Landfill Cells**

Layers of waste and cover materials.

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**Temporary cover (tarp)**

A temporary protective layer over the landfill.

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**Active face**

The area of the landfill where waste is being added.

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**Aggregate**

A mixture of crushed stone, gravel, and other materials used for construction.
9. WHAT ARE THE POTENTIAL IMPACTS TO SURFACE WATER?
   • Only non-leachable soils accepted, leachate detection, collection, and treatment systems incorporated into proposed design
   • All water leaving the site reports to a treatment system which is designed to achieve BCWQG
   • All treated water is tested prior to discharge
   • Surface water quality is monitored at strategic points, both up- and down-stream of the discharge point
   • Monitoring results compared to baseline established during permit application process

10. WHAT ARE THE POTENTIAL IMPACTS TO GROUNDWATER?
    • No leachate generation – detection, collection and treatment as backup
    • Multi-barrier design
    • Virtually impermeable bedrock (250 feet)
    • Monitoring on-site and down-gradient wells – results compared to baseline data
QUESTIONS AND COMMENTS

feedback@activeearth.ca

www.sialtd.ca
PUBLIC MEETING MINUTES
South Island Aggregates (SIA)
Waste Discharge Permit Application
and
Mining Permit Amendment Application

Following is a summary of the proceedings of the Public Meeting for South Island Aggregates (SIA) Waste Discharge Permit Application and Mining Permit Amendment Application, held on Thursday, July 12, 2012, in the Kerry Park Recreation Centre - Arena, 1035 Shawnigan Mill Bay Road, Mill Bay, B.C. at 6:40 p.m.:

WELCOME & INTRODUCTIONS

Rob Hutchins, CVRD Board Chair called the meeting to order.

Chair Hutchins, on behalf of the CVRD Board of Directors, welcomed and thanked the public for attending the Public Meeting.

Chair Hutchins introduced Chief Michael Harry, Malahat First Nations and Jean Crowder, MP. He noted that Bill Routley, MLA, was unable to attend the meeting.

Chair Hutchins introduced the following CVRD Directors:
Director Mike Walker, Electoral Area A – Mill Bay/Malahat
Director Bruce Fraser, Electoral Area B – Shawnigan Lake
Director Gerry Giles, Electoral Area C – Cobble Hill
Director Lori Iannidinardo, Electoral Area D – Cowichan Bay
Director Loren Duncan, Electoral Area E – Cowichan Station/Sahtlam/Glenora
Director Ian Morrison, Electoral Area F – Cowichan Lake South/Skutz Falls
Director Mel Dorey, Electoral Area G – Saltair/Gulf Islands
Director Mary Marcotte, Electoral Area H – North Oyster Diamond
Director Pat Weaver, Electoral Area I – Youbou Meade Creek

Chair Hutchins introduced CVRD Staff:
Warren Jones, CAO, CVRD
Rob Conway, Acting General Manager, Planning & Development Department
Jennifer Hughes, Recording Secretary, Planning & Development Department
Jessica Lendrum, Secretary, Planning & Development Department

Chair Hutchins further introduced the following representatives:
Hubert Bunce and Luc LaChance, Ministry of Environment (MoE)
Eddy Taje, Ministry of Energy and Mines
Marty Block, South Island Aggregates (SIA)
David Mitchell and Jeff Taylor, Active Earth Engineering

PUBLIC MEETING PURPOSE & PROCESS

Chair Hutchins gave a Power Point Presentation (EXHIBIT 1) which outlined the following:
- Meeting Purpose
- Question Period Procedure
- Public Input Procedure – it was determined that speakers will have three minutes to express their views
- Meeting Conduct
PUBLIC

There were approximately 350 members of the public in attendance.

CORRESPONDENCE

The following items were received and are attached to the Minutes as Exhibits:
1) CVRD Power Point Presentation (EXHIBIT 1);
2) Ministry of Environment, Hubert Bunce, Power Point Presentation (EXHIBIT 2);
3) David Mitchell and Jeff Taylor, Active Earth Engineering, Power Point Presentation (EXHIBIT 3);
4) All submissions received at the CVRD Office (EXHIBIT 4).

Chair Hutchins

Introduced Hubert Bunce, Ministry of Environment

Hubert Bunce,
Ministry of Environment (MoE)

- MoE is processing an application made by SIA under the *Environmental Management Act* for authorization to treat and discharge waste to their site on Stebbings Road and thanked the CVRD for hosting the Public Meeting.
- Primary purpose of the Public Meeting is to have SIA present their information to the public and to gather the concerns of the public prior to a decision being made.
- SIA held a previous open house at the end of May where it was requested by the public that a Public Meeting be held.

Mr. Bunce gave a Power Point Presentation (EXHIBIT 2) which outlined the following:
- Waste Discharge Regulation (WDR);
- Permit Application Process which is broken down into seven key steps:
  1. Pre-Application
  2. Preparation of Application
  3. Public Notification and Consultation
  4. Application
  5. Ministry Review
  6. Decision
  7. Appeal (if applicable)
- Notification and Consultation regarding Requirements, Activities to Date, When and How Concerns can be Heard;
- He represents only one part of MoE’s Division of Environmental Protection and another part of that group are the Biologists who study watersheds and water quality. MoE has been monitoring the watershed since 1970 and a comprehensive water quality study was conducted in 1984 which resulted in provisional Water Quality Objectives that were officially established in 2007.
- The application is currently at Step 3 of the 7 Step Permit Application Process.
- Public notification regulation has a minimum 30 day notification for public consultation. Consultation for the application started May 10th and it is well past the 30 day notification process. The Public Meeting is also forming part of the consultation process.
- Applicant is working through the Permit Application Process and after Step 6 under the *Environmental Management Act* all decisions are appealable to the Environmental Appeal Board by any person or party aggrieved by the decision 30 days after the notice of the decision is given. Environmental Appeal Board is an independent agency which hears appeals from decisions made by government officials related to environmental issues.
Chair Hutchins

Asked for questions from the public present to be directed to Mr. Bunce.

Lavonne Hunick

- 1348 Duffield Drive, Cobble Hill, but is in Electoral Area B – Shawnigan Lake.
- Has a letter dated December 4, 2003, to Brian Umber, Orca Environmental, from Eric Partridge, Director of Waste Management, MoE. Asked what happens after the permit?
- She informed the CVRD on May 9, 2012 of soil contamination on DL 78, Malahat, and has been informed that nothing has been done with regard to that contaminated soil relocation.

Hubert Bunce

- It is not straightforward process as there are a number of different types of authorizations and the Malahat soils issue is dealt with under a regulation which is handled by the Land Remediation Branch of MoE. Minister Blake has been in discussions with the CVRD around the issue of contaminated soils coming into various locations of the CVRD.
- Subject application is for a permit which is specific to a given location that will have specific rules and site specific characteristics.

Lavonne Hunick

- If there is site specific for SIA and there is site specific for DL 78 are they both under MoE’s jurisdiction and will they looking at it or ignoring it?

Hubert Bunce

- If a permit is issued they inspect on a regular scheduled basis, as well as check data submission and how the plant is being operated.

Lavonne Hunick

- Can she phone the Ministry to find out what they have done with DL 78?

Hubert Bunce

- Land Remediation Branch, MoE, should be contacted with regard to DL 78.

Guy Walker

- 1763 Wooden Road, Shawnigan Lake
- Where is the water quality monitoring carried out, at how many sites and what are they testing for?
- There are many single family dwellings in Shawnigan Lake that are located on bedrock wells.

Hubert Bunce

- Displayed on the power point map the water monitoring sites on Shawnigan Lake and upstream where Shawnigan Creek flows into the Lake.
- Further monitoring relative to the application is being carried out at the application site and information gathered will also be considered part of the application.
- Current monitoring has focussed on nutrients as that is the primary load to the watershed but with SIA’s application they will have to change the parameters for monitoring materials to reflect the materials proposed for discharge.

Guy Walker

- Do chemists or scientists check the samples?

Hubert Bunce

- Trained volunteers will gather the samples which are forwarded onto the accredited labs for testing and analysis.
- SIA has also hired a professional consulting firm to assist them in the assessment.

Guy Walker

- Is it the company’s responsibility to continue the monitoring?
Hubert Bunce  ➢ Yes, the responsibility lies with the company but noted some responsibility also falls on MoE.

Guy Walker  ➢ By the time one of the monitoring stations registers just one of those nasty chemicals it is too late for them.

Joseph Gollnar  ➢ 1401 Lover’s Lane
➢ When the process is started what sort of baseline data does MoE collect on a site such as SIA’s or any other similar project?

Hubert Bunce  ➢ Monitoring stations are found around the Province.
➢ Some concerns in the baseline monitoring stations in the Shawnigan Watershed have been, up until now, relative to nutrients but noted that will be changing to also include metals.
➢ They do not monitor every watershed in every part of the Province.
➢ Before the application goes forward they will collect further relevant baseline information.

Joseph Gollnar  ➢ Who gathers the information, MoE or private business?

Hubert Bunce  ➢ Combination of both, as the applicant has ongoing monitoring inspection requirements to conduct and there are also inspections carried out by MoE.

Dave Hutchinson  ➢ 2116 Cullin Road
➢ Cannot blame SIA for their behaviour for profit motivation in the private sector but noted that many people do not believe it is in the public’s interest. Public relies on the government for effective regulation in protecting the public interest.
➢ Where are the parts of MoE and other parts of the government that want to help protect drinking water and the reassurances that the drinking water will be safe?

Hubert Bunce  ➢ Application has been referred out to the Ministry of Health, local government, water stewardship, biologists, along with the public to provide information to help them weigh in on the decision making process.

Dave Hutchinson  ➢ When a site of a huge scale like what is being proposed, with 5 million tons of contaminated soils over 50 years at the headwater of Shawnigan Creek which feeds into Shawnigan Lake they would expect the government would have multiple options for the public to scrutinize as to where they felt the contaminated soil should go.
➢ Feels like the Ministry is promoting the application as there are brownfield sites that the government needs to handle, for example Rock Bay.

Hubert Bunce  ➢ The old Brownfield group came out of the Expo 86 lands at False Creek where old industrial and commercial properties were developed into new foreshore developments and the whole contaminated sites legislation was developed to deal with those issues.
➢ If there are materials that are considered hazardous waste they cannot be relocated to the SIA property or on the Malahat and those materials are transported to secured landfills that are able to handle it.

Dave Hutchinson  ➢ Would not think a watershed that is used for drinking water should be used for disposing waste.
Hubert Bunce
- Planning, being progressive and having some foresight is now starting to be recognized in the Legislation but noted that they are still working on it.

Frank Scott
- 2692 Sunny Glades Lane, Shawnigan Lake
- Mentioned different levels of waste that gets shipped out of the area and asked who does the policing as to what goes into SIA’s site?

Hubert Bunce
- SIA will have a huge liability issue if they accept material they are not authorized to accept.
- There is a roster of professionals who are accredited by the Province to determine whether material is meeting the criteria or not.

Frank Scott
- If a truck driver picks up a load of waste in Victoria and brings it to SIA and that truck driver does not know what he has in his truck who says that material cannot go onto that site?

Hubert Bunce
- Comprehensive sampling will have to take place on that material and if it is deemed to be not good it gets shipped out.

Sierra Courtemanche
- Lives on the Malahat territory, Cobble Hill
- Understands the application has steps and it is within Step 3 and asked if they would ever consider having the public consultation process in Step 1 of gathering information instead of Step 3.
- Concerned about quality of water and protection.
- Asked how allowing septic systems to flow into the Lake and motor boats on the water protect the clean drinking water quality?

Hubert Bunce
- They go to consultation once the applicant has developed a fairly good application regarding what they are proposing and what the site will look like.
- Public comment is required when there is a good amount of information and all concerns and comments can be addressed.

Sierra Courtemanche
- Legislation is not quite there yet. Does the water have to be completely undrinkable before it is?

Hubert Bunce
- Would hope not.

Angela Auchincloss
- 1254 Merridale Road, Mill Bay
- Who determines the acceptable levels of contaminants in the water?
- Who will be around for the community and what processes are in place when it is found that the levels that were acceptable are no longer acceptable?

Hubert Bunce
- Relies on the science of the day to determine the water quality objectives for acceptable levels of protection to the environment.
- Fish in the water is also a real test for water quality objectives.
- Province has defined specific water parameters based on local ecology and the numbers are based on the best science available. As new science comes along they get updated.

Angela Auchincloss
- Why does it have to be done in a watershed that supplies such a broad population and community as they do not want to be a guinea pig?

Hubert Bunce
- Comes down to land use planning and noted adjacent to the watershed is the CRD watershed which excludes any residential development.
➢ Through planning and foresight things can be looked at for the future.

Grant Lord ➢ 1886 Flicker Road
➢ Has Mr. Bunce personally visited the site?

Hubert Bunce ➢ Has been to the gates of the site and his staff have been on site.

Grant Lord ➢ Does Mr. Bunce plan to make anymore visits?

Hubert Bunce ➢ May very well but does not have it on his agenda.

Joe Barton ➢ 2734 Wilmot Avenue
➢ What is defined as regularly scheduled inspections?

Hubert Bunce ➢ Depends on the application and authorizations, for example, pulp mills are visited more frequently as they are considered high risk sites.
➢ If a permit is issued on the subject site there would likely be a fairly high degree of inspections in the initial stages. If there was a level of confidence the operation was running well the inspection would likely be reduced, but noted that at this point of time he could not give an accurate answer.

Joe Barton ➢ Asked for an approximate?

Hubert Bunce ➢ Depending on site specific conditions at each location, it might be inspected more frequently or less frequently and to give a number would be rhetorical.

Joe Barton ➢ Cannot answer the question?

Hubert Bunce ➢ Could give a number but it will mean nothing at this time.

Joe Barton ➢ What bonds or assurances are required by the permittee and how much is it?

Hubert Bunce ➢ That is an issue in the permitting process and the details of the permit still have to be determined but noted that the applicant has been advised that a security will be required.

Joe Barton ➢ This is the public inquiry where the public has questions and hoped there would be answers to them.

Hubert Bunce ➢ If that is a question, please put it forward to him directly and he will give him an answer, but noted he could not give it to him right now as he would be pre-judging the assessment.

Speaker ➢ Who gives the City of Victoria permission to dump in Shawnigan Lake?

Hubert Bunce ➢ Some material is brought up the Malahat under the requirements of the Contaminated Sites Regulation along with some of the material being transported to Courtenay, some stays in the CRD and some goes elsewhere.

Speaker ➢ Does not go into a watershed?

Hubert Bunce ➢ Pretty much everywhere in B.C. is a watershed.
Speaker  ➢ Why not dump in the Victoria reservoir?

Roger Painter  ➢ 1348 Campbell Road, Shawnigan Lake
➢ Has the Ministry of Transportation & Infrastructure (BC MoT) been involved and consulted with regard to the transportation of the materials to the site and if so in what regard?

Hubert Bunce  ➢ Application was referred to BC MoT.

Roger Painter  ➢ Will the public be able to find out their comments?

Hubert Bunce  ➢ Could contact BC MoT directly.

Chair Hutchins  Introduced Eddy Taje, Ministry of Energy and Mines, and stated he would be explaining the mine reclamation and permit application process.

Eddy Taje, Ministry of Energy and Mines  ➢ Should the applicant be granted the waste management effluent permit the Ministry of Mines gets involved with regard to an amendment to the Mines Act to change the land use on the site from residential to a forestry use or an industrial use.
➢ Process is tied with MoE’s approvals, for example geotechnical samples.
➢ Normal on site inspection process for safety is approximately 4½ years.
➢ If approved the reclamation security in place will be adjusted in 2013.
➢ If the application is approved his Ministry will work closely with MoE.
➢ Another option is excluding the land from the mine and leave it to MoE to administer.

Dennis Brenton  ➢ 3215 Cobble Hill Road
➢ Is this restricted only to Island contaminants or can other contaminants be brought in from elsewhere, example, the United States?

Hubert Bunce  ➢ Application defines the annual volume limit, along with total capacity relative to the site and quality parameters that are allowed. Whether the material comes from Rock Bay, Chemainus or Vancouver does not really matter as it is within the Country but noted there are International laws for the movement of material across borders.

Edward McGuinness  ➢ Millions of tons of contaminated materials are proposed for the site and asked if it were to leach into the Lake how long will it take them to stop it?

Eddy Taje  ➢ Would be stopped fairly quickly as the site will have an impervious liner along with a geotechnical liner.
➢ If leachate was to occur it would be a very small amount and it could be contained very quickly.

Edward McGuinness  ➢ Will an earthquake cause a problem?

Eddy Taje  ➢ Not sure.

Edward McGuinness  ➢ They cannot give them any guarantees.

Eddy Taje  ➢ There are risks involved.

Edward McGuinness  ➢ In the 1960’s and 70’s a situation occurred in New York State called the Love Canal and asked if he was familiar with that?
Situation is exactly the same as what happened in the 1960's and 70's and it is the exact same scenario for what is being proposed in Shawnigan Lake.

Guy Luca

1763 Wooden Road, Shawnigan Lake

Ministry of Energy and Mines responsibility is for the hole in the ground and the reclamation of the hole in the ground but not necessarily what is goes into the hole in the ground?

Eddy Taje

Yes.

Guy Luca

They would have to alter the end use?

Eddy Taje

Yes.

Guy Luca

Who is responsible for the site in 60 years time, the Ministry of Mines, MoE or SIA?

Eddy Taje

He could not answer that question for 60 years from now.

If it is permitted by the Provincial Government then it would be the Provincial Government.

Guy Luca

What is the ultimate end use of the site either residential, industrial or reforestation?

Eddy Taje

Could be used as an industrial use with possibly a heavy duty shop or it could be reforested.

Guy Luca

Is that the Ministry of Mines responsibility?

Eddy Taje

Yes, they are responsible for the end use.

It is private land and it is their responsibility to ensure that the end land use is compatible with the environmental standards necessary for the area and for those environmental standards they would rely on the MoE.

Joseph Gollnar

1401 Lover’s Lane

Would like an accurate description of what self regulation means in terms of site inspections and provisions for the two Ministries?

Hubert Bunce

There would be conditions within the permit that would require inspections, maintenance, groundwater monitoring and surface water monitoring on an ongoing basis.

Eddy Taje

Very limited provisions for self regulation but noted Worker’s Safety components, environmental standards would be part of the conditions along with water monitoring that would have to go to an accredited lab for testing.

Tom Harkins

1228 Braithwaite Drive, Cobble Hill

Does not make sense that they can trust regulations. Asked what that has to do with the water systems or wells in the area that are connected to Shawnigan Lake that people drink?

Dave Hutchinson

2116 Cullin Road

SIA website states liners have been successfully used for decades and the life span is considered indefinite. Environment Canada website states
that all landfills will eventually release leachate to the surrounding environment and will have some impact on the local ecosystem. The liner proposed for the site is impervious but Environment Canada says differently and MoE states a third party review of Cache Creek landfill in 2009 stated minor performance, thus the issue is not whether liners will allow some leachate to escape but how much will escape and whether it will have a negative impact on the environment.

➢ Speaking about risk and possible leakage and asked why is this being contemplated in a watershed that is used as drinking water by thousands of people?

**Eddy Taje**

➢ Under their Legislation any person is entitled to make an application for any number of things and it is subject to various issues. If an application is made they have to follow a process to conclusion.

**Dave Hutchinson**

➢ Point they are trying to make is even with the best technology things go wrong, liners leak, people make mistakes and earthquakes happen and it is their drinking water.

**Sheila Brenton**

➢ 3215 Cobble Hill Road
➢ Former employee of SIA.
➢ Asked if he is the Chief Mines Inspector?

**Eddy Taje**

➢ No he is not.

**Sheila Brenton**

➢ Did he issue the original permit to SIA?

**Eddy Taje**

➢ No, he did not.

**Sheila Brenton**

➢ Since SIA has been opened fill has been brought in and asked who is responsible for where the fill came from and if it was tested prior to going onto that site?

**Eddy Taje**

➢ Presently SIA can bring in residential quality soil and the soil has to be tested at source. SIA must have records of testing and he looks at the records every month.
➢ There was a problem a while back where the soil did not meet the standards and they are currently working to resolve that issue.

**Sheila Brenton**

➢ Are there records from the first day the operation started?

**Eddy Taje**

➢ The first issue was 2004 but noted the first permittee did not thoroughly specify the standard soil that was being imported and when they followed up on that the soil standard was changed to be residential soils and there have been records ever since that time.

**Sheila Brenton**

➢ Are they aware of any contaminated fill that has been brought onto that site prior to any of those records?

**Eddy Taje**

➢ Yes, he was aware but he could not remember the year and advised that when that soil came in he worked with the agencies to resolve the issue cooperatively.

**Sheila Brenton**

➢ Does he feel their record has improved or does he even know?

**Eddy Taje**

➢ They have made major changes on site, sloping on site has been reduced
and the site has improved.

Ed Kesler
- 2320 Renfrew Road, Shawnigan Lake
- Where are the results of inquiries and can the public obtain them from MoE?

Hubert Bunce
- Submissions would form part of the public record and can be provided upon request.

Mark Hill
- 2337 Stevenson Road
- Given the chance of possible contamination of their drinking water would the Ministers of Transportation, Environment, Energy Mines and CVRD Directors along with their families drink bottled water from that site for the rest of their lives?

Eddy Taje
- Yes he would.

Mark Hill
- Will SIA be held personally liable if there was to be an environmental disaster?

Hubert Bunce
- Under the Environmental Management Act liability can and would be placed on the company and that could be potentially extended to their Directors with fines up to 1 million dollars or 6 months in jail.

Sierra Courtemanche
- Lives on Malahat Territory
- Who does SIA give the money to for the permit application?

Eddy Taje
- On their permit amendment application there is no fee but if the application is approved it could result in an increase of the security the Province holds.

Hubert Bunce
- Should a permit be issued there are fees with regard to the amount of material being discharged to the environment.

Sierra Courtemanche
- $200 for a go ahead, then more fees for soil being dumped and what are the rates for discharge?

Hubert Bunce
- Correct and there is a table that sets out discharge fees and there are also security issues.

Sierra Courtemanche
- Acknowledged that water is inside of every person and stated looking at the greatest good for everyone is most important and asked if they know the water cycle?

Eddy Taje
- Yes.

Steve Eldridge
- Stebbings Road
- Asked what is Eddy Taje’s position with the Ministry of Mines?

Eddy Taje
- Senior Inspector of Mines, West Coast Region.

Steve Eldridge
- What is SIA’s current environmental fee with the Ministry of Mines?

Eddy Taje
- Only a security.

Steve Eldridge
- What is the security deposit?
Eddy Taje
➢ $5,000.00 but noted that is subject to review in 2013.

Steve
➢ 1190 Cougar Ridge Road
➢ His well is one of the first wells downstream from the site and the site is located approximately 5 km east from CRD watershed. It was stated that the containment site was engineered to restrict dissolvements but if an earthquake occurred there were no guarantees and asked if that was correct?

Eddy Taje
➢ Structure designed for the area is Zone 6 which is designed for a 7.2 earthquake on the Richter scale but noted the Engineers will be able to give the exact numbers.

Steve
➢ Are they aware the area is located on a major fault line and it is predicted that we are due to have a big earthquake at any time?

Eddy Taje
➢ Yes.

Dr. Mackenzie Brooks
➢ 770 Shawnigan Lake Road
➢ What is the past and present track record of SIA in terms of being in compliance with the rules and regulations that are in place?

Eddy Taje
➢ Last safety inspection had two workers identified with low end work safety issues and the permit issued a week ago was decent. In the past there were a couple of issues that were being worked on and remediated.

Dr. Mackenzie Brooks
➢ Asked what they specifically were?

Eddy Taje
➢ It was a sluff that had encroached.

Dr. Mackenzie Brooks
➢ What was the second one?

Eddy Taje
➢ Two safety issues, shocks and a fire extinguisher.

Hubert Bunce
➢ SIA does not have a track record with their Regional Office as this is their first application.
➢ Previously some material did go onto the site under their contaminated sites regulation that SIA was not expecting but they are dealing with it.

Dr. Mackenzie Brooks
➢ There was an incident with contaminated material on the site in the past and asked what happened?

Hubert Bunce
➢ Cannot speak to the details of it but stated SIA could answer that question but noted that he was aware material did go there and it was being worked on.

Marion Watson
➢ 2125 Wildflower Road
➢ Is there a different rate and a record of rates other than the residential rate for that site? If there were different rates then SIA would know they were accepting some different levels of soils onto that site.

Eddy Taje
➢ Does look at the records but does not look at the business side regarding money and what rates they are being paid.
Marion Watson ➢ Don’t different types of soils trigger a different deposit fee?
Eddy Taje ➢ Through their Ministry there is no deposit fee.
Marion Watson ➢ Is there a deposit fee for different types of contaminated soil?
Eddy Taje ➢ Does not get involved in those fees.
Marion Watson ➢ The higher level of contaminated soil it is more likely it would be a higher fee.
Eddy Taje ➢ Cannot answer that question.
Hubert Bunce ➢ SIA should be able to answer that question.
 ➢ The Ministry does not relate the quality of soils to the amount of money it is being paid for its movement. The Ministry is interested in the quality of the soil.
 ➢ Soils are assessed at their source site to determine their quality and that determines where it can go.
Speaker ➢ Approximately $10,000 deposit fee with MoE and Ministry of Mines for environmental disasters and noted it has cost approximately $68 million dollars to clean-up Rock Bay and asked what determines the level of deposit for risk assurance?
Eddy Taje ➢ A number is set and if the Province has to clean-up a mess there would be sufficient money to do that as a bond would be in place.
Speaker ➢ Asked what determines the amount of the security?
Eddy Taje ➢ Cannot answer that question.
Hubert Bunce ➢ Determination of security would be set as to levels of concerns and risks and asked that people advise them of their concerns.
Speaker ➢ It has taken 68 million dollars to clean-up Rock Bay and it is not a watershed or a drinking water supply and is concerned about only $10,000-$30,000 being set aside to clean-up their water supply and asked if that would be increased?
Hubert Bunce ➢ No number has been determined yet and the security still also needs to be determined.
Speaker ➢ $10,000 or $20,000 is not enough money.
Rick Sanders ➢ 1190 Cougar Ridge Road
 ➢ Lives directly across from the CRD watershed and asked what happens to property values when the waste containment site is built by a residential area?
 ➢ If there was even a chance this would impact the Shawnigan Lake community drinking water or CRD Watershed how can contaminated waste be considered to be placed on site?
Eddy Taje ➢ Many factors influence property values and he cannot assess property values or answer the question.
 ➢ Any person in B.C has the right to make application and the Government
Rick Sanders  ➢ The Government has to decide what the greater good of the greater population is or determine whether it is worth taking the risk.

Eddy Taje  ➢ The subject application is to amend land use and when they get an application for any type of mining operation in B.C. they have to look at the protection of the workers, then protection of the public from the adverse effects of the operation and protection and reclamation of the environment.

BREAK

Chair Hutchins declared a Break at 8:20 p.m. and re-convened the Public Meeting at 8:40 p.m.

Chair Hutchins

 Introduced Jeff Taylor and David Mitchell, Active Earth Engineering Ltd.

Jeff Taylor, Active Earth Engineering Ltd.

➢ Both are consultants and professional engineers and have both worked in the contaminated sites industry for approximately 15 years.
➢ Active Earth has been hired by SIA to prepare the technical assessment report to accompany the current application.
➢ Technical Assessment Report is hundreds of pages long and is hard to condense it down into a presentation.
➢ If people wanted more detail they can be contacted directly and they would provide that information.
➢ Design team consisted of 7 Professional Engineers and he and Mr. Mitchell are representing those 7 Engineers.
➢ Presentation will outline aquifers, watershed and permit application.
➢ Gave a Power Point Presentation (EXHIBIT 3) that addressed the following:
  Context
  • Watershed/Aquifer
  • Contaminated Sites
  Overview of Permit Application
  • Waste Discharge Authorization Application
  • Proposed Facility Design
  SIA Operations
  • Overview of Mine Operations and Mine Life
  • Operational Issues of Concern
➢ Located in Upper reaches of Shawnigan Lake Catchment
➢ No aquifer beneath site. Spectacle Lake/Cobble Hill Bedrock Aquifer mapped 1 km east and Shawnigan Lake/Cobble Hill Aquifer mapped to north 2 km north.
➢ Monitoring wells drilled on site and nearby water wells.
➢ Calculated number of years for groundwater travel times.
➢ Within B.C there are approximately 15,000 sites registered.
➢ Estimated 4,000-6,000 Brownfield’ s in B.C.
➢ Federal Government allocated $15 Billion Dollars to clean up Federal contaminated sites.
➢ Province of B.C. estimates there are 2,000-3,000 contaminated sites on Provincial Crown Land.
➢ Estimated 1,000-2,000 contaminated sites within the South Island Region.
➢ Reason a site is considered contaminated is they pose a risk to human health and the environment and many are actively impacting drinking water resources and aquatic receiving environments.
➢ Remediation of a contaminated site involves using methods to reduce the risk to an acceptable level and an acceptable risk is defined by MoE.
➢ Biggest barrier for cleaning a contaminated site in the south-end is finding
a viable disposal site for contaminated soils. Presently contaminated soils are shipped up Island or placed on a barge and shipped to Richmond.

- Price on the south Island for contaminated soil is 4-5 times higher than on the mainland.

- Overview of Permit Application included
  - Application for mining permit amendment reclamation
  - Requiring Waste Discharge Permit from MoE
  - Technical Assessment Report includes evaluation of all applicable environmental factors, detailed design of proposed facility and the final report that incorporates MoE review and other stakeholder feedback.

- Draft technical assessment report is more conceptual in nature and identified the types of waste that they are looking to have permitted at the facility. They now have a very detailed plan that has been put together.

- Site is located approximately 5 km south of Shawnigan Lake and is zoned F-2.

- Groundwater slide displayed information on On-site groundwater monitoring wells, Background monitoring completed and Monitoring program.

- Surface water slide contained information on Shawnigan Creek, Ephemeral tributaries and Monitoring program.

- Objective of the facility is that all water on site is treated prior to discharge which has a net improvement for water that leaves the site.

David Mitchell,  
Active Earth  
Engineering Ltd.

- Gave an overview of the proposed facility design and key design considerations that addressed the following:
  - Site preparation
  - Soil receiving and treatment area
  - Cell design and construction
  - Leachate prevention, detection, collection and treatment
  - Water treatment and discharge
  - Final cap, closure and monitoring

- Soil treatment considerations:
  - Potential to add soil treatment to facility operations, would allow for beneficial re-use of suitable contaminated soil.
  - Soil treatment would require construction of bioremediation area which includes a synthetic liner beneath asphalt liner with leak detection/collection
  - MoE permit application includes option to treat soil.

- Underlying the soil management pad is a number of liners of bedrock and if there was any leakage through the asphalt it would be caught by liner. If anything was to get through the liner the second leak collection system is a layer of clay and below that is a layer of bedrock.

- The Cell Design and Construction slide explained the Multi-Barrier Approach and Key Design Details

- No water leaves the facility before it gets tested.


- South Island Aggregates is an active mine.

- Displayed the slide titled Contaminated Soil on Fill-Site which explained what occurred on the property in November, 2010 when the site received a quantity of questionable soil and how SIA dealt with it.

- SIA has also retained Active Earth to develop a Sediment and Erosion Plan for both the mine site and the fill site and SIA have implemented all of their recommendations. Some of these recommendations include using sediment traps, silt fencing, drainage swales, sediment ponds and rip rap
channels to reduce any runoff and siltation into Shawnigan Creek.

Jeff Taylor

Have also tried to address some of the Common Questions and Concerns as follows:

- **Independent Monitoring**
  - Permit monitoring will be undertaken by qualified professionals
  - Reporting will be prepared and submitted in accordance with permit requirements and will be publically accessible
  - MoE reviews compliance
  - SIA is proposing to fund independent, qualified, credible, third-party monitor
  - As a qualified professional he does not play with his professional integrity

- **Earthquake/Natural Disaster**
  - No local faults, very hard/durable rock
  - They cannot predict the future but noted the slopes have been designed to be geotechnically stable
  - Water treatment facilities designed to accommodate 1:200 year event

- **Hazardous Waste**
  - Will not be accepted at the proposed facility

- **Verification of Soil Quality**
  - Must meet MoE guidance for characterization
  - Receiver Site Professional, like himself, must sign off on analytical results after testing has been carried out on the soil
  - Periodic quality checks will be undertaken at the facility

- **Blasting**
  - Blasts are not significant enough to de-stabilize cells
  - Blasts are focussed and targeted

- **Trucking**
  - There will be no net change or increase in trucking as the quarry needs to be filled either way

- **Why This Site**
  - Site is owned by SIA and they have been contracted by SIA to put in an application on their behalf
  - SIA can only make an application for a permit on property which they own

- **Where Else Has This Type of Facility Been Constructed in the Past**
  - All modern municipal landfills employ similar design principles
  - Dozens of contaminated soil management facilities throughout Western Canada and hundreds throughout North America
  - A nearby example is the Hartland Landfill that services the CRD.

- **What are the Potential Impacts to Surface Waters**
  - Only non-leachable soils are accepted, leachate detection, collection and treatment systems incorporated into proposed design
  - All water leaving the site reports to a treatment system which is designed to achieve BCWQG
  - All treated water is tested prior to discharge
  - Surface water quality is monitored at strategic points, both up and down stream of the discharge point
  - Monitoring results compared to baseline so there are no impacts

- **What are the Potential Impacts to Groundwater**
  - No leachate generation
  - Multi-barrier design
  - Virtually impermeable bedrock (250 feet)
• Monitoring on-site and down gradient wells and those results are compared to baseline data

Sierra Courtemanche
- Living on Malahat territory.
- If the people have the right to apply for a permit and if the public choose to apply for protecting the watershed, would MoE support the people?

Hubert Bunce
- His Ministry is in favour of protecting the watersheds.
- His aspect of the Ministry is with regard to questions of discharge.

Sierra Courtemanche
- Asked Mr. Bunce if he would ask the public at the meeting to raise their hands as to how many people were for the dumping of soils?

Hubert Bunce
- Asked the public for a show of hands how many supported the application and how many did not.
- In response to the show of hands who were opposed to the application he asked that everyone send in their questions and concerns to MoE as soon as possible.

Doug Makaroff
- Lot B, 268 Stebbings Road and President of the Elkington Forest project.
- Advised that they discovered a very large third aquifer just south of the SIA site and they had it tested. The aquifer they tapped into is huge as it produced over 120 gallons per minute for 100 days. The reason it is not known is because there has not been any construction in the 108,000 acres of CRD watershed and directly to the south of their property is 20,000 acres of Sooke Lake wilderness. It was unknown it existed because nobody has ever tested those areas.
- Will be submitting a letter directly to MoE.
- Requested that all the additional information he has to provide be included as physiological evidence for the surrounding areas within the analysis.

Jeff Taylor
- Appreciated the information and advised that a well on the SIA site is 260 feet deep and produces 120 gallons per minute.

Dave Hutchinson
- 2116 Cullin Road
- Admires SIA for what they want to do and the Consultants they have hired to work for them, but noted that it is difficult for the public to have full trust as they work for SIA. Would like to see and would appreciate a third party independent review of their design.
- Understands SIA owns the property but it is not the right place as it is located right on Shawnigan Creek.
- Mistakes do get made as was noted on SIA’s webpage on May 31st that stated SIA accepted industrial quality soil and advised he sent a query to the website but he did not get directly answered but noted that wording did get changed quite soon afterwards as it was a mistake. It now states that they cannot accept industrial soils, only residential soils.
- Another mistake occurred in 2010 which was potentially hazardous waste that was delivered to the property in the watershed.
- Provincial Government, Federal Government and CVRD should have some effective bylaws to project the watersheds.

David Mitchell
- The webpage was incorrect; it was fixed and apologized for that error.
- Tests were carried out on that soil that came onto the property and it was determined it was not hazardous waste.

Dave Hutchinson
- Just wanted to point out that mistakes do happen.
Petra Angpao-Durrance
- 992 Nightingale Road
- If this is the public consultation process, have the youth been consulted?
- Why are there 15,000 contaminated sites in B.C. and what has happened to the protection from MoE, Ministry of Mines and SIA?

Jeff Taylor
- Almost all of those sites are historically contaminated sites, for example old gas stations, but noted that the reality is they were now cleaning up the legacy of contaminated sites in the country.

Norm Finlayson
- 2238 Stowood Road
- How are they preventing surface water from getting into the site?

Jeff Taylor
- Objective would be to use swales and diversion channels as they want water to be diverted and not go onto the site.

Speaker
- Surface water would be going through a collection plant before it is discharged and asked how big that plant was and how much water will it hold?

Jeff Taylor
- One design element the plant has is it has been designed for 1:200 year rainfall amount so it has sufficient storage capacity.

Speaker
- What does 1:200 years mean?

Jeff Taylor
- They are design standards that are employed by the regulator for a Design Engineer to say they are designed for a 7.2 magnitude earthquake. Buildings are also designed to those standards.

Jennifer Young
- 670 Shawnigan Lake Road
- Thanked the CVRD for hosting the event.
- Would this be the only contaminated remediation site on Vancouver Island?

Jeff Taylor
- There are some other facilities that can accept very specific types of waste but to be able to accept waste levels of contaminated soils, yes, this would be the only one on the south Vancouver Island region.

Jennifer Young
- There would be no increase on trucking?

Jeff Taylor
- Explained that there would be “x” number of tons of material going out of the quarry during the mine operations and the Mines Permit states that a “x” number of tons has to be put back into the quarry.
- The mine has to be reclaimed by filling it back up.

Jennifer Young
- At a previous neighbourhood meeting held at the local coffee shop there was discussion about 50 acres and 25 of those acres is where the remediation site was to be located and asked if that was correct.

Jeff Taylor
- Displayed the area that was being mined at present.

Jennifer Young
- Does she understand then that the 5-6 truck loads every 5 minutes will not increase?

Jeff Taylor
- The same volume of material that comes out of the mine during mining operations has to be replaced regardless of this application.
- If the application is unsuccessful it will continue to be replaced with residential quality soil and if successful it will be replaced with some waste level of soil.

Jennifer young
- Is he reassuring her that the trucking will not increase?

Jeff Taylor
- There will be no net change in the volume of material that comes into the site, beyond what would come in, if the application was unsuccessful.
- There was no capacity to put more soil in than what they take out.

Dr. Mackenzie Brooks
- Understood there are some other sites that accept different levels of soils and asked if the Evans site was one of them?

Hubert Bunce
- Yes, Evans.

Dr. Mackenzie Brooks
- Are there any hazardous levels of soils being deposited into that facility that is outside of the permit approval?

Hubert Bunce
- There is a definition of hazardous waste and none of the materials being considered at Evans or SIA is above the hazardous waste level.

Dr. Mackenzie Brooks
- What he is saying in terms of the permit at Evans, they were in compliance?

Hubert Bunce
- The permit relates to bringing in the contaminated soil levels and they treat that and then they use it for the site reclamation on their site.

Dr. Mackenzie Brooks
- Also attended the meeting at the coffee shop and she heard the design was leading edge and what she has heard today it is not.
- How many of these facilities have they designed and built and are they monitored now?

Jeff Taylor
- It is a large facility and there is no other on the South Island but there are 4-5 on the Mainland.
- Possibly a dozen each of landfills and containment cells.

Dr Mackenzie Brooks
- Lots of information has been provided about the facilities and their history, experience and confidence and they are trustworthy and asked how many of the facilities have they designed, built and are now monitoring.

Jeff Taylor
- Has not designed and built this site but has been involved in the design and build of approximately a dozen landfills and remediation facilities.

Dr. Mackenzie Brooks
- Are they like this design?

Jeff Taylor
- They all have similar elements.

Dr. Mackenzie Brooks
- Can they provide the CVRD with the locations?

Jeff Taylor
- He could if his clients were willing to disclose that information.

Dr. Mackenzie Brooks
- SIA has the site and has hired Active Earth to design the facility and that is what they have done.
- Would they pick this site for this type of facility?
Jeff Taylor
- They have believed in the site from the get-go and believe it is a perfect site and that is why they agreed to be involved and put together the technical assessment report that supports the permit application being submitted by SIA.

Guy Walker
- 1763 Wooden Road, Shawnigan Lake
- Is this an industrial grade of contaminated soils?

Jeff Taylor
- Classified as waste under the Contaminated Sites regulation.

Guy Walker
- Asked what contaminants would be permitted?

Jeff Taylor
- Would have to meet the criteria of the Contaminated Sites regulation.

Guy Walker
- Non leaching facility that contains a collection system and treatment system on site. The chemicals found in the soils are they treatable chemicals and will he and his children drink the water that comes out of it?

Jeff Taylor
- Water that comes out of the system must meet the standards.
- Treatment systems are modular and standardized and are very effective and the quality of the water can be controlled by modifying the elements of the treatment system.
- Quite easy to get good quality water.

Guy Taylor
- Systems require a lot of monitoring and maintenance?

Jeff Taylor
- Yes, they do require monitoring.

Marion Watson
- 2125 Wildflower Road
- Asked earlier about invoices and the exchange of money for soil and if there was some sort of different prices for what kind of soils a facility is accepting. Would think that by handling contaminated soil the price would be higher than residential soils.
- Spot checking of soils is great.
- Did SIA get paid a different amount for that contaminated soil that was previously brought on site?
- Would MoE consider monitoring not just the soil but the money that is being exchanged between the people brining the soil and the company because monitoring the soil might not be enough?

Marty Block
- When the incident happened and the soil was received on the site their employees caught it as there was a very distinct odour. When he contacted the engineer in question the response he received was if they had spread the soil out and let it gas off they would be fine. His response was they would require some money to test the material as they could not take it. Yes, there was more money involved as they had to move and test it three times but noted that they were never paid for that.
- Should there be even more monitoring of charges, is digging a little too deep.

Hubert Bunce
- His Ministry is Environment not the Minister of Finance and have certain levels of expertise relative to soil quality and testing and going into forensic auditing is not something they can do.

Marion Watson
- Is there not more money in taking contaminated soil over residential soil?
Marty Block ➢ Yes, considerable more money.

Marion Watson ➢ Concerned about how easy it is to bring the contaminants on site rather than moving them going to a hazardous waste facility.

Marty Block ➢ The engineer that brought that material to their site did lose his license and SIA is suing him.

David Mitchell ➢ Has never had anyone try to bribe him to ship soil or change a report.

Speaker ➢ Can the materials be recycled and reused so other people’s materials do not have to be dumped in their watershed?

David Mitchell ➢ The facility has incorporated the option to treat some of the soil and in that term it would be recycled.
➢ A lot of sites are now taking better measures to prevent contamination from happening which is called pollution prevention.
➢ Extremely expensive to clean-up a contaminated site.

Speaker ➢ Asked if there would be a roof over top of the soil?

David Mitchell ➢ Basically that is the design, as it has a liner which is impermeable and there is also a metre of clay over top that which acts as a roof. When it rains the water is diverted away from the soils.

Speaker ➢ It takes time to cover and layer and asked if a roof can be put over the soil from preventing it entering into the creeks?

David Mitchell ➢ During construction and placement of the soil is done during dry periods as they too do not want any leachate and water getting into the soils. Want to be able to compact the soils to make them stable and place the soils when they are dry. The soils would be covered every season.

Speaker ➢ No actual roof over their working area in the soil reception area?

David Mitchell ➢ That is being considered.

Lisa Punnett ➢ Langtry Road
➢ In the last couple of years there was an application in their neighbourhood where a company bought four residential lots and they are actively mining and noted that it does affect property values.
➢ It cost $56 million dollars to clean up a site in Victoria but noted that figure could go over $100 million dollars. If the government was responsible enough to take an application and applied a fair remediation cost to that budget for the probability of what could happen and after 30 years if everything went well an applicant could have that money back. If they asked for $100 million dollars would SIA be asking for this application today?

Marty Block ➢ No.

Lisa Punnett ➢ A big advocate of keeping your old garbage in your own neighbourhood and asked why they did not buy a big piece of land in Victoria as that would have helped with the influx of soil being trucked to the site or was the land cheaper in the subject area?
Marty Block  ➢ Part of it has to do with zoning for a quarry and this was found to be a suitable site.

Dennis Broughton  ➢ 3215 Cobble Hill Road
➢ Understands the impermeable layer of bedrock and knows that quarries go down deeper and deeper.

Jeff Taylor  ➢ Base elevation of the quarry has already been predetermined in the Mines Permit.

Dennis Broughton  ➢ If the quarry was drilling holes 20-40 feet deeper and it was making a larger impact were there fears of opening a wall and changing the direction of surface and water flows?

Jeff Taylor  ➢ It would make their lives much easier in terms of mining and aggregate if they could let one blast that loosened all the bedrock in the area. They have had a lot of experience with blasting the site over the past 5-6 years and they have not seen any evidence in the core bedrock or anything opening up.

Bill Savage  ➢ 1470 Mahon Road, Shawnigan Lake
➢ Has anyone from the Ministry of Mines, MoE or SIA paddled or witnessed a dead lake?

Jeff Taylor  ➢ Yes.

Hubert Bunce  ➢ There are number of conditions that make a dead lake and he has not canoed on one but has a perception of it.

Bill Savage  ➢ On a dead lake nothing was happening on it. There were no birds, fish or boaters or anyone having fun on a dead lake.
➢ Property values are what keep a lake going as it is an active lake.
➢ How will the property owners at Shawnigan Lake be compensated if they have a dead lake?

Hubert Bunce  ➢ Purpose of the decision making process is to avoid a dead lake and they will have monitoring programs in place with warnings.

Bill Savage  ➢ Sits as a member on the Shawnigan Lake Parks Commission and asked if SIA dumped soil on CVRD parkland at the south-end of Shawnigan Lake which is adjacent to the SIA site?

Hubert Bunce  ➢ Did hear claims of that but it was not part of their application and that question would have to be directed to SIA as to what they have done with soil that has come onto their site.
➢ He is considering an application for a proposal that was being presented at the meeting.

Bill Savage  ➢ Did SIA dump soil or have soil run-off onto parkland at the south-end of Shawnigan Lake?

David Mitchell  ➢ Was hired to design the facility and that was what they could discuss.

Bill Savage  ➢ Asked the owner of SIA has any soil encroached onto parkland at the south-end of Shawnigan Lake?
Marty Block  ➢ Yes, in 2009 some soil did go over the property line and that matter was taken to the CVRD Parks Manager and a solution was to remove the soil and re-seed the slopes which were remediated as soon as it happened.

Bill Savage  ➢ When did this carry out?

Marty Block  ➢ 2009.

Bill Savage  ➢ When was the property remediated?

Marty Block  ➢ As soon as it happened in 2009 and 2010 and the issue went through the CVRD Parks Manager.

Gary Horwood  ➢ President of the Shawnigan Resident’s Association and thanked the CVRD for taking the initiative for the meeting.
➢ Information has been gathered at the meeting and it will take some time to have an independent person advise them as to the attributes of the proposal. Strongly encouraged the CVRD to hold a second meeting where there would be the same people in attendance plus the Ministries of Health and Transportation to hear the passionate concerns of the people in the area.
➢ Is there currently any situation in the Province where there is a contaminated waste site in a drinking watershed where people draw drinking water directly from it?

Hubert Bunce  ➢ There are landfills all over the Province located in watersheds upstream and downstream from where people draw water.

Gary Horwood  ➢ Contaminated waste sites?

Hubert Bunce  ➢ A municipal landfill is in the same type of category as far as water qualities and would not limit it to contaminated sites.

Gary Horwood  ➢ If he requested in a letter where those sites are would he receive that information?

Hubert Bunce  ➢ They could request for the authorizations for discharges in the Province.

Director Gerry Giles on behalf of Yvonne Mather  ➢ Asked a question from the Question Forum Blue Sheet - If the application is allowed and at some point the water is treated and found to be contaminated how will this be fixed and at that time it is too late for Shawnigan Lake residents that will be ill from this, how will that contamination be fixed?

David Mitchell  ➢ All water before it leaves the site is tested to ensure it is clean.

Director Gerry Giles on behalf of Yvonne Mather  ➢ Has not answered the part - If it is found to be contaminated how does that get fixed for Shawnigan Lake residents?

David Mitchell  ➢ If the water that goes through the water treatment system is found to be contaminated that water would be re-treated and before the water is discharged it would have to be clean.

Scott Overhill  ➢ 2091 Cullin Road
➢ Is their professional opinion that the watershed is safer with this site or without the site?

David Mitchell ➢ The facility is designed to be safe and not cause a problem or a risk.

Scott Overhill ➢ Not what he asked.

Jeff Taylor ➢ Could answer it the way he does not want him to answer it and say that it could result in a net improvement to the projection of your watershed through the remediation of contaminated sites within your watershed that are actively in crown water resources.

Scott Overhill ➢ Did not want an opinion of what he believes.

Jeff Taylor ➢ Does not have any way of predicting the outcome of how many sites might get cleanup in the watershed as that is the net benefit that he would have to weigh against the construction of this facility in order to give his assessment of whether or not it resulted in a net benefit or not. That is hypothetical and he is unable to answer at this point.

Scott Overhill ➢ Net volume of soil is not going to change and asked if the frequency of trucking will increase if the permit application were approved?

Jeff Taylor ➢ Cannot predict that as it is also contingent on market conditions.

Marty Block ➢ Depends on market conditions and right now market conditions are very soft and there are very few trucks.

Director Lori Iannidinardo on behalf of Jim Wisnia ➢ 555 Kilmau Road, Mill Bay
➢ Asked a question from the Question Forum Blue Sheet - If the application were approved and the monitoring program were put in place, appropriate for the contaminants accepted at this site, how and where would the monitoring take place?

Hubert Bunce ➢ There would be monitoring of the actual discharge from the treatment facility to confirm it was meeting the standards as set out in the authorization and also receiving environmental monitoring requirements to confirm groundwater quality around the site.

Director Lori Iannidinardo on behalf of Jim Wisnia ➢ How far downstream from the site?

Hubert Bunce ➢ Does not know the specifics of that but there were sites further away from the site and that level of detail would be outlined in the final document, should it be issued.

Director Lori Iannidinardo on behalf of Jim Wisnia ➢ At the mouth of Shawnigan Creek in Mill Bay, he lives along the bay shore from the creek mouth and due to coliform counts he is allowed to swim in the bay but not to harvest filtered feeding shellfish. He is hoping the coliform problem will be resolved in the long term but what about heavy metals? Will monitoring programs include testing of shellfish in Mill Bay for heavy metals?

Hubert Bunce ➢ The testing of shellfish in marine waters is not his expertise, that is carried out by the Federal Government and that could be something that could
happen in the future but would not be a specific requirement to the subject application to test shellfish in Mill Bay.

**Doug Strachan**
- 1948 Cornwall Road, Shawnigan Lake
- The Minister of Mines & Resources has asked that the quarry be filled with soil that is contaminated or uncontaminated that would be trucked in and noted he does not understand how they can get away with filling up the Utah Mine located in the North Vancouver Island with water instead of soils and asked why that cannot be done elsewhere?

**Eddy Taje**
- That mine is a different situation.

**Doug Strachan**
- Risk level to him is too high for them to accept that contaminated waste is the right answer for the quarry.
- Wants to know how the Minister will respond and assure the people of Shawnigan Lake who do not want a contaminated site in the area?

**Hubert Bunce**
- He will be making the decision, as that has been delegated to staff and not the Minister of Environment.
- Prior to making a decision he will be considering the concerns raised and comments received, along with reviewing the engineering received and they will determine what the requirements will be or not and will decide in favour or against the application. If someone is unhappy with the decision there is a potential to appeal.

**Doug Strachan**
- Asked what he needs to do to ensure this does not take place?

**Hubert Bunce**
- Requested that concerns be put forward in writing to him and he will review everything prior to making a decision on the application.

**Angela Auchincloss**
- 1254 Merridale Road
- Where are the inorganic filters and sediments getting disposed?

**Jeff Taylor**
- Objective of treating inorganic contaminants is dissolved in the water and the produced sludge would likely be managed on site.

**Angela Auchincloss**
- Will the water treatment plant run 24 hours per day and what kind of noise does it generate?

**Jeff Taylor**
- Plant is activated through film switches and when the water builds up to a certain level the switch is triggered and the pumps start working their cycle. There is very little noise that is produced.

**Angela Auchincloss**
- What is preventing SIA from altering their permit and moving to a stronger level of contamination?

**Hubert Bunce**
- If a permit is issued there would be specific conditions that would need to be followed and if they wanted to amend those conditions and introduce new contaminants they would have to go through the public consultation process.

**Guy Walker**
- 1763 Wooden Road, Shawnigan Lake
- Would like his previous question answered which was, would the qualified professionals and their children drink the water that came out of the clean end of the treatment plant?
Jeff Taylor ➢ If he was to drink the water he would design a system that would meet drinking water standards and, yes, he would drink the water.

David Mitchell ➢ Has swam in Shawnigan Lake for years noting he can smell the gasoline from motorboats in the water and if he knew he could treat his own water he would do that and also drink the water.

Sheila Brenton ➢ 3215 Cobble Hill Road
➢ If the application is approved do they have the intention of running the operation until he dies or do they plan on selling in the future and asked if it is sold who then takes on the responsibility.

Marty Block ➢ Has no intention of selling.

Sheila Brenton ➢ If they do sell in the future and somebody else takes over the 50-year plan, who would then be responsible if there was a mess left by SIA?

Marty Block ➢ Would assume the new owner would be responsible.

Sheila Brenton ➢ Wants a guarantee that they never brought contaminants onto that property.

Marty Block ➢ Yes, contaminants have been on the property.

Sheila Brenton ➢ Wants a guarantee as her life is on the line as she drinks the water that there would be no more slip-ups or mistakes.

Marty Block ➢ It was a good thing they caught that slip-up as it has been dealt with.

Speaker ➢ Other than the general public who else has input into MoE on the application?

Hubert Bunce ➢ First Nations and other Government Agencies along with the general public all have input into the application. Public Notice was also placed within a local newspaper for notification.

Speaker ➢ Thanked the CVRD for holding the meeting, Ministry officials for attending, SIA and their engineers for their information provided and the people who showed up at the meeting, as without them there would be no voice heard.
➢ The reason they are not dumping in the CRD is because they do not let them and does not understand how the CVRD does not have the same option to say no dumping near drinking water.

Chair Hutchins ➢ There are only two jurisdictions in British Columbia that have managed to protect the complete watershed and one is the Capital Regional District and the other is the Greater Vancouver Regional District.
➢ In his hometown of Ladysmith the vast majority of their watershed is located on private land and their second smaller watershed has been purchased by the Town of Ladysmith and CVRD.

Graham Ross-Smith ➢ 2410 Barton Road, Shawnigan Lake
➢ The facility is being built to withstand a 7.2 magnitude earthquake and asked if an 8.0 magnitude earthquake occurred what is their best guess of what the impact will be on the water quality for Shawnigan Lake?

Jeff Taylor ➢ Hypothetical question that was difficult to predict.
- It would depend on the status of the facility and one benefit of having interlocking cells it contains multiple layers that are tied together to form a strong structure.
- If there was a massive earthquake what is in the ground is earthworks and solid waste and it would only go as far as gravity would take it.

PUBLIC COMMENTS

Chair Hutchins asked for public comments.

Chief Michael Harry, Malahat First Nation
- 1113 Jesken Road, Mill Bay
- Thanked the CVRD for hosting the meeting and people who attended.
- The position they have developed over the past 6-7 weeks of consultation is that they have come to the conclusion that Malahat First Nation will support the application 100 percent in moving forward.
- They are in the Treaty process with some of the lands adjacent to the SIA property and have had a working relationship for approximately 6 years with SIA and they have never had any issues with Michael Kelly or Marty Block during that time and they have committed to everything they have stated. They are committed to also working together with SIA in moving forward.

Georgia Collins
- Shawnigan Lake
- Personally uses the water which seems to be the main issue at the meeting.
- Appreciates Mr. Bunce’s comments with regard to MoE’s land use planning but would like the decision making authority passed over to the CVRD.
- Encourages the CVRD and all Shawnigan Lake Watershed stakeholders to really take responsibility for the water.
- There is risk attached to every development and it is up to them to consider the outcome.
- Invited everyone to explore the watershed with her and Area Director Bruce Fraser as they were touring the watershed to discuss some of the critical points of it and to also get active participation on a regular basis so they can make informed decisions about it.

Lori Trelor
- 1886 Flicker Road
- Shawnigan is often accused of being anti development but is not necessarily the case. There is a development in the village that the community wants to have happen but due to MoE it is being stalled due to the fact there was a village dump on that site 50-60 years ago and it is not considered a contaminated site. Concerned about the same situation occurring on the subject property in 50-60 years.
- They are being asked to think and plan forward and stated everyone should be doing their utmost to protect Shawnigan Lake as she would also like to see more residential lands in the future.

Gary Horwood
- President of Shawnigan Lake Residents Association
- Appreciates and respects MoE for telling everyone there is a process that is based on facts, science and compelling evidence when the decision will be made in the Nanaimo office. Understands the process in place but advised it is not simply just a process; it is an issue of right and wrong. It is a moral, ethical issue that affects the very essence of the people who live in the area.
- Shawnigan Lake Residents Association will do everything in their power to supply them with compelling, professional evidence to that position but
noted that it is also a political decision.

- They are smart, educated and passionate people who will not accept this type of development in their drinking watershed.

**Marion Watson**

- Thanked Marty Block for being honest about the issues they have had and that a professional should be protecting them.
- Her concern is that it has been demonstrated at the meeting that there are professionals that are not interested in their accreditation they were interested in the money.
- By only watching the trucks with soil is not going to protect her community.
- There are lots of dirty dirt sites and it is about the money and somebody needs to watch the exchange of money and asked who will protect them.
- How does the system work as it seems to have failed them already?
- Stop watching the trucks and start watching the money.

**Dr. Mackenzie Brooks**

- 770 Shawnigan Lake Road
- Thanked the CVRD and the community to have the opportunity to come together and have a voice.
- Looks forward to hearing back from the engineers with a list of previous facilities they have built similar to this and the length and time they have been in practice so they can assess the reliability they have brought to the meeting.
- Also looking forward to hearing back from MoE about sites such as Evans where permits have been provided and showing the compliance that exist so then they will know there is credibility and trustworthiness.
- People in the area are the ones who have to live with the water in the next generation.
- Supports the CVRD taking charge of all the water.
- What part of the word “no” do they not understand, it is not whether it is safe, it does not belong there and the people have the responsibility to treat the water as precious.
- Intelligent people want to protect the water, forest and fish for the people who are going to live in the area.

**Nikki**

- 2739 West Shawnigan Lake Road
- Has spent her summers in Shawnigan Lake her whole life and saw all the signs on the side of the roads so she decided to visit the website to see what was happening.
- Two sides to every story and she did her research to understand the issues. Found two things, people in the Shawnigan Creek protection area are concerned that the future generation needs to be considered and that everyone seems to have been caught up in the issue forgetting the science and facts behind the application and decided that it was just dumping contaminated soil directly into their drinking water.
- She has been an environmental student for the past 5 years and as a member of the next generation she felt it was her responsibility to speak up.
- There are a lot of issues in this world, the country and community that generations have to make a decision about and the future generations are forced to live with them and stated that she felt not a very good job has been done.
- Recent studies in Shawnigan Lake have shown human waste and septic field seepage. Due to the residents in Shawnigan the water is already not as clean as it should be and agrees that she too does not want to see contaminated soil leaking into it as well.
- When people hear contaminated soil and a watershed it becomes
understood as a giant problem. The way she sees it is quite the opposite. SIA’s proposed application is the solution as it provides a safe, modern facility for the soil to be treated and buried. What happens if the soil is denied as there will still be contaminated soil in the area and it will still require a place to go. An unprotected site leaves leachate runoff extremely high and agreed that it would be great if there was some other site far away from people that it could be taken to, but presently there is not.

- The SIA quarry is the ideal location. She understands the proximity to the watershed and feels that SIA has taken every precaution with regular testing areas for managing and treating soil, trenches and catch basins for leachate control and water monitoring to ensure there would be no harm to the community or the environment.
- Wants to see a rational decision made and noted there is no perfect solution for contaminated soil and SIA’s reclamation plant is as good as it is going to get.
- She is going to have to live in the future with the decisions that are made today and hopes that someday she and her children will be able to swim in Shawnigan Lake.
- Supports SIA’s application.

Sierra Courtemanche

- Educational process and things need to change.
- Contaminated soils are being created by gas stations, heating oil and dry cleaning and when the universities and educational systems are created there needs to be critical thinkers and an agenda is required along with MoE focussing on sustainable energy.
- Could keep silent and leave it to the professionals but noted that everyone should be involved and worthy of being a human and being listened to.
- Time to focus on sustainable energy.

Cliff Evans

- 3109 Filgate Road
- Against the application and project and does not think we should be gambling with water.
- A few years ago the CVRD decided to send its garbage to Cache Creek because it was a safe lined site but he saw a video that showed the landfill liner was now leaking and polluting in the Fraser and Thompson Rivers which is also some people’s drinking water.
- Did some research on liners and discovered in the U.S.A. the minimum specification for a polyethylene liner is 60 mil and in Shawnigan Lake they were only putting in a 40 mil liner.
- If it ever goes broke it will end up in the bank’s hands and it will pollute the Lake.
- Does not support the proposal.

Brian Martin

- 5120 Wild View
- His location is in Saanich and lives approximately 1 km from the Hartland Dump and has raised his children in the Prospect Lake Watershed for 35 years and they drink the well water. They also abut Killarney Lake in the CRD which is located right beside the Hartland site and they all get along with it. There is no impact on his property, his neighbours or the Prospect Lake Watershed from it and stated that his assessment and taxes have gone up substantially over the last few years.
- SIA application has a safer degree of checks and balances than the Hartland Landfill.
John Hayes

➢ Thanked the CVRD for organizing the Public Meeting.
➢ Owns Prince Island which is located in the middle of the Lake.
➢ Swims, drinks the water, showers in it and fishes in the Lake and is attending the meeting to defend every aspect of the Lake.
➢ Everyone has operated in good faith along with the engineers, government officials and SIA.
➢ All the property owners around the Lake are stakeholders.
➢ His conscience tells him if there are 2,000 contaminated sites on Vancouver Island why not dump the contaminated waste in one of those sites and not disturb what is now a beautiful, pristine environment.
➢ Has MoE recently approved a proposal like the subject application outside of a populated watershed?

Hubert Bunce

➢ Not in the West Coast region that he looks after and could not answer if it has occurred in other regions of the Province.

John Hayes

➢ Has he approved any projects like this on the Island?

Hubert Bunce

➢ Personally knows the Evans property and the Pigeon Lake Landfill property in Comox that has an authorized issue and is somewhat similar.

John Hayes

➢ No matter how qualified the engineers are they have all seen what has happened in the past as they design and build a nuclear plant and what happened there. He was not questioning their integrity or honesty but noted that they are also humans and make mistakes too and people who are going to operate the facility are also human and will make mistakes too and those are mistakes we cannot afford.
➢ Opposed to the application.

ADJOURNMENT

Chair Hutchins thanked, on behalf of the CVRD Board of Directors, the public who attended the Public Meeting, the Staff at Kerry Park Recreation Centre, and representatives of the Ministries along with SIA for their willingness to be a part of the process.

To be part of the CVRD’s submission to the MoE the deadline for submissions to be received at the CVRD office is 4:30 p.m., Thursday, July 19, 2012. After July 19th submissions should be sent directly to Hubert Bunce at the Ministry of Environment.

The Public Meeting closed at 11:21 p.m.
From: Erika Ferguson [erikaferguson@gmail.com]
Sent: July 5, 2012 9:57 AM
To: Rob Hutchins
Subject: Shawnigan Creek and Upcoming CVRD-Hosted Meeting at Kerry Park Arena

Dear Rob Hutchins,

I am a resident of Shawnigan Lake and am against the request by SIA to turn their aggregate site into a contaminated fill site. I was at their first meeting held at the Shawnigan Community Centre and was appalled not only by their attitudes (Mike Kelly himself was very rude and laughed while admitting there was a probable chance that contaminated soil would leach into our streams) but by the engineering plans themselves. My first concern about the plans were that the place where the trucks would initially dump the incoming soil was over a concrete, uncovered pad, that sits directly above numerous tributaries that flow directly into the creek below. Not only is this "pad" close to the tributaries, but being uncovered, it would be up to the workers of the current day to decide whether or not they desire to pull a tarp over the soil piles in case of rain. How is this reliable in a place such as the island where the weather is extremely unpredictable.

Further, the fact that SIA was caught on tape stealing the protest signs that are against the contaminated site is proof of SIA's willingness to go above the law to satisfy their personal gain. How can we trust a corporation like this to take care of our watershed and look out for the public's interests?

Finally, I have friends who live in the South Shawnigan Station neighbourhood, and they have told me that Mike Kelly himself offered to pay their legal fees for home purchase in exchange for a signature on his petition that supports his contaminated site. Surely this act of bribery is also a tell-tale sign of SIA and Mike Kelly's lack of integrity.

My request to you is specifically regarding the upcoming CVRD-hosted meeting at Kerry Park Arena on July 12th. As a member of the community I do not wish to sit and listen to another presentation by SIA and have them attempt to convince me that their contaminated site is a wonderful idea. I want to talk to the CVRD directly, and to people like yourself who is a representative of this community, in order to ask questions about the bylaws, why this site is even being considered, why soil processing on site be considered when it was disallowed in Cobble Hill, and many further questions I have directed at the responsible parties.

Please do your part to put our tax dollars where we, the public, wishes them to be. There is no way that our money should be used to support a corporation that is performing illegal and shocking acts to attempt to force their approval and destroy the place in which we live.

Sincerely,

Erika Ferguson
2865 Lonsdale Place
Shawnigan Lake, BC
V0R 2W1
Thursday, July 12, 2012
South Island Aggregates (SIA) Permit Application

Please hand in Comment Sheet prior to the end of the Public Meeting, or forward by 4:30 p.m. July 19, 2012 to:
CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513   Email: tdaly@cyrd.bc.ca

NAME (optional): D F LAUGHTON
4550 E SHAWNIGAN LAKE RD 743 733

COMMENTS/RECOMMENDATIONS:

We, my wife and I have owned a waterfront home on the lake for the past 40 years. We pay our taxes and a tax grab rent of $500 every year. We all own a water licence to draw water from the lake for domestic purposes. Our family, including two grand-children are from in the lake. We jealously guard against any possible danger to the water quality. My entire family are against allowing SIA to obtain a permit to deposit contaminated soil anywhere in the watershed.

D F Laughton
If you wouldn't want your children, grandchildren, great grandchildren etc. to live or die off of drinking our water, please don't make mine.
I live at 2739 West Shawnigan Lake Road. Every summer for the past decade, I have had a cabin on the lake and would never want anything to happen to the lake or the drinking water. I have read the data provided by the EA engineers and believe that the contaminated fill site at the location proposed will have no impact on the lake. A facility like this is needed and I support it, I believe that it is necessary in order to control contaminated soils and protect our environment.
NAME (optional): I DO NOT SUPPORT THIS PROPOSAL AT THIS SITE.

COMMENTS/RECOMMENDATIONS: I DO NOT SUPPORT THIS PROPOSAL AT THIS SITE.
Contaminated product/soil/fill/waste does not belong in a drinking water shed—future generations to deal with.
It is irresponsible that we as adults/caretakers of this island’s drinking water that we have to fight to stop this from happening—how come you would initiate/cause risk by choice—where it is not needed?
Choose wisely please.
There is a large need for proper disposal/storage of toxic/contaminated waste. This needs to be properly assessed for present and future impact.
PUBLIC MEETING
COMMENT SHEET

Thursday, July 12, 2012
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CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513 Email: tdaly@cvrd.bc.ca

NAME (optional): __________________________________________

__________________________

 Comments/Recommendations:

1. Was any groundwater testing (wells) before S.I.A started trucking fill into the site? If so, has it affected the quality of the water within?

2. I think that S.I.A should be shut down and held financially responsible to fill the site immediately.

P.S. fill it with forest quality soil & trees

__________________________
COMMENTS/RECOMMENDATIONS:

1. In the event SIA becomes less profitable than at the moment who will pay for the ongoing monitoring of the permit?

2. Similar question if the SIA company changes ownership.

3. Is there an insurance or responsibility code as part of the permit?
CVRD

PUBLIC MEETING
COMMENT SHEET

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CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513   Email: tdaly@cvrd.bc.ca

NAME (optional): NORM FINLAYSON

COMMENTS/RECOMMENDATIONS:

If this fill is perfectly safe to dump in the Shawnigan Lake watershed, it would seem much more practical to dump it in the Sooke Lake watershed which is much closer to Victoria. This would avoid the heavy traffic up the Malahat and would use much less fuel and a much lower carbon footprint. But I guess everyone knows how sacred the Sooke Lake watershed is compared to Shawnigan Lake. We have a licence to take water from Shawnigan Lake and that is our sole drinking water source. We filter our water to remove cysts and particulate matter and then treat the water with ultra-violet radiation. Our water is virtually pure at present. We do not have the ability to remove chemical contamination and therefore our water might become unsafe to drink or use for other purposes should the lake become contaminated. This would decrease the value of our property (and the taxes we pay to CVRD and the Province).

Should SIA be granted a permit to proceed, will a traffic signal be installed at South Shawnigan Lake Road and Highway 1 before someone is killed with the increased truck traffic? There already was an accident involving a truck and a BC Transit bus where fortunately there were no fatalities but could have been...
CVRD
PUBLIC MEETING
COMMENT SHEET

Thursday, July 12, 2012
South Island Aggregates (SIA) Permit Application

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CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513 Email: tdaly@cvrd.bc.ca

NAME (optional): Nancy V.I. B

COMMENTS/RECOMMENDATIONS:

WHY TRANSPORT CONTAMINATED TO SHAWNIGAN LAKES. THIS SOIL SHOULD BE TREATED IN THE VICTORIA AREA. THIS AREA IS NOT SUITABLE.

I HOPE YOU TAKE NOTE OF THE MANY GOOD SPEAKERS THIS EVENING.
NAME (optional): Stephen Bellingham

COMMENTS/RECOMMENDATIONS:

"NOT IN MY BACKYARD!"
Once again I don't even know how you guys can even consider putting a contaminated soil site in our watershed. Thousands of people use this water and don't have another source for water. We can't prevent natural disasters. We have to think about our future, not just dollar signs.
Question Forum
If you wish to ask a question at this evening’s meeting, but would prefer not to ask it at the microphone, please write your question below and deposit this form in the basket at the recording secretary's table.

Question: To Hubert Bunce

If the application were approved and a monitoring program were put in place appropriate for the contaminants accepted at the site, how and where would that monitoring take place? How far downstream from the site? At the mouth of Shawinigan Creek in Mill Bay? I live along the bay shore from the creek mouth. Due to coliform counts, I am allowed to swim in the bay but not to harvest filter feeding shellfish. I'm hoping we can solve the coliform problem in the long term, but what about heavy metals? Will monitoring program include testing of shellfish in Mill Bay for heavy metals?

Name: Jim Wisnia
Address: 555 Kilmalu Rd, Mill Bay V0R 2P2
Question Forum
If you wish to ask a question at this evening's meeting, but would prefer not to ask it at the microphone, please write your question below and deposit this form in the basket at the recording secretary's table.

Question:

If the application is approved & at some point water is tested & found to be contaminated - how is this fixed? At that time is it too late for Shawnigan Lake residence that may be ill from this contamination?

Name: [signature]
Address: 5159 Reel Road Shawnigan Lake
Cowichan Valley Regional District, South Island Aggregate, Ministry Of Environment.

This proposal doesn't require an engineer.....an environmental firm......or our local CVRD government to step in. It requires the Ministry of Environment to read between the lines, and it requires South Island Aggregate to take two steps back and rethink it's original application, and it's current proposal.

Shawnigan Creek, and it's tributaries flow directly through the legal parcel, in which drains directly into Shawnigan Lake. It flows directly into my source of drinking water......into the drinking water of my 4 children, my wife, and my father. The drinking water that I had tested by BC Aquifer 3 years ago, before I decided to purchase property here in Shawnigan lake. The drinking water that my children will hopefully be drinking, and their children will be drinking after I'm gone.

South Island Aggregate and The Ministry Of Environment has on the table, a recipe for disaster.

I'm 14km away on the West side, and I'm concerned. My family is scared. I have family all over this island, and once this came to light, they called me out of horror.

This proposal came quick, this proposal came too fast, too fast for any public body, any goverance, any citizen to responsibly handle with any care. This proposed facility and the MOE Application was brought to light to blindside the community. We are sitting here, shell shocked at the idea of waste soil being dumped in a facility that was under our understanding, still removing a resource under the British Columbia Mines Act.

We now get to wade through documents online, to attempt to make sense of what is unfolding, that even Local Government Directors have trouble digesting, as seen at the latest CVRD public board meeting. How is this Public Meeting/Open House Information Forum, other various ways SIA has labelled it on their website, Fair? How are we expected to swallow these technical studies, the regulations, the commitments of SIA, the long term effects, of dumping for 50 years, on 50 acres of property, over 5 Million TONS of CONTAMINATED WASTE on the top of our drinking water aquifer, beside a stream, on this proposed facility, that flows directly..... into Shawnigan Lake.

Here.....SIA reads between the lines of the rule book. MOE says that the rules don't say, 'No contaminated soil in the reclamation of the mine site', so SIA jumps at the opportunity, to offer the developers on this island the opportunity to dispose of contaminated soil, at a cost. The opportunity is to legally dispose of soil waste that has always been a grey area. A grey area that allows SIA to work directly with the MOE. The MOE has now aquired a partner, a business with a legal name, a legal parcel, and a legal channel, to divert waste soil to a facility that can hopefully oblige by the rules and regulations. Those rules and regulations, as you will hear, and investigate, are far from set in stone.
As quoted directly from MOE's site;

The Land Remediation Section of the Ministry Of Environment administers the provisions for the investigation and remediation of contaminated sites in British Columbia under the Environmental Management Act and Contaminated Sites Regulation.

Through collaboration with communities, public organizations, other agencies and private parties, we strive to support development opportunities, protect human health and the environment, and keep our province healthy and beautiful.

Here we have the very people that our tax dollars pay to protect the environement we live in, with a vested interest in striving to support development opportunities. Striving to help SIA place a waste soil dumping grounds in our drinking water shed, in order to show the province how healthy and beautiful we truely are.

The MOE site specifically states, and I quote;

**Why does the Province regulate the movement of soils from contaminated sites?**
Regulating the movement of soils from contaminated sites is necessary to protect human health and the environment by ensuring that soil is moved and deposited only at appropriate locations.

It then goes on to say;
...To determine whether a deposit site is suitable or not – that is, it would have no unacceptable impacts on health or the environment.

The soil relocation process helps ensure that soils are relocated only to suitable deposit sites. For example, soils that meet the urban park, residential, agricultural, and commercial land use standards can be relocated to commercial or industrial sites – but soils that meet commercial and industrial land use standards cannot go to residential, urban park, or agricultural sites. See Fact Sheet 13 for more information about environmental quality standards.

**Are there any exemptions from the requirement for a CSRA?**
There are a number of exemptions. A CSRA is not required if, for example:

- the area and substances in soil are the subject of an approved wide area remediation plan;

- you are transferring soil to a facility authorized under the Act to accept contaminated soil.
Another Ministry Fact Sheet here, states in black and white;

To date, no regulations or agreements address soil deposit, soil quality, and contamination. The onus is on local governments to determine if they need such approvals and to ensure that they receive them.

*In short: Any local government adopting a soil deposit bylaw that conflicts with standards or procedures in the Environmental Management Act risks becoming responsible for paying to clean up any resulting contamination.*

So when SIA makes a mess, destroys the land, poisons the aquifer, gets sued into the dark ages and goes belly up........who's left with the bill? Is the MOE going to clean it up and pass on the savings? Is the CVRD going to be held accountable, as this facility will be forced upon them to adopt? Regardless of who wants to point the finger and foot the bill, your left with a tax burden, or your left with contaminated drinking water, or a brownfield in itself, or more than likely, your left with it all.

The CVRD is useless here. Their hands are tied. They can help us voice our concerns to the Ministry, attempt to knock common sense into South Island Aggregate, but a soil bylaw would be the least of our interests, as the repercussions could cost us tax increases into eternity.

Gerry Giles previously commented, “How is moving contaminated soil from one location to another a solution to the problem?” That is a great question, and one that was replied to by a representative of the Ministry of Environment by saying “.....Sometimes it makes sense, sometimes it doesn’t.....”

David Mitchell from Active Earth (SIA’s Engineering Firm), states in an email addressing my concerns of ground water contamination and air quality -

“This data will be used to determine if and when mitigation measures are implemented to reduce vapour contaminant concentrations to acceptable levels as outlined in the Contaminated Sites Regulation. Proposed mitigation measures may include covering soil stockpiles, limiting the amount of soil containing volatile contaminants (e.g. Benzene), and a vapour capture and treatment system.”

Acceptable levels.....What are acceptable levels?? Benzene is known to be a human carcinogen.

The Ministry of Environment is INVITING this proposal to the table, with open arms. They are going to tell you that SIA has every right to do so. They are going to tell you that SIA is within their rights to apply, and that the MOE is within the law to allow this proposal, regardless of what the public has to say, to go forward.

It’s not only disturbing to think that a facility of this magnitude can be located on a drinking water shed, but that the Ministry Of Environment believes that setting this precedence of allowing such a disaster in the making to proceed from within the Ministry of Energy and Mines protocol, is a gross misbalance of reality.

Mike Kelly and Marty Block.....this is scary excrement your dabbling in. Your not on the forefront of technology here, your not paving the way to cleaning up this world, your proposal in it’s current location is a recipe for disaster.
I understand this proposal is all about the money. You are embarking, on not only, a stain to your reputation, but a boycott to your current and future business dealings throughout Vancouver Island from all that oppose you. Spoiling one’s wellbeing, personal health, and future health of their offspring is not taken lightly in today’s day and age.

Your proposal claims “minimizing, and proposed mitigation measures may include…covering, limiting, capturing, treating…,”.....that means diddly squat today. When the damage is done.....and your business is long gone, who’s left to deal with the toilet you left my children?

You made your money, you want to move on, before your tenure expires, or the product runs out. I get that. Reclamation is reality. But it's time to pay the piper, and do what is best for the property in question. It's time to do what's best for the environment....that's the responsibility you aquired when you decided to mine the Stebbings parcel. You disturbed the land, you reclaim the mine. Reclaiming the mine by hauling in 350,000 truck loads of contaminated soil to bury it...is my idea of GREED. Yes, the attraction of the developers paying you $250.00+ a truck load for contaminated soil sounds appealing now, but you are setting a presedence in B.C. ....That will not only effect us now, but all future generations.

Shawn Silva
Shawnigan Lake, B.C.

Comments submitted via delivered printed paper – unable to attend Public Meeting July 12, 2012
Jennifer Hughes

From: Cathy Allen
Sent: Friday, July 13, 2012 8:29 AM
To: Jennifer Hughes
Subject: FW: Online Form Submittal: Web Page Feedback Form

From: Allison Nelson
Sent: Friday, July 13, 2012 8:23 AM
To: Cathy Allen
Subject: FW: Online Form Submittal: Web Page Feedback Form

From: Chris Ewing
Sent: Friday, July 13, 2012 6:49 AM
To: Allison Nelson
Cc: Joe Barry
Subject: Fwd: Online Form Submittal: Web Page Feedback Form

Allison

Please see feedback below and forward to the appropriate.

Thanks.

Chris Ewing
Manager, Information Technology Division
Corporate Services Department
Cowichan Valley Regional District

Begin forwarded message:

From: "support@civicplus.com" <support@civicplus.com>
Date: 12 July, 2012 22:35:51 PDT
To: ewing@cvrd.bc.ca
Subject: Online Form Submittal: Web Page Feedback Form

If you are having problems viewing this HTML email, click to view a Text version.

Web Page Feedback Form

Your feedback is important to us. It will assist us in improving and making the CVRD webpage more useful. Please fill in this form to help us better understand your needs.

Name: Taryn
Address: 1784 East Shawnigan Lake Road
City: Shawnigan Lake
Postal V0R 2w5
Feedback:*I will never in anyway support this SIA contaminated soil site, just to know from one of their former employees that they have already started dumping the soil and are still showing their slimy faces at the meeting on July 12 at Kerry Park. Also the fact that the meeting should have been the first step, not the third, as residents of Shawnigan Lake, Mill Bay, Cobble Hill and how ever further protecting Shawnigan's watershed/ lake, are now pretty much deemed powerless and oppressed by the "money". This sickens me that this is even considered, Shawnigan Lake needs to be a protected watershed like Sooke Lake. Thousands of people will stand behind me, and we will get a petition. I can't believe that after the "Eco" depot incident that we are even meeting on this issue.

Thank you for taking the time to provide us with your feedback.

* indicates required fields.

The following form was submitted via your website: Web Page Feedback Form

Name:: Taryn
City:: Shawnigan Lake
Postal Code: V0R 2w5

Feedback:: I will never in anyway support this SIA contaminated soil site, just to know from one of their former employees that they have already started dumping the soil and are still showing their slimy faces at the meeting on July 12 at Kerry Park. Also the fact that the meeting should have been the first step, not the third, as residents of Shawnigan Lake, Mill Bay, Cobble Hill and how ever further protecting Shawnigan's watershed/ lake, are now pretty much deemed powerless and oppressed by the "money". This sickens me that this is even considered, Shawnigan Lake needs to be a protected watershed like Sooke Lake. Thousands of people will stand behind me, and we will get a petition. I can't believe that after the "Eco" depot incident that we are even meeting on this issue.

Additional Information:
Form submitted on: 7/12/2012 10:35:51 PM
Submitted from IP Address: 70.67.179.222
Referrer Page: http://www cvrd bc ca/
Form Address: http://www cvrd bc ca/Forms.aspx?FID=69
CVRD
PUBLIC MEETING
COMMENT SHEET

Thursday, July 12, 2012
South Island Aggregates (SIA) Permit Application

Please hand in Comment Sheet prior to the end of the Public Meeting, or forward by 4:30 p.m. July 19, 2012 to:
CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513   Email: tdaly@cvard.bc.ca

NAME (optional): Lois Hayes

COMMENTS/RECOMMENDATIONS:
I implore you to reject the SIA application and any other application which is situate above Shawnigan Lake. The life of the lake and the drinking water supply is far too valuable to be exposed to any risk whatsoever.

Mistakes happen.

Weather patterns change.

There are ample, ample sites which are located below lakes and drinking water sites. Those alternative locations could be considered, but absolutely not in this case.
CVRD
PUBLIC MEETING
COMMENT SHEET

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South Island Aggregates (SIA) Permit Application

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CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513  Email: t Daly@cvrd.bc.ca

NAME (optional): Lakefront owner, John Hayes

COMMENTS/RECOMMENDATIONS:

we are totally opposed to the granting of any permit to allow contaminated material being dumped in our Shawnigan Lake watershed. Our main concern is the unknown volumes of water runoff from rainfall and melting snow which has already increase lake levels since the clear-cutting above the western shore. Global climate change have made it impossible to predict future runoff volumes and the even slightest risk to the lake and domestic wells cannot be contemplated. Thousands of tons of contaminated material would be a ticking time-bomb virtually guaranteed to cause irrevocable poisoning of the Shawnigan Lake watershed, with incalculable consequences. MUST NOT BE ALLOWED
PUBLIC MEETING
COMMENT SHEET

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CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513   Email: t Daly@cvrd.bc.ca

NAME (optional): ALEX MORRIS

COMMENTS/RECOMMENDATIONS:

Question: How is South Island Aggregates (SIA) permit application being interpreted under the current regulations so that it is not classified as a landfill?

Question: Could SIA and Active Earth please provide an exact list of waste streams (ie: soil, sediment, etc) for treatment and disposal at the site.

Question: What type of engineering controls will be used to limit potential sediment, overhead surface water release to the surrounding properties and park?

Question: Could SIA please provide groundwater and surface water proposed monitoring frequencies/ intervals, as well as planned parameters to be sampled. Also, has the Department of Fisheries and Oceans (DFO) been notified of this application?
PUBLIC MEETING
COMMENT SHEET

Thursday, July 12, 2012
South Island Aggregates (SIA) Permit Application

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CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513  Email: tidaly@cyrd.bc.ca

NAME (optional): ALEX MORRIS

COMMENTS/RECOMMENDATIONS:

Question: What type of financial security is being proposed by SIA and the Ministry of Environment? How much is being proposed?

Question: Has SIA considered the financial impact to local residents if their drinking water is impacted by this proposed facility? If so, would they (SIA) plan to compensate local residents?

Question: Has the MOE or Active Earth established the full extents of the local aquifer? If so, how many are there, what is the depth and what are the flow rates?

Question: Are the MOE and SIA planning to hold more public meetings? If not, they should. It would be great to have all stakeholders involved, including the CRD, as this same watershed maybe impacted by this proposed facility. Has there been discussion about an area traffic management plan with the MOE?

Thank you for the opportunity to provide comment.
Thursday, July 12, 2012
South Island Aggregates (SIA) Permit Application

Please hand in Comment Sheet prior to the end of the Public Meeting, or forward by 4:30 p.m. July 19, 2012 to:
CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513   Email: tdaly@cvrd.bc.ca

NAME (optional):  Dan Kirkby
2701 Haida Rd, Shawnigan, BC

COMMENTS/RECOMMENDATIONS:

Please register our opposition to the landfill proposal at the south end of Shawnigan Lake. The drinking water is in jeopardy.
Jennifer Hughes

From: Tara Daly
Sent: Monday, July 16, 2012 8:37 AM
To: Jennifer Hughes
Subject: FW: Delivery Status Notification (Failure)
Attachments: ATT00001.txt

FYI

From: Derek Gibson [mailto:pilgrimderek@hotmail.com]
Sent: Saturday, July 14, 2012 4:20 PM
To: Tara Daly
Subject: FW: Delivery Status Notification (Failure)

From: postmaster@mail.hotmail.com
To: pilgrimderek@hotmail.com
Date: Fri, 13 Jul 2012 18:45:36 -0700
Subject: Delivery Status Notification (Failure)

This is an automatically generated Delivery Status Notification.

Delivery to the following recipients failed.

tdaly@crvd.bc.ca

--Forwarded Message Attachment--
From: pilgrimderek@hotmail.com
To: tdaly@crvd.bc.ca
Subject: Public Meeting Comment Sheet - South Island Aggregates Permit Application
Date: Sat, 14 Jul 2012 01:45:34 +0000

- Thanks for hosting a well run, well organized, well managed Public meeting, last night.

I am totally against the permit application for the following reasons.

- This is one persons (SIA) lust for profit being weighed against the population of the watersheds need for clean, safe drinking water. The total safety of the process cannot be guaranteed, over a 50 year permit.

- The engineers did a good job of explaining their process but what was apparent was that it would all depend on the people operating the plant and monitoring the conditions. People get complacent, owners want to extract more profits, standards are compromised, focus is distracted, initial promises are forgotten and we are left with a compromised watershed. This should not be permitted.

Thank-you, Derek Gibson 250 733 2235
From: Darren A. Mather [mailto:darren@mather.com]
Sent: Monday, July 16, 2012 7:56 AM
To: Tara Daly
Subject: South Island Aggregates Waste Discharge vs Shawnigan Lake Water Shed

Hello

I attended the meeting at the Arena on Thursday evening and was impressed with the questions that most of the residence asked. However, I was disappointed in a lot of the answers that Rob Hutchins from CVRD offered, as well as the information presented by Eddy Taje. If they were present to reassure the residence that this was a benefit to our neighborhood, they failed miserably. The concern I have is not just that it is in our neighborhood, but at our water shed. In this day and age, we should not have to fight to have and keep our drinking water pure. I feel that it is the responsibility of the CVRD and the Ministry of Health and Ministry of Energy and Mines to rubber stamp any application that is presented if the application does not immediately meet some very stringent restrictions, such as keeping contaminated fill miles away from any water shed.

Mistakes happen, and checking fill before it leaves a site is only as good as the people checking it and they can make mistakes. Machines, people and equipment should be perfect but they all make mistakes. Rock can have cracks in it, rubber lining can deteriorate or be damaged, it does not matter what precautions are taken it will never be enough, when lives and health are at stake.

Right now Shawnigan Lake is fighting for its life, and the authorities voted in to protect the people are allowing an application by SIA to venture into the 4th step and that is to apply to proceed. This must not happen. Please shut them down.

Can the residence vote on this?? If so my vote is NO.

Yours truly

Darren A. Mather
2145 Renfrew Rd
Shawnigan Lake BC
FYI

From: Paul Coeur [mailto:paulcoeur@gmail.com]
Sent: Monday, July 16, 2012 9:53 AM
To: Tara Daly
Subject: Comment Submission in SIA Permit Application

We attended the recent public meeting to discuss the permit application by South Island Aggregate to establish waste discharge. We appreciate all the effort put into presenting such an event by the CVRD and all the parties who were involved. The issue and its effects are complex, and polarizing. We stayed as late as we could; but by 10:45 we had to leave. We were looking forward to hearing what everyone would have to say in the General Comment portion of the evening; but with the meeting scheduled to end at 10PM, we were unable to stay without knowing when it would actually come to an end. Nevertheless we were very pleased to receive the information we were able to take in, and we were very impressed with the presentations by all the principals.

First, we would like to say that it is clear to us that SIA has put a great deal of time, research and money into preparing and presenting a comprehensive, complex and professional application. However, based on the opinions of our neighbours and of the overwhelming majority of citizens who attended the July 12th meeting, one must wonder if SIA researched what the people who live around and depend on the water in Shawnigan Lake felt about the creation of a contaminated waste dump upstream of the lake.

Mr Bunce of the Ministry of Environment, and Mr. Taje of the Ministry of Energy and Mines both made it clear that "process must be followed" when an application of any nature is submitted. A more time and cost effective approach in our view, would be if the B.C. government put out to tender the application for locating installations of these necessary contaminated waste dumps. Applicants would of course be required to show that, among other things, they have the expertise, the finances, the quality control, the maintenance program and the best location with regard to responsible considerations for wildlife, environment and humans. But that would require a completely different process, one that would require political will and strategic planning in order to deal effectively and proactively with the waste our Island community has produced.

We would ask that while the Ministry of Environment is following process and considering SIA's application, that the Ministry would also consider that in the over four hours we were sitting in that meeting, of the 300 or so persons who attended along with us, not one person from the floor gave their support to the SIA application. It was very clear to all that were there that we don't want such a waste dump near or at the headwaters of our lake.

One can appreciate how a private business such as SIA would see tremendous financial opportunity in stockpiling contaminated earth in their quarry, but a good neighbour wouldn't introduce such risk to our village. We would say however, that if such a dump must be established somewhere, that the SIA/Active Earth model should be considered. SIA and the Active Earth Engineering team informed us that B.C. and indeed, the Shawnigan Lake area is blanketed with registered and non-registered waste dumps of various contaminated levels. If that is the case, we feel that we don't need another one down the street from our lake...especially one that would specialize in storing such material.
It's clear that a dump of this nature is needed; but not in a location that is the life-source for so many people, so much wildlife. We made our home here because of the lake. Like so many people in the Shawnigan Lake area, the lake is our spirit, our centre, our life. Please reject the South Island Aggregates Permit application.

Thank you.

Paul Jolicœur & Dinah Clark
Jennifer Hughes

From: Tara Daly
Sent: Monday, July 16, 2012 3:23 PM
To: Jennifer Hughes
Subject: FW: Soil Dumping

FYI

From: Adele Blyth [mailto:adeleblyth@shaw.ca]
Sent: Monday, July 16, 2012 2:10 PM
To: Tara Daly
Subject: Soil Dumping

I am not in favour of the dumping of contaminated soil around the Shawnigan Lake area. My address at my home in Victoria is #10- 942 Boulderwood Rise, Victoria, B.C. V8Y3H5. My address on the Shawnigan Lake waterfront is 2539 Wylde Wood Ave.

Thank you. Sincerely,

Vivian Adele Blyth.
Jennifer Hughes

From: Tara Daly
Sent: Tuesday, July 17, 2012 3:56 PM
To: Jennifer Hughes
Subject: FW: SIA application refusal

FYI

From: Yvonne [mailto:ymather@shaw.ca]
Sent: Tuesday, July 17, 2012 3:11 PM
To: Tara Daly
Subject: SIA application refusal

Yvonne Mather – Shawnigan Lake BC

I attended the meeting at the Arena on Thursday evening and was impressed with the questions that most of the residence asked. However, I was disappointed in a lot of the answers that Rob Hutchins from CVRD offered, as well as the information presented by Eddy Taje. If they were present to reassure the residence that this was a benefit to our neighborhood, they failed miserably.
The concern I have is not just that it is in our neighborhood, but at our water shed. In this day and age, we should not have to fight to have and keep our drinking water pure. I feel that it is the responsibility of the CVRD and the Ministry of Health and Ministry of Energy and Mines to rubber stamp REFUSAL any application that is presented if the application does not immediately meet some very stringent restrictions, such as keeping contaminated fill miles away from any water shed.
Mistakes happen, and checking fill before it leaves a site is only as good as the people checking it and they can make mistakes. Machines, people and equipment should be
perfect but they all make mistakes. Rock can have cracks in it, rubber lining can
deteriorate or be damaged, it does not matter what precautions are taken it will never be
enough, when lives and health are at stake.
Right now Shawnigan Lake is fighting for its life, and the authorities voted in to protect
the people are allowing an application by SIA to venture into the 4th step and that is to
apply to proceed. This must NOT happen. Please shut them down.
Can the residence vote on this?? If so my vote is NO.
yqmather@shaw.ca
ATTENTION: Mr Hubert Bunce,

Please accept this as a very strong ‘NO’ to the issuing of a contaminated waste dumping permit for SIA.

I am very much against this.

The meeting on July 12th, was very well run and informative, however, rather than be swayed to support this, I am more firmly convinced that this is not something to be even considered. There are definitely no positive benefits to the residents in this area, only risk. One of the most damning statements for me, was the fact there IS an aquifer that the engineers were not even aware of!
That fact alone should end this whole issue. There were too many other questions they had no answer for. They did not know as much as they inferred in their initial presentation.

The financial gains of a very few will be huge. No one else will benefit, and the residents will live in fear of ‘what may be’.

Our family has had property on the south end of the lake for over 70 years. We now have our 4th generation enjoying the lake. The newest generation is unlikely to ever see the clean, clear water that I knew as a child. We want to stop further damage to the land and creeks around the lake, and protect the water quality. PLEASE support the huge majority of lake residents who are fighting for our lake.

Say NO to this petition.

A watershed is NOT the area to be considered for a contaminated waste dump. No one wants to live by one, I understand that, ...but to allow one by a creek and a lake people drink from is just a disaster waiting to happen.

Yours truly,
Debbi King
8635 Emard Terrace
North Saanich (1650 East Shawnigan Lake rd.)
From: Morriss, Alex [mailto:AMorriss@tervita.com]
Sent: Tuesday, July 17, 2012 12:08 PM
To: Tara Daly
Subject: CVRD Public Meeting Comment Sheet Regarding the SIA Permit Application

To Whom it May Concern,

Please find attached my public comment sheet regarding the SIA Permit Application. I have also faxed the comment sheet to the provided fax number. If you have any questions regarding the attached please let me know. Thank you for the opportunity to provide comment.

Thank you,
-Alex

This email message and any attachments are for the sole use of the intended recipient(s) and contain confidential and/or privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply email and destroy all copies of the original message and any attachments.

Tervita-03-14-2012
PUBLIC MEETING
COMMENT SHEET

Thursday, July 12, 2012
South Island Aggregates (SIA) Permit Application

Please hand in Comment Sheet prior to the end of the Public Meeting, or forward by 4:30 p.m. July 19, 2012 to:
CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513 Email: idaly@cvrd.bc.ca

NAME (optional): ALEX MORRIS

COMMENTS/RECOMMENDATIONS:

Question: How is South Island Aggregates (SIA) permit application being interpreted under the current regulations so that it is not classified as a landfill?

Question: Could SIA and Active Earth please provide an exact list of waste streams (i.e. soil, sediment, etc) for treatment and disposal at the site.

Question: What type of engineering controls will be used to limit potential sediment, overland surface water release to the surrounding properties and park?

Question: Could SIA please provide groundwater and surface water proposed monitoring frequencies/intervals, as well as planned parameters to be sampled. Also, has the Department of Fisheries and Oceans (DFO) been notified of this application?
Question: What type of financial security is being proposed by SIA and the Ministry of Environment? How much is being proposed?

Question: Has SIA considered the financial impact to local residents if their drinking water is impacted by this proposed facility? If so, would they (SIA) plan to compensate local residents?

Question: Has the MOE or Active Earth established the full extent of the local aquifer? If so, how many are there, what is the depth and what are the flow rates?

Question: Are the MOE and SIA planning to hold more public meetings? If not, they should. It would be great to have all stakeholders involved, including the CRD, as the Cowichan watershed maybe impacted by this proposed facility. Has there been discussion about an area traffic management plan with the MOE?

Thank you for the opportunity to provide comments.
Dear Sir:

As a property owner at Shawnigan Lake, we are very concerned about the dumping of polluted material at the southend of the lake. No matter how many tests engineers do, we feel the polluted material will drain into the streams and underground water systems and eventually end in the lake.

The consequence of this continued pollution is obvious over time. The lake is too important to the community and area to let any possible contamination occur.

We urge you to reject any application that would permit the dumping of any contaminated material into the Shawnigan Lake Watershed.

Yours very truly,

Mrs. Shirley Pynn
From past experience, Mr. Kelly cannot be believed as to his promises. Who hired the engineers at the meeting?

He's much like Cambridge.

We have been here since 1945. It breaks my heart to see people who try to pull wool over our eyes. Future generations will pay.
FYI

-----Original Message-----
From: Patti Skillings [mailto:pandpskillings@gmail.com]
Sent: Thursday, July 19, 2012 7:18 AM
To: Tara Daly
Subject: Shawnigan Watershed

As a Shawnigan Lake water front property owner, I am NOT in favour of the dumping of ANY soil from other areas.

Joy Skillings
2102 Sarita Road
Shawnigan Lake BC V0R 2W3

3138 Westdowne Road
Victoria, BC V8P 4Y3

vjskillings@shaw.ca

Sent from my iPad
-----Original Message-----
From: Doug Jones [mailto:doug-joan@hotmail.com]
Sent: Wednesday, July 18, 2012 6:30 PM
To: Tara Daly
Subject:

Plse be advised that I am not in favor of the plan to dump contaimage soil. From other areas Barbara j jones

Sent from my iPad
Thursday, July 12, 2012
South Island Aggregates (SIA) Permit Application

Please hand in Comment Sheet prior to the end of the Public Meeting, or forward by 4:30 p.m. July 19, 2012 to:
CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513 Email: idaly@cvrd.bc.ca

NAME (optional): Gordon & Barbara Noljuk

COMMENTS/RECOMMENDATIONS:

We attended the meeting at Food Park, very well organized, thank you, well done.

It did not change our opinion that it is the wrong place for this dump site, waste disposal is regardless of how safe these engineers state it is. This same company was responsible for the Pater housed the runoff from their site, we at the south end of the lake have terrible drinking water, salt and dirt clogging our septic tanks, water filters or have to change it once a month instead of 6 months. It is impossible for us to believe we could trust them with contaminated soil as few would handle it.

We are a definite NO to this proposal.
To Whom It May Concern,

With regard to the SIA application to dump contaminated soil on the Stebbings Road site in south Shawnigan:

So much has been said on this subject, not only at the July 12th public meeting [which I was unable to attend], but over the course of several years when similar situations have arisen throughout the CVRD, that my remarks will be brief.

We, SLWW [Shawnigan Lake Watershed Watch], would strongly encourage the CVRD to pressure the relevant provincial ministries [chiefly Mines, Energy, and Environment] to enact clear and unequivocal environmental requirements when applications of this kind are made.

A province wide regulatory system governing the treatment and remediation of contaminated soils to needs to be established. All water supplies, including community watersheds such as Shawnigan, must be protected from any risk of harm with Best Management Practices riparian setbacks, and regular monitoring conducted by ministry employees - not company hired QEPs - should be essential.

Unfortunately, in view of the politically pro-business stance of the present provincial government, it is unlikely this application will be rejected. That being so, we would stress the obvious necessity for provincial oversight and constraint through the monitoring regimen and the designation of appropriate buffers to safeguard any and all watercourses in this location. A final provincial consideration should be the implementation of stiff fines for any businesses found flaunting the rules and/or causing ecological harm.

Lastly, we recommend that the bylaws pertaining to F1 lands within the CVRD be amended to exclude "gravel extraction and crushing", activities which seem to result in the eventual dumping of unwelcome soils throughout this region.

Sincerely,

Mary Desmond
Shawnigan Lake Watershed Watch
1878 Flicker Road
Shawnigan Lake, B.C.
VOR 2W5
Comment Sheet
CVRD Public Meeting
Thursday July 12, 2012

Re: South Island Aggregates Permit application
Lillian Barton 2734 Dundas Ave Shawnigan Lake, BC

Comments:
Thank you for providing an Open House to give the public an opportunity to understand the proposed SIA Permit Application.

1. Both Ministry of Environment and Mines representatives were a disappointment. Questions were evaded, generalized and downplayed and in some cases misinformation was given. Their disinterest and role mandate as Provincial bureaucrats re-enforced the fact they will have little or no role in preventing serious contamination of our drinking water supply.

2. Baring the poor performance of these members the floor questions were good. We need specific answers to our questions as I left without much more information than when it began; only more questions and concerns.

Dismissing the rhetoric, superficial technical advice of the MOE regarding pond liners which are “safe” unless there is an earthquake of 7.2 magnitude we still come away with the knowledge that:

1. Water is an inalienable right to life – a basic need.
2. Profit cannot outweigh public safety.
3. There is no 100% fail safe way to provide this venture in a watershed serving approximately 7500 people.
4. Weather patterns are changing bringing unexpected consequences whether it is drought or flash floods.
5. The cost to the community for contamination will be lifelong as well as life threatening in addition to financial. Risks do not outweigh benefits.

The SIA Permit Application should not be granted by the CVRD. Furthermore as a gesture for the public’s voiced concerns and in the spirit of community goodwill I would applaud SIA should they generously withdraw this permit application.

Thank you,
Lillian Barton
FYI

From: Maureen Mark [mailto:maureenmark@shaw.ca]
Sent: Thursday, July 19, 2012 2:25 PM
To: Tara Daly
Subject: Questions re: contaminated soils on Stebbings Road

Dear CVRD

I have attended both public meetings on the question of SIA’s application for contaminated soils on Stebbings Road. As a local resident who passes this site daily and former owner of this site, I have many questions for Ministries of Environment and Mines:

1. How can you guarantee that a contaminated soil site would be monitored accurately in perpetuity?
2. What safeguards would be put in place for earthquakes?
3. What odors(toxic and otherwise) that would affect the quality of living for residents in the area be present in the treatment process?
4. What incentive is there for a company to follow the rules? Self-monitoring has not worked for this company. While SIA was self-monitoring it built a road and dumped undesignated soils on clearly marked Parkland. Why was it allowed and who should have been monitoring? Why is Parks allowing it to remain? Who makes these decisions? What is their accountability?
5. Who pays if the company goes bankrupt?
6. What considerations is being given for the proximity of this site by a creek at the head of the watershed
7. Who is accountable for the leakage that will occur? The storage site has three sides only, with one side open on a cliff. How can they guarantee that contaminated materials will be contained in this? The "settling ponds" drain into wetlands which feed Shawnigan Creek.(I lived on the site for 25 years and know where the frogs used to live...)
8. How can we trust this process that is already shown to be compromised? Ed Ty, at the meeting in May denied any knowledge of the site, then insisted in July that he had been monitoring the site regularly since 2005. Which should I believe? Why did he deny any knowledge of the mine footprint, while working with the company to change it so that their dumping would not be in violation of the current laws?
9. Why is the decision making in the hands of two individuals, one at mines, and one at Environment, both of whom have the mandate to promote business at all cost? What is the role of the other arms of the Ministry of Environment? Why are they not part of this process?
10. Why is this application not put on moratorium until the CVRD process which has been initiated is followed to determine a policy for brown site zoning?
Thank you for responding to this email and my questions.

Maureen Mark

264 Stebbings Road
To: Active Earth  
Cc: Bunce, Hubert ENV:EX; Lachance, Luc ENV:EX; McCammon, Alan W ENV:EX; Doug Walton; Ward, John ENV:EX; Kinnsinger, Mark ENV:EX; Macfarlane, Mike ENV:EX; Alexander, Randy ENV:EX; Dekelver, Richard ENV:EX; Pauwels, Peter ENV:EX; Minister, ENV ENV:EX

Subject: I DO NOT SUPPORT South Island Aggregates application for permit to store 5 million tons of contaminated soil in the headwaters of Shawnigan Lake’s drinking-water watershed.

As directed by Mr. Allan McCammon (Ministry of Environment-CVRD Regional Services Committee Meeting – May 23, 2012) and South Island Aggregates (SIA) website I am providing my feedback in regards to SIA’s permit application to expand its quarry operation to include storing 5 million tons of contaminated soil in the headwaters of the Shawnigan Lake drinking-water watershed.

I do not support this permit application.

My comments include:

The Federal Government recently reported that over 22,000 known contaminated sites have been left by previous generations for our generation to contend with. It is increasingly clear that we Canadians are now required to develop a strategic plan, if we are to co-ordinate the action required to manage this tsunami of contaminated soil, both on our island and across Canada.

What are we going to do with the decisions that we are faced with?

Are we going to learn from our past? Are we going to recreate the past and leave an additional legacy of more contaminated soil sites? In this case, 5 million tons of contaminated soil stored in the headwaters of the Shawnigan Lake drinking-water watershed for present and future generations to contend with.

It seems to me that now is the time for our Provincial Government, Ministry of Environment and Ministry of Energy & Mines, to work closely together with our Local Government (CVRD) and Community Members to develop a cohesive plan for managing the relocation, storage and remediation of contaminated soil, whatever level of contamination.

The location of these contaminated soil dumping, storage and remediation sites requires thorough planning by all key stakeholders to ensure the provision of maximum service for surrounding locations throughout all of British Columbia AND be assessed and situated in locations that have absolutely zero risk of contaminating drinking-water watersheds.

Consideration for the location of these contaminated soil dumping, storage, and remediation sites needs to ensure that the present and future generations of community members' quality of life is protected. We Canadians consider this our basic right. We consider the protection and purity of drinking-water watersheds, and of our drinking water, a right and a responsibility.

Our Local Government, in relationship with Community Members, will monitor and ensure the health and wellness of our community. We, after all, are the ones who live here.

Are we fated to continue to make the same mistakes as those before us? Will we learn from their mistakes? Will our government learn from these mistakes? Will our Provincial Government work with our Local Government, the Cowichan Valley Regional District (CVRD), and Community Members to make the right decision for our community?
We are asking the Ministry of Environment to work with us, to collaborate with us, and to make informed decisions that are right for our community.

Minister Terry Lake has agreed to work with us in this way.

We are requesting this of you as well.

Thank you,

Dr. Mackenzie Brooks

(250) 888-0517

mailto:mackenzie@mackenziebrooks.com
www.DrMackenzieBrooks.com

Click here to learn more about my workshop offerings
Hi Jennifer,
Another one for the package. Thanks.
Warren

From: WWW ENVMail ENV:EX [mailto:WWW.ENVMail@gov.bc.ca]
Sent: July-18-12 5:06 PM
To: 'dr@drmackenziebrooks.com'
Cc: Lachance, Luc ENV:EX; McCammon, Alan W ENV:EX; Skelly, Kerri ENV:EX; 'feedback@activeearth.ca'; External Bruce Fraser; Warren Jones; 'stebnings360@hotmail.com'
Subject: RE: I DO NOT SUPPORT South Island Aggregates application for permit to store 5 million tons of contaminated soil in the headwaters of Shawnigan Lake's drinking-water watershed.

Reference: 170259

July 18, 2012

Dr. Mackenzie Brooks
Email: dr@drmackenziebrooks.com

Dear Dr. Brooks:

Thank you for your emails of May 29 and June 6, 2012, addressed the Honourable Terry Lake, Minister of Environment, regarding your objection to the South Island Aggregates application to discharge waste. I am pleased to have this opportunity to respond on behalf of Minister Lake. Please find the response to your questions and concerns summarized below.

In accordance with the Waste Discharge Regulation application process, the Ministry of Environment is required to receive all applications for waste discharge, refer them to local government, First Nations, other agencies and the local public, consider the technical and public issues related to the application and make a reasoned decision.

Ministry of Environment Regional Operations have not issued any authorizations for soil treatment or storage facilities in the Capital Regional District’s (CRD) drinking watershed. In the event that an application was made to discharge waste within the CRD drinking watershed, the Ministry would be required to review the application. The application would be referred to the CRD and the public and their comments would be received and considered as part of the application adjudication. As this watershed land is owned and protected by the CRD, they have the ultimate ability to determine the use of land under their control.

While the Cowichan Valley Regional District (CVRD) does not own all the land within the Shawnigan Lake watershed, it does have the authority to define land use within its boundaries through bylaws. The current bylaws do not prevent a facility, such as the one proposed by South Island Aggregates, to be built and operated.
For further information, please contact the CVRD directly. We recommend you contact Mr. Warren Jones, CVRD Chief Administration Officer, at wjones@cvrd.bc.ca to discuss further. As the local government, the CVRD is given the opportunity to provide comments on all waste discharge permit applications in their region.

The Ministry of Environment encourages property owners and developers to reuse suitable soils from contaminated sites. Relocated soils have been used to reclaim mine sites, to serve as fill for site consolidation and to provide landfill cover, as proposed by South Island Aggregates. Such soil relocations have facilitated the successful remediation and redevelopment of many sites that might otherwise simply become brownfields. Contaminated soil is an unfortunate result of human activity and the Province has developed legislation to handle its treatment and discharge. In all cases, Contaminated Soil Relocation Agreements are endorsed by the Ministry only if it has been demonstrated by an approved professional that the soil to be relocated is suitable for deposition at a receiving site and will not create a new contaminated site. In other words, the Ministry will not endorse a Contaminated Soil Relocation Agreement unless the soil to be relocated meets the applicable land use standards in the Contaminated Sites Regulation for the receiving site.

Ministry of Environment’s Land Remediation Section has been overseeing the management of related issues and has information regarding concerns around receipt of contaminated soil under the Contaminated Sites Regulation at the South Island Aggregates facility on Stebbings Road and other sites in the CVRD. We recommend you contact Ms. Kerri Skelly, Senior Contaminated Sites Officer, at Kerri.Skelly@gov.bc.ca, to obtain copies of relevant correspondence in order to more fully understand this matter. The Ministry’s Regional Operations Branch does not have compliance-related information pertaining to South Island Aggregates as they do not hold a waste discharge authorization.

I encourage you to continue to inform yourself on the proposal and to make your concerns known to the proponent and the Ministry.

Please do not hesitate to contact Mr. Luc Lachance, Senior Environmental Protection Officer, at 250 751-7245 or via email, at Luc.Lachance@gov.bc.ca, as needed.

Thank you again for taking the time to write.

Sincerely,

Jim Standen
Assistant Deputy Minister

cc: Luc Lachance, Senior Environmental Protection Officer, Ministry of Environment
Alan McCammon, Manager, Brownfields and Remediation Assurance, Ministry of Environment
Kerri Skelly, Senior Contaminated Sites Officer, Ministry of Environment
Active Earth Engineering
Loren Duncan, Cowichan Valley Board Member Area E - Sahtlam/Glenora/Cowichan Station
Bruce Fraser
Warren Jones, Chief Administrative Officer, Cowichan Valley Regional District
Shawnigan Creek Protection Association
-----Original Message-----
From: fraser [mailto:fraser@islandnet.com]
Sent: July-19-12 5:44 PM
To: rhutchins@shaw.ca; Warren Jones
Subject: Fwd: South Island Aggregates Permit Application -Comments

First truly technical argument. Cheers, Bruce.

Further to the information presented and issues raised at the various public meetings to date, I would like to add my own comments on the SIA Proposal and Permit Application:

To preface, my professional background was as a scientist with Environment Canada and Fisheries & Oceans Canada and later as an owner/operator of a private environmental laboratory in Vancouver. I have more recently provided consultation to a client on contaminated site clearance certification for his industrial property in Duncan. My roots at Shawnigan Lake are deep. We've had our property on the lake and resided there on and off for over 20 years plus family property there since 1948, and going back even further to my family vacationing in the late 1920s and later dance partying in the 1930s. Our potable water is taken directly from Shawnigan Lake, regrettably now having to be treated. I am conscious of the needs of the private sector and of the mandate and resource constraints of the various governing bodies. I am also sensitive to the feelings and well being of the residents.

There are a number of issues and sides to be taken with this proposal, many of which are rooted in emotion, and not just of the residents. I will try to restrict my comments here to the technical side.

From a general technical standpoint, I am reasonably satisfied with the qualifications, work put in, proposals put forth and presentations of Active Earth Engineering on behalf of their client, SIA. I do, however, have remaining concerns.
From a geotechnical standpoint, I have virtually no concerns about the natural ground water and even sub-surface water protection and the additional protective layering that will be used. The engineering proposal goes on and on about this in great length. Although addressed to a certain extent, the issue that seriously concerns me is surface water escapement, specifically the safe containment of precipitation and any additional process water stored or used, such as for washdown. My primary concern here is failure due to seismic activity. Designing for 1,000 years and a 7.2 quake is all well and good, but that is made on a statistical basis using certain assumptions and what has to be considered less than perfect historical data, massaged to a certain confidence level, which will never be 100% (typically 95%, hopefully 98%). Quite separate and on top of that are accidents from human activity, and that is where huge assumptions have to be made as data are relatively scant in this regard. I shouldn't have to use the name Japan to help pinpoint what I'm talking about, and I'm not trying to be a fear mongerer. The SIA engineering consultants will likely immediately leap to their own defence, but what I don't see here is enough seismic protection against surface water escapement in terms of a backup containment system in the event of the real likelihood failure of the primary system. I am not talking about the integrity of a single structure. I'm talking about is what is referred to as fault tolerance.

Much like an aircraft, the concept here is that the failure of any single component of a system should not result in the failure of the system as a whole. I don't see that adequately addressed, at least in those terms, when it comes to protection against surface escapement.

From an environmental standpoint, again I have virtually no concerns about ground water and sub-surface water protection. What I am concerned about, and what I don't see addressed either in the contaminated site regulations nor in the proposal, is airborne particulates. As a natural result of trucking, dumping, grading and high winds, contaminants will become airborne. I don't see airborne particulate protection in the proposed design, which should be something like maintaining soil dampness and using adequate washdown of both the equipment and even the site. Is there even a tire wash ditch? I don't see an air monitoring process in this application. I don't even see an air monitoring requirement in the contaminated site regulations. This is a real fear.

By the time the airborne contaminants make it into the water quality monitoring, damage will have been done and with what I believe would be very long lasting implications and it won't be as simple as a stream clean-up. Correct me if I'm wrong.

I would make further comments on holes in the regulatory process, but these are my main technical concerns at this time.

Yours sincerely,
David C. Stevens
2342 Lockspur Rd.
Shawnigan Lake, BC V0R 2W1
Re: SIA Permit application

We are STRONGLY opposed to the dumping of contaminated soil at the south end of Shawnigan Lake. Our concerns are as follows:

1) The possibility of the degradation of the water quality (our drinking water)
2) The distinct possibility of property values dramatically decreasing should any contamination of the lake occur
3) The penalties for the company breeching the environmental standards set out are grossly insufficient should the company (who is self monitoring the standards)
4) the plan for SIA to monitor the quality of the lake water through a biannual test is ludicrous. Talk about the fox guarding the henhouse!
5) The fact that the company has already been found to have accepted contaminated soil without a permit gives us very little confidence in their ability to control environmental standards.

Chris LePage
Tricia Whitwham
Phil LePage
2288 East Shawnigan Lake Road
19-July-2012

CVRD
PUBLIC MEETING
COMMENT SHEET

Thursday, July 12, 2012
South Island Aggregates (SIA) Permit Application

Please hand in Comment Sheet prior to the end of the Public Meeting, or forward by 4:30 p.m. July 19, 2012 to:
CVRD, 175 Ingram Street, Duncan, BC, V9L 1N8
Fax: 250-746-2513 Email: tdaly@cvrd.bc.ca

NAME (optional): FRANK SKAVIN
STEBBINGS RD. 701 - 9559 CELL.

COMMENTS/RECOMMENDATIONS:

Re/ Public Meeting @ Kerry Centre. July 12, 2002.
• Against The Application.

• Re: Runoff into Shawnigan Creek. We have
52 acres alongside S.I.A. Quarry, like a
\"coast line\" our gravel drive is the one
everybody uses as a viewing site to this
shambles. We are probably anywhere from 100
feet to a 1000 feet above \"the operation S.I.A.\" and have viewed this for 5 years. We know
this property & S. I. A. like the back of my
hand.
My profession is "gone 53 years in my trade. Yes, it is hard bedrock. Some of the hardest I have encountered in my 68 years. But no match for mother nature or dynamite. Every ounce of water coming of our property runs either S. 1/2 property or into the creek, thanks the way land lies. The creek on our side has fish, beyond our boundary, doubtful beyond "in's 1/4 zone. Why the fisheries don't get on board is beyond me, they say if..."
"You are classed a polluter if you do it seven days a week. S. I. A. Operation is 5 sometimes 6 days so they are off the hook! Even their illegal gravel parking lot part on the Covenant House's overnight 10 to 15 truck trailers all dripping oils, all within a stones throw to the creek. The vehicles have been serviced on site boxes + trucks powerwashed, in the evenings + weekends. They are fired up early mornings 5:00 A.M. 6:00 A.M."
My neighbour next door + myself have walked on the piles of fill all seasons. (8 months) you practically need snow shoes, if not you'll sink. The runoff is unstoppable, even if you had perimeter drains, where could you funnel the water? downhill? pump it back uphill?

Steve + myself have viewed what has been buried + have a long log + documentation over the last 5 years.
AND HAVE APPROACHED BYLAWS
+ ALL KINDS OF C.V.R.D LEVELS
+ THE C.V.R.D HAS DROPPED THE BALL
ON THIS. ANY DEVELOPER DEVELOPER
AVOIDS PROPERTY HOUSING EAGLES +
WILDLIFE OWLS ETC. ESP. PROPERTY
WITH A FISH BEARING CREEK
THAT'S RUN'S SOLID 12 MONTHS A YEAR.

ACTIVELY EARTH SLA ENGINEERS SAY
THEY HAVE DRILLED 250 FT DOWN
AND CHECKED WELLS IN THE AREA.
OURS IS NEXT DOOR, THEY DIDN'T 'CHECK IT'
IT GOES DOWN "1250 FT"
Probably goes in the same aquifer that feeds us, most of the Gulf Islands, Surrey, Langley, and as far a. Belmonte and Mount Baker where most of the water originates from. Mount Baker water shed.

Don't believe B.S. Goldstream watershed won't make it to No. 1. the lake No. 2. the aquifer.

As far as. Active Earth's liner for their wonderful cell inventions, do you know it's as thick as the product bought at
Your local landscape store to house your goldfish in your backyard project? "Nice."

Viewing the weather conditions + rubber liners the chance of sealing the seams in Goldstream Heights weather, "it's brutal."

You could not fix a bicycle tire in the rain up there. How in heaven's name could you accomplish a 100 or 200 or 300 or 500 square foot area, !!!!

And cover your project overnight to complete? Absolute balderdash!
On Closing I would like to say
Thanks S.I.A. C.V.R.P & Minister
Of Mines. Hubert Bunce & His Gang
For Even Giving This A Thought
Let Alone Approval.
God Knows What Its Done To
To The Property Value. Esp. The
Poor Fai Adjoining Neighbours Next.
Doom: Us!

Yours Sincerely

[Signature]

19 July 2002
May 6, 2010

South Island Aggregates Ltd.
PO Box 282
Malahat, B.C.
V0R 2L0

Attn: Mr. Mike Kelly:

Re: Mine Reclamation Plan

Colliers International supports your proposed land use application.

Environmental remediation of land has become a major issue for land owners and developers within Greater Victoria as the costs for removal and hauling contaminated soils have often proven to be extremely expensive and cost prohibitive.

There is demand in our marketplace for a site in close proximity to Greater Victoria that can provide an economic solution for landowners and developers who are needing to remediate contaminated properties.

As environmental standards continue to become more stringent, your property will provide a much needed service to facilitate more economic remediation in the future.

Yours Very Truly,

[Signature]

Ty Whittaker*
Vice President
Colliers International

*Ty Whittaker Personal Real Estate Corporation
June 28, 2012

Ministry of Environment
West Coast Region
2080A Labieux Road
Nanaimo, BC V9T 6J9

Attention: Mr. Luc Lachance, P. Eng. Sr. Environmental Protection Officer

Reference: SIA’s Reclamation Proposal

Dear Mr. Lachance,

My name is Richard Miller and I have lived and ran my business in Shawnigan Lake for 20 years. South Island Aggregate’s reclamation proposal is of particular interest to me as I own the Galley Marina and Fuel Dock and make my living off of this lake.

After looking into SIA’s project, and what they propose to do about the contaminated soil problem in the area, I am in support of their application. I believe SIA is a trustworthy company and has put a lot of effort into ensuring the science and safety of their site reclamation is sound. There is an existing need for a controlled site to accept this material and something needs to be done. I would much rather see it go to a properly run and well supervised site than to hide it and drop it at sites that will not treat it correctly. I rely on Shawnigan Lake for my living and it concerns me that companies do not have options for places to take this soil and as a result it gets dumped at unapproved sites where leakage could run into our water. I agree with South Island Aggregates’ application to take contaminated soil and am relieved they have provided our community a solution for this problem.

Respectfully,

[Signature]

Richard Miller

cc: CVRD
From: Barb Dalziel [mailto:shawnair@shaw.ca]
Sent: Friday, July 20, 2012 1:44 PM
To: Tara Daly
Subject: South Island Aggregates Permit to Discharge

South Shawnigan Lake residents have had muddy silt water since the Development of Patio Homes, the disturbing of soil & sewer near Shawnigans main creek into the lake, The same persons now want to add contaminated soil, mistakes are made, this is a water shed, our drinking water. This area has three Internationals schools what more needs to be said.
The only reason that 200-300 residents or persons concerned about the meeting on July 12th were there was because 75 % of the lake residents new nothing about this permit, we would have had 1000 had they known. This is not the area to have any dumping of soil around a creek in any water shed area, common sense, NO TO THIS PERMIT
Thanking you for your consideration, Gordon & Barbara Dalziel, residents on the south end of the lake for 70 years, four generations
FYI

-----Original Message-----
From: LISA BLUMER [mailto:hannah.blu@shaw.ca]
Sent: Friday, July 20, 2012 1:41 PM
To: Tara Daly
Subject: NO TO DUMPING OF CONTAMINATED SOIL AT SHAWNIGAN LAKE

To: T. Daly,

Please do not allow the permit application to go through for South Island Aggregate OR ANY OTHER COMPANY OR PERSONS to dump contaminated soil at Shawnigan Lake. The lake is our life. Please don't take a chance on jeopardizing so many peoples lives.

Thank you helping us keep our water safe.

Sincerely,

Lisa and David Blumer
Shawnigan Lake, BC
From: Tara Daly  
Sent: Monday, July 23, 2012 10:29 AM  
To: Jennifer Hughes  
Subject: FW: Comments re SIA public meeting, July 12

FYI

-----Original Message-----
From: Lavonne Huneck [mailto:lavonne.h@shaw.ca]  
Sent: Friday, July 20, 2012 4:14 PM  
To: Tara Daly  
Subject: Comments re SIA public meeting, July 12

There is no acceptable reason to put potable water at risk. This is not a popularity contest. This is not about finding loopholes in the law. This is not about removing a problem by rubberstamping it and taking it out of your in-basket. This is about risking the water supply, not just for today, but what we, with our incomplete knowledge, pass on to the future.

The optics of this is horrible. At present, private parties, in other areas, have contaminated soil that, if removed, will enhance the value of their property immensely. Once removed, this soil creates yet another contaminated area. The question is: who pays? Who holds the legal responsibility for the long term protection of the public good? Why should the taxpayers of the CVRD have to pay provincially (MOE & E&M) and then again through our property taxes for private businessmen to make a “killing” in another area? We have our own problems; we do not need to subsidize imports and jeopardize our water in the process.

Past action is always the best predictor of future action. Therefore, I would remind you of the CSRA for soils from 21 Dallas Road relocated to District Lot 78, Malahat District. My understanding is that although some of the worst portions of that soil were removed, there is still an amount remaining that contains contaminants, e.g. lead. The soil on Lot 78 is still not remediated and there is correspondence between MOE and Lund Small Holdings/Butterworth/Orca Environmental/ Rankin-Blaikie, et al, dating back to 2003.

Until MOE and Energy and Mines can show – not just tell – the public that it is prepared, willing and capable of accepting the responsibility and financial costs required in order to protect, in perpetuity, the various watersheds in the CVRD, it is totally unacceptable to approve the SIA permit for Waste Discharge and Mine Reclamation. Nine years and holding does not inspire confidence.

Lavonne Huneck

1384 Duffield Road

Area B
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Date</th>
<th>Question/Comment (Refer to Actual Document for Full Text)</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>July 5, 2012</td>
<td>No questions. Comments only. Opposed to the application.</td>
<td>The facility has been designed to incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak contaminants into the environment.</td>
</tr>
<tr>
<td>2</td>
<td>July 12, 2012</td>
<td>Concerned about water quality in the Lake.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>July 12, 2012</td>
<td>No questions. Comments only. Opposed to the application.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>July 12, 2012</td>
<td>No questions. Comments only. Supports the application.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>July 12, 2012</td>
<td>No questions. Comments only. Opposed to the application.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>July 12, 2012</td>
<td>1. Was any groundwater testing done before SIA started trucking fill in to the Site? The Quarry should be shut down immediately and filled in with Forest Quality soils and trees.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. The background groundwater quality testing was undertaken at the start of the Environmental Assessment related to the Waste Management Act Permit application. No testing was undertaken prior to the initiation of overall quarrying operations (including extraction and backfill). This was not required as part of the existing Mines Act Permit.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>July 12, 2012</td>
<td>1. What happens if SIA becomes less profitable than at the moment who will pay for the ongoing monitoring so important to the permit? 2. Similar question if the SIA Company changes owner? 3. Is there an insurance and responsibility code as part of the permit?</td>
<td>The permit requires appropriate bonding and financial security in relation to long-term monitoring. The permit would be issued to a corporate entity (as opposed to an individual). The corporate entity would be responsible for the permit, regardless of ownership structure.</td>
</tr>
<tr>
<td>8</td>
<td>July 12, 2012</td>
<td>Concerned with water quality, property value and truck traffic.</td>
<td>The facility has been designed to incorporate a number of redundant layers such that if the primary layer leaks, it will be detected prior to breaching subsequent layers. Also, only non-leachable soils will be accepted to the facility. As such, there is virtually no chance that the overall system will leak contaminants into the environment. We do not anticipate that property values will be affected. The facility will continue to operate as a quarry with no visible changes to current operations. There will be no net change to truck traffic since the quarry has to be filled regardless of this application, in accordance with the Mines Act Permit.</td>
</tr>
<tr>
<td>9</td>
<td>July 12, 2012</td>
<td>No questions. Comments only. Thinks soil should be treated in Victoria Area.</td>
<td></td>
</tr>
<tr>
<td>Item No.</td>
<td>Date</td>
<td>Question/Comment (Refer to Actual Document for Full Text)</td>
<td>Response</td>
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<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10</td>
<td>July 12, 2012</td>
<td>No questions. Comments only. “Not in my backyard”.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>July 12, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td>Both groundwater and surface water quality will be monitored regularly as part of the permit requirements. Monitoring points include those situated up-gradient/up-stream, on-Site, and down-gradient/down-stream. Monitoring results will be compared to baseline conditions established prior to the commencement of operations. Monitoring of shellfish in Mill Bay is not contemplated.</td>
</tr>
<tr>
<td>12</td>
<td>July 12, 2012</td>
<td>Where will monitoring take place? Will monitoring include shellfish in Mill Bay?</td>
<td>Both groundwater and surface water quality will be monitored regularly as part of the permit requirements. Monitoring points include those situated up-gradient/up-stream, on-Site, and down-gradient/down-stream. Monitoring results will be compared to baseline conditions established prior to the commencement of operations. Monitoring of shellfish in Mill Bay is not contemplated.</td>
</tr>
<tr>
<td>13</td>
<td>July 12, 2012</td>
<td>If the application is approved and at some point water is tested and found to be contaminated – How is this fixed and at that time is it too late for Shawnigan Lake Residents that may be ill from this contamination?</td>
<td>Both groundwater and surface water quality will be monitored regularly as part of the permit requirements. Monitoring points include those situated up-gradient/up-stream, on-Site, and down-gradient/down-stream. Monitoring results will be compared to baseline conditions established prior to the commencement of operations. The facility includes provisions to monitor leachate generation very near the source such that it can be captured and mitigated before it actually migrates outside of the facility boundaries.</td>
</tr>
<tr>
<td>14</td>
<td>July 12, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>July 13, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>July 17, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td>Overland runoff would be controlled through a series of ditches and swales to prevent, where possible, surface water from coming into contact with contaminated soil. All water falling onto the facility footprint would report to a collection and treatment system. Water would be treated and tested prior to discharge.</td>
</tr>
<tr>
<td>17</td>
<td>July 17, 2012</td>
<td>Main concern is with respect to overland runoff.</td>
<td></td>
</tr>
<tr>
<td>18/26</td>
<td>July 17, 2012</td>
<td>Submitted by Alex Morriss, Vancouver Island Division Manager for Tervita (formerly Hazco).</td>
<td>We note that this comment was submitted by Tervita (formerly Hazco) and was faxed from the “Hazco Malahat” office. Due to the obvious conflict of interest on the part of Tervita/Hazco, we have declined to respond. We also note that comments 18 and 26 are duplicates. Mr. Morriss emailed a second copy (from his Tervita email account).</td>
</tr>
</tbody>
</table>

Page 2
<table>
<thead>
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<tr>
<td>19</td>
<td>July 17, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td>We assume the respondent is referring to statements made by Mr. Doug Makaroff, President of the Elkington Forest Development Project, located approximately 2.5km to the southeast of the Quarry Site. Mr. Makaroff has not made any information available to date to support the presence of a shallow, bedrock aquifer to the south of the Site. We therefore assume that his project installed wells into the deeper, productive zone, generally encountered below 250’. No wells are registered with the BC Water Resource Atlas in this area.</td>
</tr>
<tr>
<td>20</td>
<td>July 14, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>21/24</td>
<td>July 16, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td>We note that comments 21 and 24 are duplicates.</td>
</tr>
<tr>
<td>22</td>
<td>July 16, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>July 16, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>July 17, 2012</td>
<td>Indicates that she heard at the Public Meeting of an aquifer which was previously unknown. Is opposed to the project.</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>July 17, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>July 18, 2012</td>
<td>Mike Kelly is like Enbridge.</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>July 19, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>July 19, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>July 19, 2012</td>
<td>No questions. Comments only. Encourages stronger regulatory regime.</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>July 12, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>July 19, 2012</td>
<td>1. How to guarantee monitoring in perpetuity? 2. What about Earthquakes? 3. What about odours? 4. Concerned about self-monitoring. 5. Who pays if the company goes bankrupt? 6. What about the proximity of the nearby creek? 7. Who is accountable for leakage? 8. How can we trust Ed Ty? 9. Why is the decision making authority in the hands of only two individuals, both of whom have a mandate to promote business at all cost? 10. Why is the application not put on moratorium until the CVRD process is followed to determine policy for brown site zoning?</td>
<td>1. Monitoring will be a condition of the permit. Bonding and posting of financial security will be required as part of the permitting process. 2. Seismic considerations have been factored into the design. 3. Odour have been considered and a monitoring and mitigation plan proposed within the scope of the Technical Assessment Report. We assume that these provisions will become part of the permit. 4. Monitoring would be undertaken by qualified professionals and analyses undertaken by certified laboratories. All results are submitted to Ministry officials for review and verification. 5. Long-term financial liabilities will be considered as part of the bonding and financial security aspect of the permitting process. 6. The protection of surface water bodies has been considered in the proposed design and operation plan. Monitoring will be</td>
</tr>
</tbody>
</table>
### Appendix I – Summary of Comments Received by CVRD

<table>
<thead>
<tr>
<th>Item No.</th>
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<tbody>
<tr>
<td>35</td>
<td>Undated</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>July 18, 2012</td>
<td>Concerned that no redundancy built into surface water containment facilities in the event of failure during seismic event. Concerned about airborne particulates.</td>
<td>We note that Area Director Bruce Fraser comments that this is the first technical argument to be put forward in relation to the application. The facility has been designed with multiple, redundant layers of protection, beginning with not accepting leachable soils, and ending with 250’ of competent bedrock separating the soil from the underlying groundwater. Seismic considerations have been factored into the proposed facility design. Air quality monitoring and mitigation measures have also been incorporated into the proposed design.</td>
</tr>
<tr>
<td>37</td>
<td>July 19, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>July 19, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>July 20, 2012</td>
<td>Colliers International supports the application and acknowledges the need for such a facility from an economic standpoint.</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>June 28, 2012</td>
<td>Galley Marina supports the application.</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>July 20, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>July 20, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>July 23, 2012</td>
<td>No questions. Comments only. Opposed to application.</td>
<td></td>
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</tbody>
</table>
APPENDIX J
MALAHAT FIRST NATION CONSULTATION
MINE PERMIT AMENDMENT TO INCORPORATE CONTAMINATED SOIL DISPOSAL IN RECLAMATION PLAN

SOUTH ISLAND AGGREGATES QUARRY
460 STEBBINGS ROAD, MALAHAT ELECTORAL AREA B, SOUTH SHAWNIGAN LAKE, CVRD

The South Island Aggregates Site
PROPOSAL OVERVIEW AND SITE LOCATION

- APPLICATION FOR MINING PERMIT AMENDMENT – RECLAMATION
  - Change range of soil quality for pit backfill
- REQUIRES WASTE DISCHARGE AUTHORIZATION FROM MOE
  - Trigger for Technical Assessment Report
  - Technical Assessment Completed by Active Earth
- TECHNICAL ASSESSMENT REPORT INCLUDES
  - Evaluation of all applicable environmental factors
  - Detailed design of proposed facility

Where is the SIA Site?

The site is located approximately 5 km south of Invermere, BC in the south-going line of Invermere Lake, 3 km west of Cranbrook, BC in the south-going line of Invermere Lake. The site is located in the south-going line of Invermere Lake, 1.5 km south of the south-going line of Invermere Lake.

The site comprises a total area elevation of approximately 1069 m, and the proposed area is the area delineated by the south going line of Invermere Lake.
What is the SIA Quarry?

SIA’s next quarry at SIA Goldening Road is a 55-acre site located at the north of Port Islington. The site was chosen due to its proximity to Port Islington. The area is known for its high-grade sandstone. The quarry is expected to produce 15,000 cubic yards per month. The site is currently under construction and will begin operations in the near future.

REGULATORY REQUIREMENTS

The site is subject to the jurisdiction of the British Columbia Ministry of Environment and Sustainable Development. The project is expected to have a minimal impact on the environment and will comply with all regulations.

The area is primarily forested with some agricultural land. The project will be designed to minimize any disturbance to the surrounding environment.

For more information, please contact SIA at info@siagoldening.ca.
WATERSHED AND AQUIFER ASSESSMENT

• LOCATED IN UPPER REACHES OF SHAWNIGAN LAKE CATCHMENT
  • Site elevation reaches 340 m-geod.

• NO AQUIFER BENEATH SITE
  • Spectacle Lake/Cobble Hill Bedrock Aquifer mapped 1 km east
  • Shawnigan Lake/Cobble Hill Aquifer mapped to north 2 km north

• MONITORING WELLS DRILLED ON SITE AND NEARBY WATER WELLS
  • Shallow bedrock (0-250 ft) has extremely low permeability (K=8x10^{-10} m/s)
  • Deep bedrock (below 250 ft) has low permeability (K=2x10^{-7} m/s)

• GROUNDWATER TRAVEL TIMES
  • Greater than 100,000 years to flow vertically from ground surface to deep bedrock
  • Additional 3,000 years to flow laterally in deep bedrock to Shawnigan Lake
  • Would require 3,000,000 years to flow to Shawnigan Lake within upper bedrock
GROUNDWATER MONITORING

• ON-SITE GROUNDWATER MONITORING WELLS
  • 5 monitoring wells have been installed on the Site to date
  • Additional monitoring wells will be added as needed during operation

• BACKGROUND MONITORING COMPLETED
  • 5 Existing monitoring wells have been installed and sampled
  • Existing water wells upgradient and downgradient of the Site have been sampled

• MONITORING PROGRAM
  • Additional wells to be installed on-Site: upgradient and downgradient
  • Samples to be collected 2 times per year – high and low groundwater
**SHAWNIGAN CREEK**
- Flows immediately east of SIA Quarry area
- Restrictive Covenants enforce SPEA +/- 60 m width

**EPHEMERAL TRIBUTARIES**
- Located immediately west of Site
- Ephemeral headwater located at edge of SIA Quarry
- All stormwater discharged at this location

**MONITORING PROGRAM**
- Includes 5 locations
- Sampled monthly; and weekly during peak and minimum flow events
- Background sampling completed
FACILITY DESIGN

• MULTI-BARRIER APPROACH
  • Site conditions highly favourable
  • Accepted soils to be non-leachable only
  • Clay liner over bedrock
  • 40 mil LLDPE synthetic base liner
  • Multiple 30 mil LLDPE synthetic cap liners
  • Final cap includes 1 m low permeability soil over synthetic liner
  • Leak detection system
  • Leachate detection system
  • Water treatment system

• KEY DESIGN DETAILS
  • Passive system
  • Use of cells limits climatic exposure and maximizes flexibility in construction
SOIL TREATMENT CONSIDERATIONS

• POTENTIAL TO ADD SOIL TREATMENT TO FACILITY OPERATIONS
  • Currently not a permitted activity
  • Would allow for beneficial re-use of suitable contaminated soil

• SOIL TREATMENT WOULD REQUIRE CONSTRUCTION OF BIOREMEDIATION AREA
  • Includes synthetic liner beneath asphalt liner with leak detection/collection

• MOE PERMIT APPLICATION INCLUDED TREATMENT FOR FLEXIBILITY
BENEFITS OF PROPOSED FACILITY

• ENVIRONMENTALLY RESPONSIBLE
  • Local solution to local issues
  • Ideal location, physiography and design

• BROWNFIELD REMEDIATION
  • Consistent with current BC Gov programs
  • Enable remediation of government sites – regional, provincial and federal

• GREEN HOUSE GAS REDUCTION
  • Decreased truck traffic on Island Highway
  • Only disposal site currently on Van Island is 7-Mile landfill in RDMW

• ECONOMIC STIMULUS
  • Will facilitate urban development – large spinoff effect
  • Jobs to operate facility
  • Increase tax revenue – environmental tipping fee
June 21, 2012

South Island Aggregates
693 Stebbings Road
Shawnigan Lake, BC, V0R 2L0

Attention: Mr. Mike Kelly

Re: South Island Aggregates Waste Discharge Permit Application
460 Stebbings Road, Shawnigan Lake, BC

This letter is written to confirm that the Malahat First Nation endorses the Waste Discharge application for the property located at 360 Stebbings Road, Shawnigan Lake BC recently submitted to the Ministry of Environment by South Island Aggregates. I write to indicate Malahat First Nation’s support for the permit application noted above.

We recognize the potential that this facility will enable job creation for Malahat First Nation members and we would look forward to working with South Island Aggregates should the application be approved.

Regards,

[Signature]

Chief Michael Harry
Malahat First Nation
MEMO

DATE: July 10, 2012

ATTENTION: Michael Harry

REFERENCE: Summary of Proposed Contaminated Soil Facility
693 Stebbings Road, Shawnigan Lake, BC

The following provides a summary key points pertaining to the proposed contaminated soil treatment and disposal facility at Stebbings Road in the South Shawnigan Lake area. The proposed facility design, environmental receptors and community benefits are presented.

SUMMARY OF FACILITY DESIGN

Accepted Wastes

The facility will only accept non-leachable contaminated soils. No Hazardous Waste will be accepted. This alone mitigates the risk of impacting the environment as no contaminants will be able to leach from the soil and into the receiving waters.

Encapsulation Cells

Although the soils will be non-leachable, several additional barriers of protection are included in the design of the encapsulation cells. A base liner, several intermediate liners and a final cap liner will ensure no water is able to contact the encapsulated soils.

Water Management

A water management system will be constructed that diverts surface water around the encapsulation area. Beneath the cells, drainage blankets will collect any water that is present (although none expected) – this is the leachate detection system. All collected waters report to containment tanks for sampling prior to discharge. A treatment system will be present in the event that any contaminated waters are encountered. These treatment systems are routinely used and are very effective.
SUMMARY OF RECEIVING ENVIRONMENT

Surface Water
All surface waters including diverted runoff, collected runoff and collected potential leachate will be ultimately discharged to the ephemeral stream at the west property line. All waters will be monitored for water quality prior to discharge. The water quality will meet the BC Approved and Working Water Quality Guidelines, which is a very high standard and ensures no impacts will occur to the surface waters.

Groundwater
The groundwater flow beneath the Site occurs below 250ft of very tight bedrock. It would take water at the surface over 100,000 years to flow vertically downward to the more fractured bedrock below 250ft depth. All water wells in the area surrounding the Site draw from the deep bedrock and are well protected from anything at the surface including the proposed facility.

Air Quality
There is a low potential for air quality to be impacted from the proposed facility operations. The only real concern would be turning soil in a bioremediation cell during a hot day with high winds. The operation of the facility will ensure these impacts do not occur by avoiding soil turning on these days and collecting air quality samples for additional assurance.

COMMUNITY AND ENVIRONMENTAL BENEFITS

Brownfield Cleanup
At present, costs to physically remove, treat and dispose of contaminated soils are very expensive (300% more) in the South Island region relative to the rest of the Province. This provides a disincentive for the cleanup of contaminated sites in the region.

A local landfill facility could reduce costs by more than half, which would enable the cleanup of more brownfield properties in the region, including historic waterfront and First Nations’ lands.

Green House Gas Reduction
At present, the majority of contaminated soil in the Region is transported to Comox, which is over a 500km round trip for a truck. The return distance to the proposed landfill is less than 75km, which results in a significant reduction in Green House Gases.

Local Solutions to Local Problems
The landfill would provide a local solution to local problems that have historically been created in the Region. A more responsible approach versus shipping to other regions. The proposed facility would enable cleanup of many sites at a far lower cost than is presently the case. For example, the Koksilah Ash site near Duncan.
Treatment of Contaminated Soils

The facility would remediate and treat contaminated soils, when technically feasible, thereby, providing an end-of-cycle solution. The total mass of contamination is reduced via treatment.

Ideal Location and Design

The proposed landfill location has been found to be ideal for this purpose – located in a bedrock pit at high elevation well separated from potential receptors including groundwater and recreational surface waters. In the event of a system failure, it would take more than 100,000 years for any substances to reach a receptor via groundwater flow. In addition, a high-level engineering solution is proposed for the facility that incorporates multiple layers of environmental protection. This location and the proposed design provide a far superior solution than existing options.

Landfill Jobs

The landfill will require a number of full time staff to operate, which will add jobs to the Region.

Urban Development

By enabling urban development, additional jobs will be created in construction and development.
APPENDIX K
CVRD PRESENTATION AND MEETINGS
MINE PERMIT AMENDMENT
TO INCORPORATE
CONTAMINATED SOIL DISPOSAL
IN RECLAMATION PLAN

SOUTH ISLAND AGGREGATES QUARRY
693 STEBBINGS ROAD, MALAHAT
ELECTORAL AREA B, SOUTH SHAWNIGAN LAKE, CVRD
The South Island Aggregates Site
PROPOSAL OVERVIEW AND SITE LOCATION

- APPLICATION FOR MINING PERMIT AMENDMENT – RECLAMATION
  - Change range of soil quality for pit backfill

- REQUIRES WASTE DISCHARGE AUTHORIZATION FROM MOE
  - Trigger for Technical Assessment Report
  - Technical Assessment Completed by Active Earth

- TECHNICAL ASSESSMENT REPORT INCLUDES
  - Evaluation of all applicable environmental factors
  - Detailed design of proposed facility
Where is the SIA Site?

SITE LOCATION

The subject property (the “Site”) is located at 693 Stebbings Road, in the South Shawnigan Lake Area (Electoral Area B) within the Cowichan Valley Regional District.

The Site is approximately 5.0 km south of Shawnigan Lake, 3.3 km west of Finlayson Arm, 1.5 km north of Devereaux Lake and 5.5 km east of Sooke Lake.

The Site is located in the upper reaches of the south Shawnigan Lake catchment. The area is underlain by shallow bedrock as expressed through steep slopes and significant rises in elevation.

The Site comprises a local peak elevation of approximately 340 m-geod., and the ground surface in the area generally rises to the south reaching peak elevations of 640 m-geod.
PROPOSED SOIL TREATMENT & DISPOSAL FACILITY
693 STEBBINGS ROAD, SHAWINIGAN LAKE, BC

DRAWING INDEX

320-01 FIGURE 1: SITE LOCATION PLAN & DRAWING INDEX
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320-10A FIGURE 9B: SURFACE OF CLAY TILL
320-10B FIGURE 9C: BASE OF INCAPILLATION AREA
320-10C FIGURE 9D: SOIL MANAGEMENT & TREATMENT AREA TYPICAL CROSS SECTION
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320-11 FIGURE 10: SOIL CONTAMINATION AREA TYPICAL CROSS SECTION
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320-13 FIGURE 12: QUARRY PAVING PLAN
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320-15 FIGURE 14: QUARRY PAVING CROSS SECTIONS
320-16 FIGURE 15: CLOSURE PLAN FIGURE

SITE LOCATION PLAN
SCALE: N.T.S.
What is the SIA Quarry?

OPERATIONAL DESCRIPTION
SIA’s main quarry at 640 Stebbings Road is a 50-acre site located x km south of South Shawnigan Lake Road. From this central location, SIA supplies products to the Greater Victoria and southern Vancouver Island region. The rock extracted from the SIA quarry has proven to be extremely hard and is considered of the highest quality. Products generated at the SIA quarry include:
- Road Bases
- Quarry Rock, Sand and Gravel
- Screenings
- Rip Rap
- Clear Crush
- Concrete Aggregate
- Landscape Rock

The Stebbings Road area is regarded for its production of high-grade construction aggregates, at least five quarries currently exist within a 10 km radius of the Site.

REGULATORY FRAMEWORK
The Site is currently operated as a rock quarry under the jurisdiction of the BC Ministry of Mines permit number Q-8-094.

The property is located within Electoral Area B of the CVRD and is zoned F1 Primary Forestry.
WATERSHED AND AQUIFER ASSESSMENT

LOCATED IN UPPER REACHES OF SHAWNIGAN LAKE CATCHMENT
  • Site elevation reaches 340 m-geod.

• NO AQUIFER BENEATH SITE
  • Spectacle Lake/Cobble Hill Bedrock Aquifer mapped 1 km east
  • Shawnigan Lake/Cobble Hill Aquifer mapped to north 2 km north

• MONITORING WELLS DRILLED ON SITE AND NEARBY WATER WELLS
  • Shallow bedrock (0-250 ft) has extremely low permeability \(K=8\times10^{-10}\) m/s
  • Deep bedrock (below 250 ft) has low permeability \(K=2\times10^{-7}\) m/s

• GROUNDWATER TRAVEL TIMES
  • Greater than 100,000 years to flow vertically from ground surface to deep bedrock
  • Additional 3,000 years to flow laterally in deep bedrock to Shawnigan Lake
  • Would require 3,000,000 years to flow to Shawnigan Lake within upper bedrock
GROUNDWATER MONITORING

ON-SITE GROUNDWATER MONITORING WELLS

• 5 monitoring wells have been installed on the Site to date
  • Additional monitoring wells will be added as needed during operation

• BACKGROUND MONITORING COMPLETED
  • 5 Existing monitoring wells have been installed and sampled
  • Existing water wells upgradient and downgradient of the Site have been sampled

• MONITORING PROGRAM
  • Additional wells to be installed on-Site: upgradient and downgradient
  • Samples to be collected 2 times per year – high and low groundwater
SHAWNIGAN CREEK
- Flows immediately east of SIA Quarry area
- Restrictive Covenants enforce SPEA +/-60 m width

EPHEMERAL TRIBUTARIES
- Located immediately west of Site
- Ephemeral headwater located at edge of SIA Quarry
- All stormwater discharged at this location

MONITORING PROGRAM
- Includes 5 locations
- Sampled monthly; and weekly during peak and minimum flow events
MULTI-BARRIER APPROACH

- Site conditions highly favourable
- Accepted soils to be non-leachable only
- Clay liner over bedrock
- 40 mil LLDPE synthetic base liner
- Multiple 30 mil LLDPE synthetic cap liners
- Final cap includes 1 m low permeability soil over synthetic liner
- Leak detection system
- Leachate detection system
- Water treatment system

KEY DESIGN DETAILS

- Passive system
- Use of cells limits climatic exposure and maximizes flexibility in construction
ANCHOR TRENCH DETAIL
N.T.S.

ANCHOR TRENCH DETAIL THIS SHEET

40 ML LINOPE OR EQUIL VOLUME LINER (BLUE)

40 ML LINOPE OR EQUIL VOLUME LINER (BLUE)

20 ML LINOPE OR EQUIL VOLUME LINER (BLUE)

DRAINAGE Blanket, MIN. 300mm

COMPACTED TILL PLACED TO SLOPE BASE TO COLLECTION AREA (k=50cm/m)

LEAK DETECTION DRAINAGE ROW, MIN. 300mm

LEAK DETECTION DRAINAGE ROW, MIN. 300mm

POLY COVER BETWEEN CELLS

NOTE SURFACES TO BE LINED SHALL BE SMOOTH AND FREE OF ALL ROCKS, STONES, STICKS, Roots, SHARP OBJECTS OR DEBRIS OF ANY KIND. NO STONES OR OTHER HARD OBJECTS THAT WOULD NOT PASS THROUGH A 10mm SCREEN SHALL BE PRESENT IN THE TOP 30cm OF SURFACES TO BE COVERED. THE SURFACE SHOULD PROVIDE A FIRM, UNDISTURBED FOUNDATION FOR THE MEMBRANE WITH NO SUDDEN SHARP OR ABNORMAL CHANGES OR BREAK IN GRADATION.

CONTAINMENT CELL AREA TYPICAL CROSS SECTION

N.T.S.
SOIL TREATMENT CONSIDERATIONS

POTENTIAL TO ADD SOIL TREATMENT TO FACILITY OPERATIONS
  • Currently not a permitted activity
  • Would allow for beneficial re-use of suitable contaminated soil

• SOIL TREATMENT WOULD REQUIRE CONSTRUCTION OF BIOREMEDIATION AREA
  • Includes synthetic liner beneath asphalt liner with leak detection/collection

• MOE PERMIT APPLICATION INCLUDED TREATMENT FOR FLEXIBILITY
BENEFITS OF PROPOSED FACILITY

ENVIRONMENTALLY RESPONSIBLE
  • Local solution to local issues
  • Ideal location, physiography and design

• BROWNFIELD REMEDIATION
  • Consistent with current BC Gov programs
  • Enable remediation of government sites – regional, provincial and federal

• GREEN HOUSE GAS REDUCTION
  • Decreased truck traffic on Island Highway
  • Only disposal site currently on Van Island is 7-Mile landfill in RDMW

• ECONOMIC STIMULUS
  • Will facilitate urban development – large spinoff effect
  • Jobs to operate facility
  • Increase tax revenue – environmental tipping fee
APPENDIX L
WATER PROTECTION COMMENTS AND RESPONSE
September 14, 2012

To: Luc LaChance, P. Eng., Senior Environmental Protection Officer

Re: South Island Aggregates, Stebbings Rd. – Review of Application for an Authorization to Discharge Waste

Thank you for the opportunity to review and provide comments on the hydrogeologic aspects of the application for authorization to discharge waste, associated with proposed contaminated soil relocation, remediation and disposal at the South Island Aggregates granite quarry on Stebbings Road, Cowichan (Lot 23, Plan VIP 78459, Blocks 156, 201 and 323, Malahat Land District).

The application and site details are outlined in:

1. Active Earth Engineering Ltd. October 2011. “Application for an Authorization to Discharge Waste and Technical Assessment Report, 693 Stebbings Rd. Malahat, BC V0R 2L0.” Prepared for South Island Aggregates Ltd. (referred to herein as the Technical Assessment, TA); and


The Ministry of Forests, Lands and Natural Resource Operations, Water Protection Division review is limited to the evaluation of factors related to hydrogeology within the application and supporting documents, and selected information submitted by objectors to the proposed site use. The review does not include original research or hydrogeologic investigation of the site or neighbouring properties.

Assessment of potential impacts to adjacent groundwater users

Aquifer classification:

The Ministry of Environment (MoE) Water Resources Atlas is referenced as a source of information on mapped aquifers in proximity to the proposed site. The Technical Assessment (p. 9 and p. 22) notes that the Shawnigan Lake/Cobble Hill aquifer (203) is located approximately 2 km north of the site, and the Spectacle Lake/Malahat aquifer (208) is located approximately 1 km east of the site. The lack of a mapped aquifer at a location does not indicate the absence of a water producing geological unit underlying the area. The boundaries of aquifers mapped by the Ministry of Environment reflect the availability of well information, and level of aquifer
development at the time when the classification was completed, therefore actual aquifer boundaries may differ from the published map extent.

The boundary of the Spectacle Lake/Malahat aquifer is not expected to extend to the SIA site, because the western boundary of the aquifer is delineated by the Malahat Ridge, believed to be a groundwater divide.

The Shawnigan Lake/Cobble Hill aquifer boundary may extend beyond its presently mapped extent based on additional information available from wells constructed in the area since the aquifer was initially mapped in 1996; the geologic unit comprised of Wark Gneiss is mapped at the site, and the classified aquifer is considered to be comprised of the same geologic materials. The SIA site is found within the upper, southern reaches of the Shawnigan Creek watershed (~11,000 hectares in area), which is a potential recharge zone for the Shawnigan Lake/Cobble Hill aquifer. The classification of aquifer 203 as an IIA aquifer indicates that it is considered to have a moderate level of development (relatively low productivity and moderate well density) and a high vulnerability. The vulnerability assessment is qualitative based on the fact that groundwater levels are shallow, and the confining layer overlying the aquifer is relatively thin and absent in some areas (median depth to bedrock is 2.4 m, and median thickness of the confining layer is 0.3 m, with 49% of wells used to classify the aquifer report no confining layer present).

Inventory of adjacent wells and water supply systems:

The TA provides an inventory of wells that are located on adjacent properties within a 1 km radius of the site. This listing may not include all proximal wells. A proximity search completed for this review suggests a minimum of 15 known wells located within a 1 km radius of the SIA site, however, TA Table D lists only 11 (see also WTN's 85100, 85309, 96126 and 105940).

The TA states that the Contaminated Sites Regulation (CSR) drinking water standards do not apply to the site due to the low permeability of the upper bedrock unit, and considering that there are no drinking water wells in proximity to the site. In the Additional Information document (p. 6) further clarification is also provided, stating that there were no drinking water wells in a down-gradient orientation within a 1 km search radius (excluding the on-site well because it is not used for potable purposes). Note that WTN 96095 is located ~900 km north of the property boundary (MoE WELLS database, 2012). WTN 83568 is located ~800 m northeast of the property boundary, and reported to have a depth of only 53 ft and a high estimated yield of 40 gpm, suggesting a moderate permeability of the shallow bedrock in that area (see comments on hydrogeologic characterization of the site, below). The assessment of potential impacts to adjacent users does not consider future uses of the aquifer, including development of new wells and groundwater supplies prior to starting the soil relocation activities in the area when the quarry activities cease.

The MoE WELLS database may not include records for all wells in an area. Furthermore, many of the well locations listed in the Water Resources Atlas are approximated e.g. to centre of lot. A door to door survey of neighbouring properties should be conducted to quantify the number,

location and status of use of wells that could be impacted by off-site contaminant migration (a direct survey is considered more reliable than using the MoE WELLS database on its own).

In addition to the general inventory of wells, the proponent should identify points of diversion and water supply system sources proximal to the site and assess whether they may be impacted by the activities. The proponent should contact the Vancouver Island Health Authority to determine whether there are any water supply system wells and/or surface water intakes proximate to the site that could be impacted by off-site contaminant migration. There are also reported adjacent surface water users that should be considered. For example, the BC iMap online mapping reference currently shows drinking water point of diversion on Stebbings Creek and Stebbings Lake upstream of the site (Licence numbers C126146 and C126047), and one drinking water point of diversion on Shawnigan Creek (Licence F014946) approximately 4 km downstream of the site.

**Assessment of site hydrogeology**

Limestone deposits, including fault exposures and karst topography have been reported in the surrounding area, including in the lands to the south of the SIA site, and northwest of Devereux Lake. The South Island Aggregates on-site well (WTN 86152), perhaps erroneously, reports limestone intersected at 258 and 307 ft below ground (bgs). Similarly, WTN 95485 in the TA Appendix D describes “frequent white calcite layers” starting at 265 ft bgs. The SIA technical assessment should provide more details regarding the presence of limestone within the local or regional geology, and its affect on hydrogeologic conditions.

The hydrogeologic properties of the shallow and deep geologic units (hydrologic conductivity values, TA Table C, p.18) are provided based on a limited number of hydraulic response tests, specifically rising head slug tests, within the on-site monitoring wells. For example the conductivity value for the deeper bedrock unit is based on one rising head test. The recognized limitations of these types of tests include that the results are representative of properties of the zone immediately surrounding the well bore, compared to longer duration pumping tests or other methods appropriate to fractured rock e.g. packer tests. Slug tests can also underestimate the hydraulic conductivity of a unit for various reasons. In general, the references, numeric values and assumptions used for analysis of the hydraulic response testing are not sufficiently described in the TA (Appendix E).

The proponent has not utilized test results from the on-site quarry water supply well (WTN 86152), that could provide an additional source of data on formation permeability, particularly if tested in conjunction with monitoring of adjacent on-site and off-site wells.

The TA (p. 18) indicates that a third monitoring point is required to determine with precision the gradient and direction of groundwater flow based on on-site monitoring well static water levels.

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More information should be provided on the direction of groundwater flow. The time of travel to neighbouring down-gradient wells should be estimated.

On TA p. 18 a hydraulic gradient estimate of 5.2% is based on an inference that Devereux Lake is connected with the deep bedrock aquifer. However, there may be a connection between the lake and shallower water systems (i.e. it is not clear why the lake is considered to be connected only to the 'deeper' regional groundwater system). The local topography, presence of other wetlands and the headwaters of two tributaries on the SIA site (e.g. TA Figure 4 and B.C. TRIM mapping) suggest that there may be a confluence of surface water at the margins of the site, with the potential to interact with the shallower bedrock unit.

The technical assessment describes the existence of an upper confining layer of low permeability bedrock overlying a more permeable bedrock unit through which the regional groundwater flow occurs. The conclusion that permeability would increase with depth within a bedrock unit is contrary to hydrogeologic theory that finds permeability commonly decreases with depth due to increased hydrostatic and lithostatic pressure from the overlying materials.

The technical assessment does not provide detailed hydrogeologic data based on drill core or well-bore caliper surveys of fracture locations in the on-site monitoring wells or water supply well (TA p.17), therefore the reported fracture detail for all wells (including offsite wells and monitoring wells), is based upon the limited understanding provided from (air rotary) drill logs. No data (with the exception of one record) are included on fractures intercepted by the monitoring wells within the drill logs in the TA Appendix D. Core drilling and caliper surveys provide more useful and detailed information on fracture distribution in bedrock units. A more robust data set may also be provided from utilizing core to construct additional planned monitoring wells on the site, in addition to completing hydraulic tests of the new monitoring wells. A greater distribution of monitoring well locations across the site is also important, considering the heterogeneous nature of bedrock formations.

The groundwater flow velocities reported for the upper and lower bedrock unit, and subsequent calculations of horizontal travel times to down gradient water bodies (TA p. 19-20), are based on the assumption that "the fractures are sufficiently interconnected that they emulate porous media" (p. 18, TA). This is in contrast to the description of the primary geologic unit underlying the site as being highly impermeable. By treating the unit as equivalent to porous media the inference is that contaminants would travel via diffusion into the bedrock matrix (essentially assuming no fractures), hence the travel times are exceptionally large e.g. $3 \times 10^6$ years time of travel to Shawnigan Lake through the upper bedrock unit. A more conservative approach would consider that groundwater flow and contaminant transport is likely to be much higher in a bedrock unit due to preferential flow through fractures. This highlights the importance of characterizing the fracture system to a greater extent such as utilizing core for bedrock monitoring well construction, and utilizing methodologies to estimate time of travel that consider contaminant flow through fractures.

The TA p.21 states that water wells within the area are "drilled to the minimum depth required to produce necessary yield," therefore based on inferences from the reported fracture depths in selected well logs there is a low permeability layer from the surface to approximately 75 m below present ground surface. To provide more information on fracture depths from drill logs, Table D (p. 21) could include the reported depth to fractures for wells within 1 km of the site; as
an example, WTN 93401 approximately 600 m to the southwest reports 20-40 gpm producing fractures at 23-24 m below ground surface, much shallower than the 75 m inferred depth of low permeability bedrock. The AI document states that WTN 93401 is constructed in the lower geologic unit, however, this suggests that the overall thickness of the low-permeability “shallow” unit is diminished up-gradient of the site.

In general, it should be noted that the well records in the MoE WELLS database provide approximate information from the driller notes at the time of well construction and cannot reasonably be relied upon for a high degree of technical detail, for example there may be unreported shallow fractures (either dry or low water-bearing) that could be conduits for groundwater and contaminant flow. Additionally, since the WELLS database primarily has records of wells constructed for water supply there is an inherent bias to higher permeabilities.

Figures 6 and 7 show the potentiometric surface based on available water levels, including the on-site monitoring wells. It is noted that there is no substantial difference between water levels within the wells screened in the “shallow” aquifer (MW1S, MW2, MW3S, MW3D) compared to the well screened into the “regional” aquifer, MW1D. If the two layers are separate units with distinct hydrogeologic properties, one might expect a difference in the groundwater levels rather than the monitoring wells exhibiting similar potentiometric head. In the case of MW3D and MW3S the wells were artesian and the water levels in MW 1S, 1D, and MW2 were shallow and close to the current pit bottom (TA, Table C, p.17). The final pit bottom is projected to be at an elevation of 313.5 m above sea level; the proponent should evaluate whether there will be an intersection of the quarry extent with the regional groundwater levels, as is inferred by Figures 6 and 7, such that pit dewatering may be required. Monitoring wells constructed to the elevation of the final pit bottom would be useful in this regard; additional nested wells and transducer monitoring of groundwater levels at selected sites would also provide confirmation of the vertical groundwater gradient and possible seasonal variation of groundwater levels that might occur.

If an interception with the water table is likely to occur during the quarry excavation phase, the proponent should provide more information on how possible presence of groundwater seepage at the pit bottom might affect the integrity of the soil storage cells, and potential dispersal of contaminants, and should include more information on the plan for dewatering and managing the water that is generated. Presently the TA (p. 40) states that “minor amounts of shallow groundwater seepage may occur from fractures in the bedrock side slopes and from the base of the permanent soil containment area.” Within the TA this was proposed to be discharged untreated to the surface water containment area and to Shawnigan Creek. The TA p. 25 notes that MW3-D and MW1-D are stated to exceed Contaminated Sites Regulation Aquatic Life standards for cadmium. It is not clear if water quality impacts to surface water bodies might arise if deep groundwater discharge to the adjacent creek(s) is to occur. From the AI it is not clear if groundwater seepage from the site will be treated, similarly to the leachate collected.

The laboratory results for sampling of the monitoring wells (Table 1 and Appendix F) indicate that for MW3S there were E. coli 10 MPN/100 ml and Total coliform 1940 MPN/100 ml, which suggests the influence of a surface water source on the well. The proponent should evaluate the possible source of the high bacterial counts and the implications with respect to well construction and permeability of the shallow geologic unit.
Environmental Monitoring Plan

The TA (p. 25) states that the environmental monitoring plan will include groundwater monitoring well sampling twice per year. The groundwater monitoring plan is further detailed in the AI, p. 24, including locations, parameters and timing of sampling. It is recommended that additional monitoring be considered if changes occur from baseline quality.

Closure Plan

Table F (P. 73, TA) indicates that monitoring will be conducted once per year in down gradient perimeter wells. It is recommended that the groundwater monitoring frequency be increased to a minimum of twice annually (quarterly sampling is more typical for landfill sites) in keeping with the monitoring of surface water, leachate and other sources.

Summary

The present application for establishment of a contaminated soil disposal site at the South Island Aggregates quarry has been reviewed with respect to technical detail in the hydrogeologic characterization of the site. Additional data and site characterization are required prior to this permit application being considered further. The specific areas of concern are as follows:

1. Assumptions related to the thickness and very low permeability of the underlying bedrock unit are not sufficiently validated by the field investigations and data presented. In some cases they are counter to prevailing opinion, and hence need to be properly substantiated. Additional data, including construction of monitoring wells using core drilling and distributing the monitoring sites more widely over the site should be undertaken to better characterize the formation permeability and location/density of shallow fractures. The proponent should also include the onsite water supply well as a part of their site characterization.

2. The occurrence of limestone and karst formations in the local area should be investigated and the importance of this to the hydrogeology of the site must be better understood.

3. The cause of high bacterial counts observed in onsite monitoring well MW3S should be investigated with respect to implications related to permeability of the shallow bedrock formation.

4. Additional field investigations are required to identify adjacent water users (surface and groundwater) rather than relying solely upon data from the MoE Water Resources Atlas and WELLS database.

5. The characterization methods and calculation of travel times to adjacent water sources (wells and streams) should utilize, in part, methods that consider the preferential flow and heterogeneity of bedrock systems (i.e. presence of fractures), which is a more conservative and realistic approach compared to treating the rock aquifer as equivalent to porous media.

6. Insufficient information is provided to understand whether the pit bottom will intercept the water table, and whether dewatering, collection and treatment of groundwater will be required as part of the operational plan.

The importance of groundwater for both present and future local water supplies and the long-term nature of the possible impacts related to the site, warrant such a detailed evaluation of site hydrogeology.
Submitted for your consideration,

Prepared by: Sylva Barroso, B.Sc., G.I.T.
Ground Water Protection Officer

Reviewed by: Pat Lapcevic, M.Sc., P.Geo.
Section Head- Water Protection
(Hydrogeologist)

cc:
Marty Block, South Island Aggregates Ltd., P.O. Box 282, Malahat, B.C. V0R 2L0
Warren Jones, Chief Administrative Officer, Cowichan Valley Regional District
Brian Dennison, General Manager, Engineering and Environment, Cowichan Valley Regional District

C.V.R.D
RECEIVED
SEP 18, 2012
October 5, 2012

BC Ministry of Environment
West Coast Region – Environmental Protection Division
2080A Labieux Road
Nanaimo, BC
V9T 6J9

ATTENTION: Sylvia Barroso, B.Sc., G.I.T – Groundwater Protection Officer

REFERENCE: Response to MOE Water Protection Comments
Hydrogeological Aspects of the Technical Assessment Report
640 Stebbings Road, Shawnigan Lake, BC

Thank you for your comments pertaining to the hydrogeological aspects of the application for authorization to discharge waste at the above Site within the Cowichan Valley Regional District (File PR-105809).

It is unfortunate that your review was performed upon a preliminary draft of our Technical Assessment Report and not upon the final version of our report dated August 2012. It is also unfortunate that your review comments were made publically available without consulting the author and providing the professional courtesy to respond to your comments, particularly as the document reviewed was in draft.

The comments and recommendations made in your September 14, 2012 letter have been re-stated and/or paraphrased in italics prior to our responses below. Numbered responses are provided for ease of future reference/discussion.

ITEM 1 – AQUIFER CLASSIFICATION

The Shawnigan Lake/Cobble Hill aquifer boundary may extend beyond its presently mapped extent based on additional information available from wells constructed in the area since the aquifer was initially mapped in 1996; the geologic unit comprised of Wark Gneiss is mapped at the site, and the classified aquifer is considered to be comprised of the same geologic materials. The SIA site is found within the upper, southern reaches of the Shawnigan Creek watershed (~11,000 hectares in area), which is a potential recharge zone for the Shawnigan Lake/Cobble Hill aquifer. The classification of aquifer 203 as a IIA aquifer indicates that it is considered to have a moderate level of development (relatively low productivity and
moderate well density) and a high vulnerability. The vulnerability assessment is qualitative based on the fact that groundwater levels are shallow, and the confining layer overlying the aquifer is relatively thin and absent in some areas (median depth to bedrock is 2.4 m, and median thickness of the confining layer is 0.3 m, with 49% of wells used to classify the aquifer report no confining layer present).

Response 1

Statistics provided are for the Shawnigan Lake/Cobble Hill aquifer immediately adjacent to Shawnigan Lake (as mapped), and do not represent the well data for the upper reaches of the Shawnigan Lake catchment. The upper reaches of the south catchment differ from the lower reaches in several aspects, as such, the aquifer classification (including vulnerability assessment) may differ from what has been mapped approximately 2 km north of the Site.

That said, our interpretation of the regional groundwater flow regime as presented in Figure 5 of the TAR concurs with the assertion that there is some recharge to the Shawnigan Lake/Cobble Hill aquifer from the upper reaches of the southern catchment area. However, the quantity of recharge likely forms a very small percentage, particularly owing to the low hydraulic conductivity of the bedrock overlying the aquifer, and leakage from Shawnigan Lake is inferred to be the major source of recharge to this aquifer. Again it is noted that a significant separation distance exists between the mapped extents of this aquifer and the Site, and importantly a significant change in elevation occurs between the Site and the Lake mapped Aquifer. The water bearing fracture zones within the mapped aquifer are located below the lake level, and therefore likely recharged from lake leakage. The subject Site is approximately 200 m (650 ft) in elevation above the level of Shawnigan Lake.

An interesting alteration to the extents of the Spectacle Lake/Malahat Aquifer is noted on the BC Water Resources Atlas. Following review of our TAR by the MOE Water Protection department, the boundary of this aquifer has been extended to the west to just incorporate the subject Site. Maps printed from the BC Water Resources Atlas prior to and after this change are attached to this letter. This is an interesting alteration in light the comment by Ms. Sylvia Barasso of the MOE:

“The boundary of the Spectacle Lake/Malahat aquifer is not expected to extend to the SIA site, because the western boundary of the aquifer is delineated by the Malahat Ridge, believed to be a groundwater divide.”

Despite the above, the boundary was extended to the west to include the SIA Site. The change to the mapped extent of this aquifer brings about the following points:

- There has always been an aquifer identified beneath the Site as evidenced by the Site well, Site piezometers and surrounding wells. However, this aquifer is extremely well protected from activities on the SIA Site by the shallow bedrock aquitard that extends from ground surface to approximately 250 ft depth. Whether mapped or not, this bedrock aquifer at depth had previously been identified in the TAR.
• It is incorrect to include the Site within the Spectacle Lake/Malahat aquifer as a direct consequence of the above statement.

• If the SIA Site is within the Spectacle Lake/Malahat aquifer, then the deep groundwater flow is presumed to report to the Saanich Inlet to the east of the Site and not to Shawnigan Lake. This may provide additional comfort to the Shawnigan Lake residents if the deep aquifer beneath the SIA Site is not hydraulically connected to Shawnigan Lake.

ITEM 2 – WELL INVENTORY

The TA provides an inventory of wells that are located on adjacent properties within a 1 km radius of the site. This listing may not include all proximal wells. A proximity search completed for this review suggests a minimum of 15 known wells located within a 1 km radius of the SIA site, however, TA Table D lists only 11 (see also WTN's 85100, 85309, 96126 and 105940).

The MoE WELLS database may not include records for all wells in an area. Furthermore, many of the well locations listed in the Water Resources Atlas are approximated e.g. to centre of lot. A door to door survey of neighbouring properties should be conducted to quantify the number, location and status of use of wells that could be impacted by off-site contaminant migration (a direct survey is considered more reliable than using the MoE WELLS database on its own).

Response 2

We have obtained and reviewed the logs for the four additional wells identified, and have added them to Table D of the TAR, which is provided below. We have also updated the table to include approximate ground surface elevations and distance from the Site for each well within 1 km. It should be noted that 1 km is a large search radius and was arbitrarily selected largely based on the minimal number of well records available for the area. The CSR technical guidance generally requires assessment of existing wells within 500 m of a given Site, which is considered to be conservative from a contaminant migration perspective. It is extremely uncommon for contaminant plumes to migrate distances approaching 500 m, which is reflected in the legislation.

Table D: Summary of Water Wells within 1 km of the Site

<table>
<thead>
<tr>
<th>MOE ID</th>
<th>Well Tag No.</th>
<th>Depth to Bedrock (m)</th>
<th>Well Depth (m)</th>
<th>Well Yield (USGPM)</th>
<th>Elevation (m)</th>
<th>Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>86152</td>
<td></td>
<td>0.0</td>
<td>99.0</td>
<td>325</td>
<td>20</td>
<td>330</td>
</tr>
<tr>
<td>95485</td>
<td></td>
<td>2.4</td>
<td>123.0</td>
<td>405</td>
<td>4</td>
<td>375</td>
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<td>96080</td>
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<td>1.5</td>
<td>62.0</td>
<td>205</td>
<td>3</td>
<td>370</td>
</tr>
<tr>
<td>85309</td>
<td></td>
<td>1.8</td>
<td>123.0</td>
<td>402</td>
<td>4</td>
<td>370</td>
</tr>
</tbody>
</table>
The additional well logs reviewed (shown in bold above) do not change the previous interpretation of hydrogeological conditions in the vicinity of the Site. Wells 85399 and 85100 are located within 550 m of the Site and did not encounter significant (i.e. at least 1 GPM) water-bearing fracture zones until a depth of 83 m and 24 m, respectively. Given the ground surface elevations are 40 and 60 m above the Site elevation, the lithological descriptions match the inferred regional hydrogeological conditions described in the TAR.

To recap the regional hydrogeological interpretation described in the TAR, there is recharge to a deep bedrock aquifer in the uplands of the south Shawnigan Lake catchment at higher elevations than the Site. The shallow bedrock has a lower permeability in the vicinity of the Site and extending for several hundreds of meters in all directions from the Site. This upper low permeability bedrock layer thins out at higher elevations allowing recharge to the deeper flow regime that passes at depth beneath the Site and ultimately reports to Shawnigan Lake. This conceptual flow model is depicted on Figure 5 of the TAR.

Active Earth attempted a door to door survey to identify additional wells not included within the MOE database at the time of writing of the TAR. None were identified.

With respect to a regional study, the exact survey of well locations will provide no useful additional information (i.e. centre of lot approximation is sufficient). Given the hydrogeological conditions and density of development, this also applies to all wells (both local and regional) as
the nearest well is approximately 250 m from the Site. The on-Site well is approximately 150 m from the proposed facility.

It may require a statement that the hydrogeological information key to the application includes the local conditions at, and immediately surrounding, the Site. These conditions are well understood based on the drilling/testing completed on Site, and this Site information concurs with existing well log information in the immediate vicinity of the Site (i.e. within 500 m). Furthermore, a conceptual regional groundwater flow regime is described in the TAR based on all well logs in the south Shawnigan Lake catchment area and other sources of information including the BC Water Resources Atlas, topographic and bedrock mapping. A detailed regional hydrogeological study would be a very large undertaking and is beyond the scope warranted for the proposal and the application. That said, a sufficient regional assessment was undertaken for the purposes of the application.

ITEM 3 – CSR DRINKING WATER STANDARDS

The TA states that the Contaminated Sites Regulation (CSR) drinking water standards do not apply to the site due to the low permeability of the upper bedrock unit, and considering that there are no drinking water wells in proximity to the site. In the Additional Information document (p. 6) further clarification is also provided, stating that there were no drinking water wells in a down-gradient orientation within a 1 km search radius (excluding the on-site well because it is not used for potable purposes). Note that WTN 96095 is located ~900 km due north of the property boundary (MoE WELLS database, 2012). WTN 83568 is located ~800 m northeast of the property boundary, and reported to have a depth of only 53 ft and a high estimated yield of 40 gpm, suggesting a moderate permeability of the shallow bedrock in that area (see comments on hydrogeologic characterization of the site, below). The assessment of potential impacts to adjacent users does not consider future uses of the aquifer, including development of new wells and groundwater supplies prior to starting the soil relocation activities in the area when the quarry activities cease.

Response 3

The applicability of CSR Drinking Water (DW) standards was previously addressed with our TAR; the final version concluded that DW standards did not apply due to the lack of current drinking water resources within close proximity of the Site, and an adequately protective confining geological unit.

The CSR Technical Guidance Document 6 (TGD-6) indicates that DW standards apply at a site where the groundwater or surface water at or near the site is currently used for drinking water. For site investigation purposes, nearby drinking water wells or surface water intakes are considered to be those present within 500m from the outer extent of the [presumed] groundwater contamination source. If groundwater flow has been reliably determined, then nearby current uses may be limited to include drinking water wells or surface water intakes
located 100m up-gradient and 500m down-gradient of the outer extent of the [presumed] contamination source.

To assess the applicability of DW standards based on current uses, the TAR looked at the presence of wells and surface water intakes within 500m of the Site in a down-gradient orientation, and within 100m of the Site in an up-gradient orientation. None was identified. We note that information related to the locations of Water License Points of Diversion and Drinking Water Extraction Points is included within the scope of the BC Water Resource Atlas. The Atlas was used as the primary means of identifying these facilities. In addition, Shawnigan Creek was traversed both up- and down-stream of the Site in order to assess the presence of extraction infrastructure. None was identified.

To assess future drinking water use, the TAR followed TGD-6 which requires that all aquifers underlying a site be evaluated in terms of their yield and bulk hydraulic conductivity. If a sufficiently productive aquifer is encountered, then it must be adequately protected by a confining geological unit (defined as a minimum 5m thickness with a bulk hydraulic conductivity of less than or equal to $1 \times 10^{-7}$ m/s). In the case of the Site, the lower bedrock was determined have sufficient yield to be considered an aquifer in accordance with TGD-6 criteria. However, the upper bedrock was determined to represent a suitably protective unit based on its thickness and bulk hydraulic conductivity. In fact, the Site specific conditions encountered afford a level of protection that is over 100,000 times more conservative than stipulated in TGD-6.

As such, the assessment did consider future uses of the aquifer, and did so in accordance with MOE Guidance. Based upon our findings, the CSR DW standards are demonstrably not applicable to the Site.

With respect to WTN 83568, Section 3.2 of the TAR addressed the shallow nature of this well, noting that it is located in the valley bottom and demonstrates the potential for localized overburden aquifers. The log for this well was included within Appendix D and indicates that the well was screened just above the bedrock, within a thin (1.5m thick), coarse gravel overburden unit. As such, this well does not suggest “moderate permeability of the shallow bedrock in that area”. Furthermore, there would be no hydraulic connection between the Site bedrock aquifer (at depth) and this overburden well.

**ITEM 4 – POINTS OF DIVERSION**

*In addition to the general inventory of wells, the proponent should identify points of diversion and water supply system sources proximal to the site and assess whether they may be impacted by the activities. The proponent should contact the Vancouver Island Health Authority to determine whether there are any water supply system wells and/or surface water intakes proximate to the site that could be impacted by offsite contaminant migration. There are also reported adjacent surface water users that should be considered. For example, the BC iMap online mapping reference currently shows drinking water point of diversion on Stebbings Creek and Stebbings Lake upstream of the site (Licence numbers Cl26146 and*
Response to MOE Water Protection Comments  
Technical Assessment Report for Authorization to Discharge Waste  
640 Stebbings Road, Shawnigan Lake  

October 5, 2012

CI26047), and one drinking water point of diversion on Shawnigan Creek (Licence F014946) approximately 4 km downstream of the site.

Response 4

VIHA will be contacted to confirm that there are no other drinking water points of diversion in addition to the three licences identified above. The licences upstream of the Site are located upstream of the Site and therefore cannot be impacted by the Site activities. The licence downstream of the Site is noted to be approximately 4 km from the Site and is not considered to be at risk from the application for the following reasons:

- The proposal includes accepting only non-leachable soils, so any potential impacts are severely limited to the potential for minor volumes of leachable soils to pass through the screening process.
- There are multiple layers of liner, covers and leachate collection as well as compaction of landfilled soil that will prevent infiltration of precipitation and formation of leachate.
- All potentially impacted waters on the Site are collected, monitored and treated if necessary prior to discharge.
- All discharged waters will meet the receiving water quality criteria for the protection of freshwater aquatic life. These standards are typically more stringent than drinking water standards as the aquatic organisms have greater exposure. The noted point of diversion is located 4 km from the Site (i.e. very near Shawnigan Lake) and there will be an extremely large amount of dilution that will occur with respect to the water discharged at the Site and the water collected from the creek 4 km downstream.

ITEM 5 – LIMESTONE DEPOSITS

Limestone deposits, including fault exposures and karst topography have been reported in the surrounding area, including in the lands to the south of the SIA site, and northwest of Devereux Lake. The South Island Aggregates on-site well (WTN 86152), perhaps erroneously, reports limestone intersected at 258 and 307ft below ground (bgs). Similarly, WTN 95485 in the TA Appendix D describes “frequent white calcite layers” starting at 265 ft bgs. The SIA technical assessment should provide more details regarding the presence of limestone within the local or regional geology, and its affect on hydrogeologic conditions.

Response 5

No limestone deposits are identified in the immediate vicinity of the Site. Detailed assessment of potential limestone deposits in the region is not warranted beyond the immediate vicinity of the Site.

However, we understand that a BC Ministry of Mines geologist Mr. Kirk Hancock, P.Geo. was tasked to review the local geology for presence of limestone deposits and structural conditions of the rock in general. We have not received a copy of his report at this time.
ITEM 6 – SITE HYDROGEOLOGICAL CHARACTERIZATION

The hydrogeologic properties of the shallow and deep geologic units (hydrologic conductivity values, TA Table C, p.18) are provided based on a limited number of hydraulic response tests, specifically rising head slug tests, within the on-site monitoring wells. For example the conductivity value for the deeper bedrock unit is based on one rising head test. The recognized limitations of these types of tests include that the results are representative of properties of the zone immediately surrounding the well bore, compared to longer duration pumping tests or other methods appropriate to fractured rock e.g. packer tests. Slug tests can also underestimate the hydraulic conductivity of a unit for various reasons. In general, the references, numeric values and assumptions used for analysis of the hydraulic response testing are not sufficiently described in the TA (Appendix E).

The proponent has not utilized test results from the on-site quarry water supply well (WTN 86152), that could provide an additional source of data on formation permeability, particularly if tested in conjunction with monitoring of adjacent on-site and off-site wells.

Response 6

We appreciate and understand the limitations of various hydrogeological characterization methods. Selection of the appropriate method must always take place within the context of the purpose of the investigation. In the case of the Site, the purpose was to characterize the rock permeability by assessing the most highly productive fracture zones, and the fracture zones identified at the shallowest depths. The assessment and testing conducted achieved this purpose.

The hydrogeologic properties of the shallow and deep geologic units are provided based on interpretation of existing well logs in the vicinity of the Site and the on-Site supply well, observations made during drilling of the three on-Site monitoring wells and hydraulic response testing of the five piezometers installed at varying depths beneath the Site. Together this information provides the conceptual hydrogeological model for the Site that includes the shallow bedrock (upper ~250 ft) being significantly less permeable/fractured than the deeper bedrock below.

Overall, the information confirms that the upper bedrock beneath the Site has extremely limited groundwater flow, and the hydraulic conductivity estimates are in the order of 10^-10 m/s. Given the thickness and extremely low permeability of the upper bedrock, the testing conducted is considered to be sufficient. While we recognize that other in-situ techniques may provide slightly different estimates, they would not provide differences by more than an order of magnitude. Considering that the conductivity is several orders of magnitude lower than the definition of an aquitard, minor differences in conductivity estimates are inconsequential.

Packer testing will not provide additional useful information beyond that obtained from the slug tests. These tests are expensive to perform and challenging to execute in rock conditions similar to the SIA Site. The very low permeability requires the injection of water under pressure.
in order to complete the tests within a reasonable amount of time. The test apparatus is prone to leakage as a result and the data obtained includes the assessment of a small fracture zone. The slug tests performed over a larger screened interval will be driven by the permeability of the highest yielding fracture within the screened interval. The resulting accuracy is within the acceptable limits (i.e. less than one order of magnitude) for characterization of the bedrock at this Site. Overall, these tests provide a better assessment of the bulk hydraulic conductivity and connectivity of fracture zones than discrete packer testing.

Similarly, pump testing the on-Site well will provide limited additional data pertaining to the upper bedrock aquitard as a result of the low transmissivity of this unit. Some further characterization of the deep bedrock aquifer would be achieved, but the information is not readily pertinent to the application. There is a water resource beneath the Site at depth and that resource is well protected by the overlying aquitard.

The hydraulic properties of the upper bedrock in conjunction with the proposed facility operations (only accepting non-leachable soils) and design (liners, covers and collection/monitoring/treatment of water) together provide for a very high level of protection to the deep bedrock aquifer.

**ITEM 7 – GROUNDWATER FLOW DIRECTION AND VELOCITY**

The TA (p. 18) indicates that a third monitoring point is required to determine with precision the gradient and direction of groundwater flow based on on-site monitoring well static water levels. More information should be provided on the direction of groundwater flow. The time of travel to neighbouring down-gradient wells should be estimated.

Response 7

Unfortunately a draft of the TAR was reviewed for comment. The final TAR includes assessment of groundwater flow direction and velocity based on five piezometric elevations.

The piezometric levels measured in the upper bedrock were used to estimate a hydraulic gradient of 0.7% towards the northwest. However, the groundwater flow direction within the upper bedrock is expected to be vertically downward based on the following:

- there is a vertical downward gradient (measured at MW1 and MW3), and,
- the upper bedrock is an aquitard confining flow within a more permeable zone below.

Therefore, hydraulic theory dictates that groundwater will travel vertically downward towards the higher permeability zone. The vertical travel time is estimated to be approximately 100,000 years from ground surface to the more permeable bedrock aquifer beneath the Site.

**ITEM 8 – REGIONAL VS LOCAL HYDROGEOLOGIC CONDITIONS**

On TA p.18 a hydraulic gradient estimate of 5.2% is based on an inference that Devereux Lake is connected with the deep bedrock aquifer. However, there may be a connection between the lake and shallower water systems (i.e. it is not clear why the lake is
considered to be connected only to the ‘deeper’ regional groundwater system). The local topography, presence of other wetlands and the headwaters of two tributaries on the SIA site (e.g. TA Figure 4 and B.C. TRIM mapping) suggest that there may be a confluence of surface water at the margins of the site, with the potential to interact with the shallower bedrock unit.

Response 8

Review of the existing well logs was undertaken to develop a regional conceptual model of the groundwater flow regime as demonstrated on Figure 5 of the TAR. The model/data suggests that the thickness of the lower permeability bedrock decreases at higher elevations above the Site. The consequence of this is that the higher elevation regions of the South Shawnigan Lake Catchment likely serve as groundwater recharge areas to the deep bedrock flow regime. This is also evidenced by the piezometric pressures measured that demonstrate the lower bedrock aquifer if confined by the upper bedrock aquitard.

Devereux Lake is not considered to be connected to the shallow bedrock “water system” because the shallow bedrock is not sufficiently permeable and is considered an aquitard.

The local topography, presence of wetlands and headwaters of tributaries are a direct reflection of the upper bedrock acting as an aquitard. The low permeability does not allow incident precipitation to penetrate into the bedrock and therefore accumulates on/near the surface within the topographic low areas which coincide to the headwaters and wetlands in the vicinity of the Site. These areas are not a reflection of groundwater discharge. A downward vertical hydraulic gradient has been measured at the Site which does not coincide with a groundwater discharge area. In addition, the headwaters/streams are ephemeral as a consequence of their flow being directly related to annual precipitation and lacking a groundwater base flow.

ITEM 9 – SITE HYDROGEOLOGICAL CHARACTERIZATION

The technical assessment describes the existence of an upper confining layer of low permeability bedrock overlying a more permeable bedrock unit through which the regional groundwater flow occurs. The conclusion that permeability would increase with depth within a bedrock unit is contrary to hydrogeologic theory that finds permeability commonly decreases with depth due to increased hydrostatic and lithostatic pressure from the overlying materials.

Response 9

There are many generalizations that can be made to describe common geological and hydrogeological conditions. However, the immense diversity and large number of variables that are involved in the development of any given hydrogeological system makes the ability to draw any such common conclusions nearly impossible. These textbook generalizations do not have any impact on the observation and collection of real, site-specific data. Particularly in a situation as described, where all of the data supports the conclusion that the bedrock has greater productivity with depth.
We also disagree with the statement regarding hydrogeologic theory finding bedrock permeability decreases with depth. Bedrock permeability (and productivity) is related to many factors such as rock type/condition, fracture density/connectivity, fracture condition (size, filling, etc.), structure and proximity to sources of recharge and climate. Based on our collective experience as hydrogeologists assessing many bedrock hydrogeological systems including underground and open pit mines, hydroelectric dams, municipal landfills and water supply wells, we would draw the general conclusion that in fact, bedrock aquifer productivity generally increases with depth. However, this generalization is not pertinent to the Site assessment as we have site-specific data.

ITEM 10 – CORE DRILLING

The technical assessment does not provide detailed hydrogeologic data based on drill core or well-bore caliper surveys of fracture locations in the on-site monitoring wells or water supply well (TA p.17), therefore the reported fracture detail for all wells (including offsite wells and monitoring wells), is based upon the limited understanding provided from (air rotary) drill logs. No data (with the exception of one record) are included on fractures intercepted by the monitoring wells within the drill logs in the TA Appendix D. Core drilling and caliper surveys provide more useful and detailed information on fracture distribution in bedrock units. A more robust data set may also be provided from utilizing core to construct additional planned monitoring wells on the site, in addition to completing hydraulic tests of the new monitoring wells. A greater distribution of monitoring well locations across the site is also important, considering the heterogeneous nature of bedrock formations.

Response 10

Mining at the Site has demonstrated that the shallow bedrock is actually quite homogeneous. The generalization that bedrock formations are heterogeneous is incorrect and not based on site-specific findings.

The hydrogeologic data available is considered adequate for the application based on the Site conditions. The air rotary drilling method does not provide drill core for detailed assessment of rock conditions, but it does allow for the measurement of the rock hydraulic conditions which is the pertinent information. The air rotary drilling method would not “miss” any significant water-bearing fracture zones for example. The need to describe the condition of the fracture zones does not provide useful additional information, as it is the hydraulic performance of the fracture zones that is of importance. It is not reasonable to attempt to map out a three-dimensional fracture network for example, as this work is being undertaken to support an overland waste discharge permit application.

There is a balance required between the level of investigation and the risk presented by the application. The level of investigation and characterization that you’re suggesting would not result in an order-of-magnitude refinement of the quantitative assessment already undertaken.
for the proposed authorization. That said, consideration will be given to utilizing a diamond drill to extract core for the construction of the additional proposed monitoring wells on the Site.

**ITEM 11 – TRAVEL TIME AND FRACTURED FLOW**

The groundwater flow velocities reported for the upper and lower bedrock unit, and subsequent calculations of horizontal travel times to down gradient water bodies (TA p. 19-20), are based on the assumption that "the fractures are sufficiently interconnected that they emulate porous media" (p. 18, TA). This is in contrast to the description of the primary geologic unit underlying the site as being highly impermeable. By treating the unit as equivalent to porous media the inference is that contaminants would travel via diffusion into the bedrock matrix (essentially assuming no fractures), hence the travel times are exceptionally large e.g. $3 \times 10^6$ years time of travel to Shawnigan Lake through the upper bedrock unit. A more conservative approach would consider that groundwater flow and contaminant transport is likely to be much higher in a bedrock unit due to preferential flow through fractures. This highlights the importance of characterizing the fracture system to a greater extent such as utilizing core for bedrock monitoring well construction, and utilizing methodologies to estimate time of travel that consider contaminant flow through fractures.

Response 11

The piezometers installed on the Site were screened across the areas identified as having the highest potential for fractures based on observed groundwater flows during drilling. Furthermore, the permeabilities of the fracture zones actually measured by the rising head tests in each of the monitoring wells are indicative of the most permeable fractures within the screened intervals for each piezometer. The assumption of flow through porous media conservatively assumes that the fracture zone permeability applies to all of the rock and does not rely on hydrodynamic dispersion for travel. The tested fracture zones are the preferential flow paths and the hydraulic properties have been conservatively applied to the rock as a whole. The point is that these fracture zones in the upper bedrock have very low permeabilities themselves – in the order of $10^{-10}$ m/s. The rock in between the fracture zones is even less permeable. The need to describe fracture zone characteristics from drill core is not warranted with permeabilities being measured in this range.

In addition to the above, the proposed system has been designed such that no contaminants will actually be released to the environment.

**ITEM 12 – INTERPRETATION OF WELL LOGS**

The TA p.21 states that water wells within the area are "drilled to the minimum depth required to produce necessary yield," therefore based on inferences from the reported fracture depths in selected well logs there is a low permeability layer from the surface to approximately 75 m below present ground surface. To provide more information on
fracture depths from drill logs, Table D (p. 21) could include the reported depth to fractures for wells within 1 km of the site; as an example, WTN 93401 approximately 600 m to the southwest reports 20-40 gpm producing fractures at 23-24 m below ground surface, much shallower than the 75 m inferred depth of low permeability bedrock. The AI document states that WTN 93401 is constructed in the lower geologic unit, however, this suggests that the overall thickness of the low-permeability "shallow" unit is diminished up-gradient of the site.

In general, it should be noted that the well records in the MoE WELLS database provide approximate information from the driller notes at the time of well construction and cannot reasonably be relied upon for a high degree of technical detail, for example there may be unreported shallow fractures (either dry or low water-bearing) that could be conduits for groundwater and contaminant flow. Additionally, since the WELLS database primarily has records of wells constructed for water supply there is an inherent bias to higher permeabilities.

Response 12

The statement regarding well depths drilled simply pertains to the fact that water wells drilled for domestic purposes are terminated when a sufficient amount of water is encountered. As well installation costs are charged per-unit-depth, a home owner does not want to pay more for a deeper well if not necessary. The implications of this include the assumption that sufficient water-bearing fractures were not encountered until the bottom of the well and that there is limited information related to the exploration of bedrock productivity at depth.

Well #93401 is described in the TAR. It is located at elevation 385 m, which is approximately 50 m (165 ft) in elevation above the Site. This well is interpreted to be in a higher elevation area with a thinner confining layer. The TAR describes the shallow low-permeability unit as diminishing in thickness at higher elevations.

The potential presence of shallow fractures that were not identified/reported during the drilling of water supply wells in the area does not present a significant risk and does not change the inferred regional hydrogeological conditions. If present, these fractures would be very low-yielding and have negligible hydraulic connectivity to the Site.

Lastly, we have collectively overseen the installation of several hundred water wells and appreciate the limitations of drillers notes and logs.

ITEM 13 – PIEZOMETRIC PRESSURES

Figures 6 and 7 show the potentiometric surface based on available water levels, including the on-site monitoring wells. It is noted that there is no substantial difference between water levels within the wells screened in the "shallow" aquifer (MW1S, MW2, MW3S, MW3D) compared to the well screened into the "regional" aquifer, MW1D. If the two layers are separate units with distinct hydrogeologic properties, one might expect a
difference in the groundwater levels rather than the monitoring wells exhibiting similar potentiometric head. In the case of MW3D and MW3S the wells were artesian and the water levels in MW1S, 1D, and MW2 were shallow and close to the current pit bottom (TA, Table C, p.17). The final pit bottom is projected to be at an elevation of 313.5 m above sea level; the proponent should evaluate whether there will be an intersection of the quarry extent with the regional groundwater levels, as is inferred by Figures 6 and 7, such that pit dewatering may be required. Monitoring wells constructed to the elevation of the final pit bottom would be useful in this regard; additional nested wells and transducer monitoring of groundwater levels at selected sites would also provide confirmation of the vertical groundwater gradient and possible seasonal variation of groundwater levels that might occur.

If an interception with the water table is likely to occur during the quarry excavation phase, the proponent should provide more information on how possible presence of groundwater seepage at the pit bottom might affect the integrity of the soil storage cells, and potential dispersal of contaminants, and should include more information on the plan for dewatering and managing the water that is generated. Presently the TA (p. 40) states that "minor amounts of shallow groundwater seepage may occur from fractures in the bedrock side slopes and from the base of the permanent soil containment area." Within the TA this was proposed to be discharged untreated to the surface water containment area and to Shawnigan Creek. The TA p. 25 notes that MW3-D and MW1-D are stated to exceed Contaminated Sites Regulation Aquatic Life standards for cadmium. It is not clear if water quality impacts to surface water bodies might arise if deep groundwater discharge to the adjacent creek(s) is to occur. From the TA it is not clear if groundwater seepage from the site will be treated, similarly to the leachate collected.

Response 13

The final version of the TAR presents static piezometric levels for all five piezometers. It is notable that a downward vertical hydraulic gradient is measured at MW1 and MW3.

The current ground surface elevation at MW3 (~320 m) is below the piezometric elevation at the Site (~322 m). Therefore, the above-described conditions of intercepting the groundwater flow regime have already occurred; the piezometric elevation is above the current (and ultimate) pit bottom elevation. However, no seepage is occurring into the pit nor is anticipated to occur as the piezometric pressures are potentiometric heads and do not represent the phreatic surface of an unconfined aquifer (as described above). The pit bottom will not intercept the water table, but it will be below the piezometric pressure measured in the shallow aquitard and the deep aquifer.

The reference to minor amounts of seepage from the side slopes largely pertains to the potential for some precipitation incident to the Site that is not collected/diverted to find a shallow flow path from ground surface to the permanent soil containment area, and also considers the potential for some groundwater seepage to occur through the shallow bedrock as a matter of
good design (despite that shallow groundwater seepage is not expected to occur). Very minimal to no water is expected, but the potential has been considered in the design. The system is designed for these waters (if encountered) to be monitored and treated if necessary prior to discharge.

The water management system and facility design incorporate a gravity flow drainage system and dewatering will not be required under any circumstances.

**ITEM 14 – BACTERIOLOGICAL DATA**

*The laboratory results for sampling of the monitoring wells (Table I and Appendix F) indicate that for MW3S there were E. coli 10 MPN/100 ml and Total coliform 1940 MPN/100 ml, which suggests the influence of a surface water source on the well. The proponent should evaluate the possible source of the high bacterial counts and the implications with respect to well construction and permeability of the shallow geologic unit.*

**Response 14**

The bacteriological samples were not intended to be collected and were included in the sample set as a “detailed potability package” was requested from the lab. The bacteriological results are not reported in the final version of the TAR as these parameters are not potential contaminants of concern related to the proposed facility.

There are several potential causes of the elevated bacteriological results. The most likely is that the results are related to drilling and monitoring well construction practices not utilizing sterilized equipment and procedures. It is not uncommon to encounter elevated bacteriological results in newly constructed wells. Typical procedure for potable wells includes shock-chlorination and flushing followed by re-sampling. This was considered unnecessary for the Site as the samples were collected unnecessarily.

**ITEM 15 – ENVIRONMENTAL MONITORING AND CLOSURE PLANS**

*The TA(p. 25) states that the environmental monitoring plan will include groundwater monitoring well sampling twice per year. The groundwater monitoring plan is further detailed in the TA, p. 24, including locations, parameters and timing of sampling. It is recommended that additional monitoring be considered if changes occur from baseline quality.*

*Table F (P. 73. TA) indicates that monitoring will be conducted once per year in down gradient perimeter wells. It is recommended that the groundwater monitoring frequency be increased to a minimum of twice annually (quarterly sampling is more typical for landfill sites) in keeping with the monitoring of surface water, leachate and other sources.*

**Response 15**

As the Closure Plan for the facility includes progressively closing portions during the operational life, it is anticipated that there will be sufficient monitoring data collected on the performance of
the closed portions of the facility to allow for a decreased sampling frequency from twice per year to once per year for the monitoring wells. The data from the monitoring and closure sampling will be reviewed and reported annually such that the appropriate level of monitoring is undertaken for the appropriate parameters.

CLOSURE

Please contact the undersigned if further information and/or clarification is required.

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal, Senior Hydrogeologist

David Kneale, P.Geo.
Principal, Senior Hydrogeologist

cc: Pat Lapcevic, Section Head – Water Protection
Luc Lachance, Senior Environmental Protection Officer
Hubert Bunce, Section Head – Business & Standards
Ed Taje, Senior Inspector of Mines, West Coast Region
Marty Block, South Island Aggregates

Attachments
- Figure 3 – Watershed and Topography Plan
- BC Water Resources Atlas – Extents of Aquifers in Vicinity of the SIA Site
APPENDIX M
LOWEN HYDROGEOLOGY REPORT AND RESPONSE
Shawnigan Residents Association  
PO Box 443  
Shawnigan Lake, BC  
V0R 2W0  

Attention: Gary Horwood, President  

Dear Sir:  

Re: Proposed SIA Contaminated Soils Landfill, Stebbings Road, Malahat Land District, BC  

As discussed in our July meeting we have reviewed the South Island Aggregates (SIA) proposal for a Contaminated Soils Landfill at the above noted site. Information regarding the landfill development has been obtained from the SIA website. A preliminary assessment of the proposed landfill site and its suitability for the intended purpose has been carried out utilizing existing information. Several environmental and human health risks regarding the landfill have been identified. Our investigations are focused on the site hydrogeology and potential for negative impacts on the local groundwater flow system and those dependant on this system for their drinking water.  

**Writer's Qualifications**  

Dennis Lowen, P. Eng., P. Geo. is a geological engineer with 40 years of experience in hydrogeology. He specializes in hydrogeology studies, environmental impacts studies plus groundwater supply projects. Mr. Lowen has worked in hydrogeology in Western Canada and in 10 overseas nations with extensive experience in BC since 1978. He has completed several landfill siting, design and closure projects and numerous landfill leachate studies. Mr. Lowen has provided hydrogeological expert witness testimony before the BC Environmental Review Board and the Supreme Court of BC. Mr. Lowen’s company (LHC) has completed at least 6 projects in the south Shawnigan Lake region over the last 10 years. LHC also has extensive experience in aquifer mapping having mapped more than 400 aquifers for the BC Ministry of Environment.  

Our comments are provided in the following sections:  

→ *In italic:* SIA information  
→ In blue: LHC comments
SIA Website Presentation

Under the “Groundwater” section it is noted that the BC Ministry of Environment (MOE) has mapped two bedrock aquifers in the region, but none below the landfill site.

MOE aquifer mapping is preliminary only and depends on concentrations of existing well information. The reason why there is no aquifer mapped beneath the landfill site is because at the time of the mapping there were too few drilled wells in the site area. There are a sufficient number of wells in the region now to confirm that there is an aquifer beneath the proposed site. This aquifer is used as a drinking water source for local residents, some located less than 300 m. from the site, and the aquifer must be protected.

Also in the Groundwater Section SIA notes that there are two aquifers in the region; one to the north and one east of the site. These two Aquifers # 203 & 208 are described with respect to demand and productivity.

Demand and productivity are only two of the three main descriptors used in the BC Aquifer Classification System used in mapping aquifers in BC. The omitted descriptor is the Aquifer Vulnerability which rates the aquifers’ susceptibility to contamination from surface sources. Both aquifers 203 & 208 are rated as highly vulnerable to contamination.

The same or very similar hydrogeologic settings are present in aquifers 203, 208 and the aquifer beneath the landfill site. Hence the aquifer beneath the landfill site is highly vulnerable to contamination from surface sources.

Further more from our work on this site and our experience in aquifer mapping it is apparent that aquifer #203 extends beneath the proposed landfill site. The landfill would pose a risk to aquifer #203 and it is a developed drinking water source. Any contaminated surface water run-off or landfill leachate that escapes the site may reach the aquifer readily and this would constitute a health hazard.

Aquifers #203 and #208 are referred to by name in the SIA presentation namely the Shawnigan Lake/Cobble Hill Bedrock Aquifer and the Spectacle Lake/Malahat Bedrock Aquifer respectively.

The SIA Groundwater section also describes the bedrock beneath the site as having extremely low permeability (more commonly called hydraulic Conductivity or “K”) and estimates $K$ at $7.6 \times 10^{-10}$ m/s or nearly impermeable. This impermeable rock is quoted to provide “a very high level of protection to the underlying aquifer”.

The rock under the site is identified as Wark Gneiss by the Geological Survey of Canada, Map 1553A. This is a fractured metamorphic rock with hydraulic conductivity in the range of $8 \times 10^{-9}$ to $3 \times 10^{-4}$ m/sec. (Domenico & Schwartz, 1990) Also wells completed in this rock formation have reported yields up to 6.3 Liters/second or 100 USgallons/minute which indicates a relatively high hydraulic conductivity for a fractured rock aquifer. A more reasonable estimate of $K$ for the rock under the SIA site is $5 \times 10^{-7}$ m/sec. This is 1000 times higher than the $K$ reported by SIA. The Wark Gneiss rock unit also has inclusions of limestone (or Marble). The on-site well record (well # 86152, Appendix A) indicates fractured limestone beneath the subject site. These fractured rocks provide little protection for the underlying aquifer.

We have assessed several well pumping tests in the local bedrock aquifer. The pumping test data is used to calculate aquifer hydraulic conductivity. One of our pumping tests in the local bedrock aquifer indicates a hydraulic conductivity ($K$) of $6.9 \times 10^{-7}$ m/sec. This analysis corroborates our estimated $K = 5 \times 10^{-7}$ m/sec. noted above. There is a well located on the SIA Landfill site with well tag #86152 and reported yield of 20 USgallons per minute. This well should be tested by pumping to obtain site specific data.
SIA further states that measurements indicate that it will take surface water 100,000 years to migrate downwards to the aquifer.

This statement runs contrary to the extensive body of data available from observation wells on Vancouver Island and the Gulf Islands. These observation wells show a relatively quick response in bedrock wells to rainfall events. That is to say water levels rise quickly in bedrock wells following a rainfall event indicating rapid infiltration from surface down to the aquifers. The time lag is usually less than a few days. This phenomenon is due to the fact that the bedrock is fractured throughout from surface to the aquifer. The main water flow from surface to the aquifer occurs in fractures in the rock which are essentially open channels which facilitate flow.

SIA also states that in addition to the 100,000 years travel time for water to reach the aquifer from surface that additional layers of protection will be included to make the disposal site safer.

We assume this refers to a landfill liner system where low permeability soil, plastic sheets or a composite liner are used to contain liquids in the landfill. Many studies have shown that landfill liners eventually leak. In fact they generally leak soon after filling has begun. An engineered liner is no guarantee that contaminated landfill liquids will not escape the proposed landfill. The contaminated flow from the landfill will readily reach the underlying drinking water aquifer and could present a health risk.

**Site Hydrogeology**

The proposed landfill site is located overlying a fractured bedrock aquifer that extends from the site down to Shawnigan Lake. In our opinion the aquifer appears to have moderate productivity, moderate demand and highly vulnerability to contamination from surface sources. See a listing of the local well records used for this analysis in Appendix A, attached.

The on-site well record indicates fractured limestone rock beneath the proposed landfill. This rock is fractured and permeable plus limestone is a soluble rock which will be susceptible to solution weathering from acidic landfill leachate. This process will make the rock more permeable.

Rainfall that infiltrates the ground at the subject site will flow downward to the aquifer and then flow toward the northwest (toward Shawnigan Lake). See Figure 1 for a graphic representation of the groundwater flow system.

Local rainfall is high = 1,138 mm/year and annual recharge has been estimated at 20% of total precipitation or 228 mm/year. This is a significant rate of recharge = 2,280 m³/ha./year. There is a large volume of water that can be impacted by the proposed landfill operation.

The water table slope from the proposed landfill site to the lake is 0.05. This slope provides a good driving head to propel groundwater from the site to the lake. The groundwater velocity from the landfill site to the lake is estimated at 5 - 10 m/d. Therefore the 5 Km distance would be traversed within 1.4 to 2.7 years. Any contamination carried by the groundwater flow would reach the lake with little attenuation. There would be little adsorption or filtration in open bedrock fractures and only dilution would reduce contaminant concentrations. Dilution alone may not be enough to prevent contamination of lake water.

Not only Shawnigan Lake water is put at risk with the proposed landfill there are also many drinking water wells nearby and downstream from the site. There are 5 wells within 250 m. of the proposed landfill site. These drinking water wells could draw water from beneath the proposed landfill site. There are up to 10 more wells downstream from the landfill site. All these wells may have water quality impacted by the landfill.
Figure 1: Hydrogeology of the Southern region of Shawnigan Lake, BC
An alternate method for evaluating aquifer vulnerability at a specific site has been used for our analysis. The Aquifer Vulnerability Index Calculation (Van Stempvoort, 1992) has been employed using well record information from the site Well Tag #86152. The calculation indicates a high degree of Vulnerability for the aquifer. The calculation is attached at Appendix B.

Further regarding aquifer vulnerability the Vancouver Island University in Nanaimo has completed Intrinsic Vulnerability Mapping, 2010 (Aquifer Vulnerability) for all of Vancouver Island. This study found the proposed landfill site area to have Moderate Vulnerability however the scale of the study was very large and the previous two analyses outlined in this letter are more specific (ie. more valid).

**General Comments**

Upon reviewing the SIA proposed contaminated soil landfill project one question appears quite obvious. Why was this site selected for disposal? Generally when a landfill site is required the initial effort is spent selecting a suitable site. Landfill siting is a difficult, complex, tedious, sometimes emotional and protracted process requiring evaluation of many different criteria. Geographical Information System (GIS) tools are used in conjunction with environment, biophysical, ecological and socioeconomic variables which lead to an analysis and decision-making process. For example one area underlain by a thick layer of impermeable clay which offers natural protection for the underlying aquifer would be preferred over a gravel pit with a water table close to the pit floor. Similarly a site in a rock quarry over a fractured rock aquifer would score very low on the suitability scale. Was there a siting study completed prior to selection of this landfill site?

For comparison when a large scale in-ground wastewater disposal site is approved by the Provincial Government there is a requirement for at least four observation wells, one upstream from the development and three downstream. These wells are installed and monitored before approval and are used for the site analysis. This proposed site should meet or exceed this standard.

We understand some soils are being dumped at the site now. If this is the case what type of soil is it? It seems that the liner and drainage works have not been done as yet so the site is not ready to receive contaminated soil.

Our studies have been focused on underground water flow but the surface hydrology is also an issue. The site borders Shawnigan Creek and any contaminated run-off from the site would quickly flow to the creek and to Shawnigan Lake. Since the lake is a drinking water source this appears to be a significant risk. Containment works are planned but can they eliminate all the risks? How will the containment works be maintained over the long term and after the site is closed?

**Recommendations**

1. A comprehensive Environmental Impact Study must be completed before this site could be approved for disposal. These kinds of studies are mandatory for wastewater disposal which is a smaller risk than contaminated soil.

2. Construction of monitoring wells, aquifer testing, water quality sampling and contaminant flow modeling should be undertaken to assess the suitability of this site.

3. The site should have a leak detection system and a contamination containment plan. Commonly contaminated groundwater is pumped out of the aquifer and piped to a treatment plant. Naturally all these necessary risk reduction measures are very costly therefore long-term financing plans would also be needed.

4. A cost-benefit analysis should be carried out to ensure that this proposal is sustainable.
If you have any questions or require any further information please contact the undersigned.

Yours very truly,

LOWEN HYDROGEOLOGY CONSULTING LTD.

Dennis A. Lowen, P. Eng. P. Geo.
DAL MD /hmnr
Well Records
WATER WELLS OF THE SOUTHERN REGION OF SHAWNIGAN LAKE, BC

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* SIA well. See following page for well record details.
Report 1 - Detailed Well Record

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Owner: SOUTH ISLAND AGGREGATES
Address: STIBBINGS ROAD
Area: MALAHAT
WELL LOCATION:
MALAHAT Land District
District Lot: Plant DD 1896741 Lot: 23
Township: Section: Range:
Indian Reserve: Meridian: Block:
Quarter:
Island: VANCOUVER ISLAND
BCGS Number (NAD 27): 0928052422 Well: 1

Class of Well: Water supply
Subclass of Well: Domestic
Orientation of Well: Vertical
Status of Well: New
Well Use: Private Domestic
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: 6 inches
Casing drive shoe: N Y
Well Depth: 325 feet
Elevation: 1100 feet (ASL)
Final Casing Stick Up: 24 inches
Well Cap Type: WELDED
Bedrock Depth: feet
Lithology Info Flag: Y
File Info Flag: N
Screen Info Flag: N
Site Info Details:
Other Info Flag:
Other Info Details:

Screen from to feet Type Slot Size
Casing from to feet Diameter Material Drive Shoe
0 16 6 null N
16 325 null Open hole Y

GENERAL REMARKS:

LITHOLOGY INFORMATION:
From 0 to 260 Ft. Medium 12 Gallons per Minute (U.S./Imperial) FRACTURE 258-260 green limestone
From 260 to 297 Ft. Medium 3 Gallons per Minute (U.S./Imperial) FRACTURE 296-297 black granite
From 297 to 325 Ft. Medium 5 Gallons per Minute (U.S./Imperial) FRACTURE 307-308 green limestone

Construction Date: 2006-10-10 00:00:00.0
Driller: Drillwell Enterprises
Well Identification Plate Number: 16588
Plate Attached By: RANDY CREMER
Where Plate Attached: CASING

PRODUCTION DATA AT TIME OF DRILLING:
Well Yield: 20 (Driller's Estimate) U.S. Gallons per Minute
Development Method: Air lifting
Pump Test Info Flag: N
Artesian Flow:
Artesian Pressure (ft):
Static Level: 10 feet

WATER QUALITY:
Character: Clear, Fresh
Colour:
Odour:
Well Disinfected: Y
EMS ID:
Water Chemistry Info Flag: N
Field Chemistry Info Flag:
Site Info (SEMM): N
Water Utility: N
Water Supply System Name:
Water Supply System Well Name:
APPENDIX B

Aquifer Vulnerability Calculation
AQUIFER VULNERABILITY INDEX CALCULATIONS*

PROJECT: SIA Contaminated Soils  
PROJECT No.: 1218  
DATE: 19/08/2012  
WELL ID. PLATE No.: 16588  
WELL TAG No.: 86152  
LOCATION: 460 Stebbings Road, Malahat Land District, BC

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TOTAL 24.06 years  
High Vulnerability


** Hydraulic Resistance "c"

Hydraulic Resistance, c = \(\Sigma d_i / K_i\), for layers 1 to i

The lower the hydraulic resistance (c) the higher the vulnerability:

- c = Less than 10 years - extremely high vulnerability
- c = 10 - 100 years - high vulnerability
- c = 100 - 1000 years - moderate vulnerability
- c = 100 - 10,000 - low vulnerability
- c = greater than 10,000 - extremely low vulnerability
November 16, 2012

BC Ministry of Environment  
West Coast Region – Environmental Protection Division  
2080A Labieux Road  
Nanaimo, BC  
V9T 6J9

ATTENTION: Luc Lachance, P.Eng.


We have reviewed the comments and recommendations made by Dennis Lowen, P. Eng. P.Geo. of Lowen Hydrogeology Consultants Ltd. (LHC) in the above-referenced letter report. The report pertains to the hydrogeological aspects of the application for an authorization to discharge waste at 640 Stebbings Road within the Cowichan Valley Regional District (File PR-105809). The Site is owned by South Island Aggregates Ltd. (SIA), and the application was prepared by Active Earth Engineering Ltd. (Active Earth).

The comments and recommendations made in the September 23, 2012 LHC letter report have been re-stated and/or paraphrased prior to our responses below. Numbered responses are provided for ease of future reference/discussion.

GENERAL OVERVIEW

Prior to addressing the individual comments from the September 23 report, the following general overview is provided to put the LHC report into context.

Mr. Lowen states that LHC carried out a preliminary assessment based on existing information, specifically referencing the SIA website as the only source of information reviewed directly pertaining to the permit application. The Technical Assessment Report (TAR) itself was not reviewed by LHC. The only other identifiable sources of information used in this preliminary assessment include the BC Water Resources Atlas (existing well information and aquifer mapping), Geological Survey of Canada Bedrock Mapping, and selected text books.

There is a large volume of Site specific technical information presented in the TAR prepared by Active Earth for the SIA application. LHC did not review the complete TAR report (and only
referenced the brief summary provided on the SIA website), yet has drawn Site specific conclusions without the Site specific data to substantiate their conclusions. As such, many of the conclusions drawn by LHC are incorrect. Overall, the LHC report misrepresents and/or ignores the Site specific information (provided on the SIA website), and draws incorrect Site specific conclusions that are not substantiated by any data.

It is unfortunate that the LHC report was made publically available without pursuing information that has obviously been obtained by Active Earth, which would have easily addressed the majority of items raised.

The following itemized discussion aims to provide substantiated Site specific information to describe the actual hydrogeological conditions.

ITEM 1 – AQUIFERS MAPPED IN THE REGION

LHC Comment 1

Under the “Groundwater” section it is noted that the BC Ministry of Environment (MOE) has mapped two bedrock aquifers in the region, but none below the landfill site.

MOE aquifer mapping is preliminary only and depends on concentrations of existing well information. The reason why there is no aquifer mapped beneath the landfill site is because at the time of the mapping there were too few drilled wells in the site area. There are a sufficient number of wells in the region now to confirm that there is an aquifer beneath the proposed site. This aquifer is used as a drinking water source for local residents, some located less than 300 m. from the site, and the aquifer must be protected.

Response 1

It has always been understood and described in the TAR that an aquifer exists beneath the SIA Site and surrounding area. However, the following clarifications are presented regarding the aquifer in the vicinity of the Site:

- There is a significant bedrock aquitard overlying the deep bedrock aquifer. The aquitard beneath the Site and surrounding area has a very low hydraulic conductivity (~10^{-10} m/s) and is approximately 75 m thick.
- The aquitard protects the underlying aquifer from surface sources of contamination and greatly reduces the vulnerability of the aquifer.
- The deep bedrock aquifer beneath the Site and surrounding area differs from the two currently mapped aquifers. The aquifer has lower vulnerability and is recharged entirely from the upper reaches of the South Shawnigan Lake catchment (no recharge occurs from Shawnigan Lake leakage). The Site elevation is approximately 200 m (650 ft) above the elevation of Shawnigan Lake.
ITEM 2 – AQUIFER VULNERABILITY

Comment 2

Also in the Groundwater Section SIA notes that there are two aquifers in the region; one to the north and one east of the site. These two Aquifers # 203 & 208 are described with respect to demand and productivity.

Demand and productivity are only two of the three main descriptors used in the BC Aquifer Classification System used in mapping aquifers in BC. The omitted descriptor is the Aquifer Vulnerability which rates the aquifers’ susceptibility to contamination from surface sources. Both aquifers 203 & 208 are rated as highly vulnerable to contamination.

The same or very similar hydrogeologic settings are present in aquifers 203, 208 and the aquifer beneath the landfill site. Hence the aquifer beneath the landfill site is highly vulnerable to contamination from surface sources.

Further more from our work on this site and our experience in aquifer mapping it is apparent that aquifer #203 extends beneath the proposed landfill site. The landfill would pose a risk to aquifer #203 and it is a developed drinking water source. Any contaminated surface water run-off or landfill leachate that escapes the site may reach the aquifer readily and this would constitute a health hazard.

Aquifers #203 and #208 are referred to by name in the SIA presentation namely the Shawnigan Lake/Cobble Hill Bedrock Aquifer and the Spectacle Lake/Malahat Bedrock Aquifer respectively.

Response 2

There is no data to support the conclusion that the same or similar hydrogeologic setting as aquifers #203 and 208 (with respect to aquifer vulnerability) is present beneath the Site. Conversely, the Site investigations described in the TAR have characterized the Site as having a very low vulnerability as a result of the aquitard described in Response 1.

In addition, there was no work conducted on the Site by LHC, so that statement is difficult to understand.

ITEM 3 – BEDROCK HYDRAULIC CONDUCTIVITY

Comment 3

The SIA Groundwater section also describes the bedrock beneath the site as having extremely low permeability (more commonly called hydraulic Conductivity or “K”) and estimates K at 7.6 x $10^{-10}$ m/s or nearly impermeable. This impermeable rock is quoted to provide “a very high level of protection to the underlying aquifer”.

The rock under the site is identified as Wark Gneiss by the Geological Survey of Canada, Map 1553A. This is a fractured metamorphic rock with hydraulic conductivity in the range of 8 x $10^{-9}$ to 3 x $10^{-4}$ m/sec. (Domenico & Schwartz, 1990) Also wells completed in this rock formation have reported yields up to 6.3 Liters/second or 100 USgallons/minute which indicates a relatively high hydraulic conductivity for a fractured rock aquifer. A more reasonable estimate of K for the rock under the SIA site is 5 x $10^{-7}$ m/sec. This is 1000 times higher than the K reported by SIA. The Wark Gneiss rock unit also has inclusions of limestone (or Marble). The on-site well record (well # 86152, Appendix A) indicates fractured limestone beneath the subject site. These fractured rocks provide little protection for the underlying aquifer.
We have assessed several well pumping tests in the local bedrock aquifer. The pumping test data is used to calculate aquifer hydraulic conductivity. One of our pumping tests in the local bedrock aquifer indicates a hydraulic conductivity (K) of $6.9 \times 10^{-7}$ m/sec. This analysis corroborates our estimated $K = 5 \times 10^{-7}$ m/sec. noted above. There is a well located on the SIA Landfill site with well tag #86152 and reported yield of 20 US gallons per minute. This well should be tested by pumping to obtain site specific data.

Response 3

Using hydraulic conductivity values from literature does not provide any useful Site characterization information (particularly when there is a literature range of 5 orders of magnitude), and certainly does not substitute for Site specific testing of the actual bedrock.

The description of limestone in the driller’s log for the on-Site well may be an incorrect inference made by untrained (with respect to geology) persons. This description is taken further out of context by LHC, suggesting the Site is underlain by fractured limestone from ground surface. This is completely unsubstantiated and it should be noted that no limestone was encountered during drilling at the Site. The BC Geological Survey report entitled “Bedrock Geology of the South Island Aggregates Stebbings Road Quarry” determined that no limestone is present on the Site. It is also well understood that the SIA Quarry does not mine any limestone.

The LHC comments consistently ignore the data identifying two separate bedrock layers; an aquitard overlying an aquifer. The hydraulic conductivity of the aquitard is measured to be $8 \times 10^{-10}$ m/s, and the hydraulic conductivity of the aquifer is measured to be $2 \times 10^{-7}$ m/s.

ITEM 4 – VERTICAL SUBSURFACE TRAVEL TIME

Comment 4

SIA further states that measurements indicate that it will take surface water 100,000 years to migrate downwards to the aquifer.

This statement runs contrary to the extensive body of data available from observation wells on Vancouver Island and the Gulf Islands. These observation wells show a relatively quick response in bedrock wells to rainfall events. That is to say water levels rise quickly in bedrock wells following a rainfall event indicating rapid infiltration from surface down to the aquifers. The time lag is usually less than a few days. This phenomenon is due to the fact that the bedrock is fractured throughout from surface to the aquifer. The main water flow from surface to the aquifer occurs in fractures in the rock which are essentially open channels which facilitate flow.

Response 4

The above statement/conclusion by LHC are not based on Site-specific information; referring to wells on Vancouver Island and the Gulf Islands as the source of data can only support very generalized, regional statements. With respect to the level of detailed information that exists for the Site, as presented in the TAR, these types of general statements are irrelevant.

The vertical travel time of estimate of 100,000 years is based on Site-specific measurement of hydraulic pressures, hydraulic conductivity and calculation using a form of the Darcy equation.
ITEM 5 – MULTIPLE LAYERS OF PROTECTION

Comment 5

SIA also states that in addition to the 100,000 years travel time for water to reach the aquifer from surface that additional layers of protection will be included to make the disposal site safer.

We assume this refers to a landfill liner system where low permeability soil, plastic sheets or a composite liner are used to contain liquids in the landfill. Many studies have shown that landfill liners eventually leak. In fact they generally leak soon after filling has begun. An engineered liner is no guarantee that contaminated landfill liquids will not escape the proposed landfill. The contaminated flow from the landfill will readily reach the underlying drinking water aquifer and could present a health risk.

Response 5

The proposed facility has many layers of protection as described in the TAR. A key point is that all of these redundancies are included as safety measures in the unlikely event that leachable soils are inadvertently received. The soils received by the facility must be shown to be non-leachable and therefore not have the potential to generate leachate. In the event that some leachate is generated, there are multiple layers of protection built into the facility design in addition to the naturally occurring bedrock aquitard. Included in this, the base of the landfill will be sloped with low-permeability soil and lined to direct all liquids to a collection point. The slope on the base of the landfill area ensures no pooling and further mitigates the potential for any leachate impacts by directing the liquids to a single collection area for monitoring and treatment if necessary.

ITEM 6 – FRACTURED BEDROCK

Comment 6

The proposed landfill site is located overlying a fractured bedrock aquifer that extends from the site down to Shawnigan Lake. In our opinion the aquifer appears to have moderate productivity, moderate demand and highly vulnerability to contamination from surface sources.

Response 6

There is an aquifer underlying the Site and it is inferred (in the TAR) that this aquifer extends from the Site down to Shawnigan Lake. However, the level of protection (i.e. vulnerability) and the sources of recharge vary from the upper reaches of the catchment (near the Site) and the lower reaches of the catchment where the aquifer is currently mapped.

The lower catchment aquifer is inferred to be recharged by leakage from Shawnigan Lake in addition to infiltration of precipitation. The upper catchment aquifer in the vicinity of the Site has an overlying aquitard that limits recharge from incident precipitation, and is at an elevation above Shawnigan Lake such that leakage is not a source of recharge. The source of recharge to the upper catchment aquifer in the vicinity of the Site is inferred to be from the higher elevation regions, above the site, where the aquitard is thinner or absent.

Again, the deeper aquifer beneath the Site is protected by a 75m aquitard with a measured hydraulic conductivity of $8 \times 10^{-10}$ m/s.
ITEM 7 – LIMESTONE

Comment 7

The on-site well record indicates fractured limestone rock beneath the proposed landfill. This rock is fractured and permeable plus limestone is a soluble rock which will be susceptible to solution weathering from acidic landfill leachate. This process will make the rock more permeable.

Response 7

The LHC interpretation of the on-site well record is intentionally misleading and incorrect. The driller’s log describes the water bearing fracture zones encountered as green limestone from 258-260 feet and 307-308 feet in depth. No description is provided in the log for the unfractured rock.

LHC understands that the Site bedrock is Wark Gneiss, which is a metamorphic rock and not a fractured limestone. As previously noted, limestone has not been identified on Site during the drilling investigation nor by the BC Geological Survey mapping. The above statement by LHC is intentionally misleading and it is unprofessional to draw such unsubstantiated conclusions particularly when the information is available to draw technically accurate conclusions.

ITEM 8 – REGIONAL HYDROGEOLOGY

Comment 8

Rainfall that infiltrates the ground at the subject site will flow downward to the aquifer and then flow toward the northwest (toward Shawnigan Lake).

Local rainfall is high = 1,138 mm/year and annual recharge has been estimated at 20% of total precipitation or 228 mm/year. This is a significant rate of recharge = 2,280 m$^3$/Ha./year. There is a large volume of water that can be impacted by the proposed landfill operation.

The water table slope from the proposed landfill site to the lake is 0.05. This slope provides a good driving head to propel groundwater from the site to the lake. The groundwater velocity from the landfill site to the lake is estimated at 5 - 10 m/d. Therefore the 5 Km distance would be traversed within 1.4 to 2.7 years. Any contamination carried by the groundwater flow would reach the lake with little attenuation. There would be little adsorption or filtration in open bedrock fractures and only dilution would reduce contaminant concentrations. Dilution alone may not be enough to prevent contamination of lake water.

Not only Shawnigan Lake water is put at risk with the proposed landfill there are also many drinking water wells nearby and downstream from the site. There are 5 wells within 250 m. of the proposed landfill site. These drinking water wells could draw water from beneath the proposed landfill site. There are up to 10 more wells downstream from the landfill site. All these wells may have water quality impacted by the landfill.

Response 8

The regional hydrogeology described by LHC is incorrect and misleading. No assumptions or parameters are provided and these had to be back-calculated by Active Earth to provide a response. The assumptions were intentionally not provided because they are not reasonable.

The aquitard overlying the Site will prohibit the infiltration of precipitation to the aquifer below, consequently the assessment of aquifer recharge based on incident precipitation is incorrect.
The assessment of groundwater flow rates is intentionally misleading as LHC has assumed a hydraulic conductivity of $3 \times 10^{-4}$ m/s to calculate the groundwater flow velocity and travel time to Shawnigan Lake from the Site and the actual hydraulic conductivity values obtained at the Site were purposely ignored. This is the upper-bound literature value and is representative of a sand and gravel aquifer not the bedrock aquifer being described. Using the Site-specific measurements the travel time to Shawnigan Lake within the deep bedrock aquifer is estimated to be approximately 3,000 years.

Shawnigan Lake water and nearby drinking water wells are not put at risk.

**ITEM 9 – AQUIFER VULNERABILITY**

*Comment 9*

An alternate method for evaluating aquifer vulnerability at a specific site has been used for our analysis. The Aquifer Vulnerability Index Calculation (Van Stempvoort, 1992) has been employed using well record information from the site Well Tag #86152. The calculation indicates a high degree of Vulnerability for the aquifer. The calculation is attached at Appendix B.

Further regarding aquifer vulnerability the Vancouver Island University in Nanaimo has completed Intrinsic Vulnerability Mapping, 2010 (Aquifer Vulnerability) for all of Vancouver Island. This study found the proposed landfill site area to have Moderate Vulnerability however the scale of the study was very large and the previous two analyses outlined in this letter are more specific (ie. more valid).

*Response 9*

The Aquifer Vulnerability Index Calculation (AVIC) used in the LHC report is again intentionally misleading and incorrect. The LHC report assumes that fractured limestone is present from ground surface to 79.2 m (260 ft) depth, followed by 11.3 m of igneous bedrock and then 8.5 m of limestone. Without doing any research on bedrock types, it is known to the author that limestone is not being mined at the SIA quarry and is therefore not present from ground surface to 260 ft depth.

Undertaking the AVIC calculation correctly for the Site, based on Site-specific data, results in a classification of “Extremely Low Vulnerability”.

**ITEM 10 – SITE SELECTION**

*Comment 10*

Upon reviewing the SIA proposed contaminated soil landfill project one question appears quite obvious. Why was this site selected for disposal? Generally when a landfill site is required the initial effort is spent selecting a suitable site. Landfill siting is a difficult, complex, tedious, sometimes emotional and protracted process requiring evaluation of many different criteria. Geographical Information System (GIS) tools are used in conjunction with environment, biophysical, ecological and socioeconomic variables which lead to an analysis and decision-making process.

For example one area underlain by a thick layer of impermeable clay which offers natural protection for the underlying aquifer would be preferred over a gravel pit with a water table close to the pit floor. Similarly a site in a rock quarry over a fractured rock aquifer would score very low on the suitability scale. Was there a siting study completed prior to selection of this landfill site?
Response 10
The Site is very well suited for the proposed facility. There is an extremely high level of protection for groundwater, and surface waters are easily managed based on Site topography and drainage patterns.

ITEM 11 – SITE CHARACTERIZATION
Comment 11
For comparison when a large scale in-ground wastewater disposal site is approved by the Provincial Government there is a requirement for at least four observation wells, one upstream from the development and three downstream. These wells are installed and monitored before approval and are used for the site analysis. This proposed site should meet or exceed this standard.

Response 11
There are five monitoring wells installed to date that were used for the Site characterization. Two additional monitoring wells will be installed to provide additional groundwater monitoring points during operation (if approved). This is considered to provide an adequate level of groundwater monitoring for the proposed facility at this Site.

ITEM 12 – EXISTING CONTAMINATED SOILS ON THE SITE
Comment 12
We understand some soils are being dumped at the site now. If this is the case what type of soil is it? It seems that the liner and drainage works have not been done as yet so the site is not ready to receive contaminated soil.

Response 12
There was a single, isolated incident at the adjacent clean fill site where contaminated soils were inadvertently brought to the site. This matter is not related to the proposal and is being dealt with appropriately.

ITEM 13 – SURFACE WATER MANAGEMENT
Comment 13
Our studies have been focused on underground water flow but the surface hydrology is also an issue. The site borders Shawnigan Creek and any contaminated run-off from the site would quickly flow to the creek and to Shawnigan Lake. Since the lake is a drinking water source this appears to be a significant risk. Containment works are planned but can they eliminate all the risks? How will the containment works be maintained over the long term and after the site is closed?

Response 13
As previously noted, there is a multi-layered protection system in place that incorporates the natural geologic conditions, artificial and natural low-permeability liners beneath the landfill, intermediate low-permeability layers, a leachate detection and collection system, leachate treatment, and soil management that will not allow acceptance of leachable soils. A closure plan has been developed that will include both artificial and natural low-permeability caps, sloping of
the cover to enhance runoff without erosion, redirection of surface drainage around the landfill and long-term monitoring and contingency plans.

ITEM 14 – LHC RECOMMENDATIONS

Comment 14

1. A comprehensive Environmental Impact Study must be completed before this site could be approved for disposal. These kinds of studies are mandatory for wastewater disposal which is a smaller risk than contaminated soil.

2. Construction of monitoring wells, aquifer testing, water quality sampling and contaminant flow modeling should be undertaken to assess the suitability of this site.

3. The site should have a leak detection system and a contamination containment plan. Commonly contaminated groundwater is pumped out of the aquifer and piped to a treatment plant. Naturally all these necessary risk reduction measures are very costly therefore long-term financing plans would also be needed.

4. A cost-benefit analysis should be carried out to ensure that this proposal is sustainable.

Response 14

The principals at Active Earth signing this report have completed numerous environmental impact studies for mines, wastewater systems and landfills. It is ridiculous to comment that wastewater (which contains dangerous pathogens and viruses and is more readily transported in liquid form) is a smaller risk than contaminated soil placed in a secure landfill with underlying low permeability rock, an extensive monitoring and management program, and leachate control and collection system.

Based on our over 50 years of combined experience, the environmental impact study completed within the TAR is adequate for this Site.

An experienced hydrogeologist knows that the most appropriate and least expensive method of leachate treatment is not to allow leachate to form initially. This landfill design incorporates these sound engineering practices. We disagree that it is common to pump groundwater for treatment. It is common knowledge that these types of systems are expensive, operate for long periods of time and do little for the reduction of the mass of contaminants. These systems are employed only in extreme cases, where the environmental impact is immediate. This is not the case at the SIA Site.

SUMMARY

There is a large volume of Site specific technical information presented in the TAR prepared by Active Earth for the SIA application. LHC did not review the complete TAR report (and only referenced the brief summary provided on the SIA website), yet has drawn Site specific conclusions without the Site specific data to substantiate their conclusions. As such, many of the conclusions drawn by LHC are incorrect.
Overall, the LHC report misrepresents and/or ignores the Site specific information (provided on the SIA website), and draws incorrect Site specific conclusions that are not substantiated by any data.

Despite this, Active Earth has prepared a response to the items raised, which have been addressed in this letter. In our opinion, no outstanding items remain.

It is unfortunate that the LHC report was made publically available without pursuing information that has obviously been obtained by Active Earth, which would have easily addressed the majority of items raised.

CLOSURE

Please contact the undersigned if further information and/or clarification is required.

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal, Senior Hydrogeologist

David Kneale, P.Geo.
Principal, Senior Hydrogeologist

cc: Luc Lachance, Senior Environmental Protection Officer
    Hubert Bunce, Section Head – Business & Standards
    Ed Taje, Senior Inspector of Mines, West Coast Region
    Marty Block, South Island Aggregates
    Lynne Magee, Regional Drinking Water Coordinator, VIHA
    Gary Horwood, President, Shawnigan Residents Association
    Dennis Lowen, Lowen Hydrogeology Consultants Ltd.
APPENDIX N
VIHA COMMENTS AND RESPONSE
November 2, 2012

Luc Lachance, PEng
Sr. Environmental Protection Officer
Ministry of Environment
West Coast Region
2080A Labieux Road
Nanaimo BC V9T 6J9

Dear Sir,

Re: South Island Aggregates, Review of Technical Assessment for an Authorization to Discharge Waste

Thank you for the opportunity to review and provide comments on this proposal for an authorization to discharge waste from South Island Aggregates, 693 Stebbings Road, Shawnigan Lake, to treat and store contaminated soil as part of the mine reclamation plan.

The BC Drinking Water Protection Act provides Vancouver Island Health Authority the authority to regulate water supply systems and to protect drinking water and its sources from tampering or becoming contaminated. We have reviewed the technical assessment for this project and have the following comments and/or concerns:

Other Agency Responses
This proposal has had unfavourable responses from both the Cowichan Valley Regional District and the Shawnigan Residents Association (SRA). Both organizations and the consultant hired by SRA have raised issues that should be addressed during the project review. We would be interested in receiving those responses also.

Water Discharge
Surface water will be diverted to the west side of the site through flow pathways designed to handle a 200 year storm event including snowmelt. Will this be adequate to deal with less severe, but possibly more frequent back to back events without causing harm to the receiving environment?
Given the impermeable materials of the quarry and the assurances that there will be no infiltration into the bedrock, and then all of the precipitation falling within the confines of the quarry will result in overland flow. Has there been any flow modeling based on a 200 year storm event for the actual quarry site itself, and what would those implications be?

**Soil Management Area**
What are the specifics relating to the soil management area – details of areas to be covered, or left exposed, height of soil layer and management of the tarps? What are the criteria for determining when soils are covered or left exposed?

**Effluent treatment and discharge monitoring**
It is proposed to sample the effluent discharge on a monthly basis for specified parameters. Will there be other process parameters that could be monitored onsite with a field test kit on a more regular basis to ensure that the water treatment process is operating optimally? If so, these parameters could also be used as a quick field test to monitor the receiving water for changes.

The results will be compared to the BCAWWQG and Aquatic Life standards. It is recommended that when presenting the results to the public, the results be compared to the Guidelines for Canadian Drinking Water Quality as well, to clearly show that the levels are also suitable for drinking water.

**Ongoing Operations**
It is our understanding that the granite mining will continue until the material of value is exhausted, and reclamation activities will be undertaken concurrently with the mining activities. What assurances are in place that monitoring for fractures and anomalies under newly mined zones will be identified? Will the plan adequately address mining gradients to keep the surface water from flowing towards the soil management area?

**Other Impacts**
There is no discussion of the impact of the facility on transportation corridors, noise from trucks, increased traffic etc. Will there be an increase that could cause concerns in the community?

**Emergency Response Plan**
Any emergency related to the water treatment plant, the soil treatment facility/operation resulting in a spill to Shawnigan Creek, or any discharges of contaminated water to the environment should be reported to the Vancouver Island Health Authority.

Public notification should also be made to inform local residents of the nature of the emergency, the actions to be taken to remediate the situation, any real or potential impacts to the environment, the nature and extent of ongoing monitoring of the situation and overall
remediation actions, and any actions the public could be required to take to prevent exposure to health hazards.

Ongoing public notification of routine analyses for the various processes including soil or water testing, after treatment and point of discharge to the environment is also encouraged.

If you have any questions or concerns, please contact me at 250-755-6215.

Yours truly,

[Signature]

Lynne Magee, BSc, BCPHI(C)
Regional Drinking Water Coordinator

cc: Dr. Paul Hasselback, MHO, Nanaimo
    Erwin Dyck, Sr. EHO, Victoria
    Mark Hall, EHO, Duncan
November 21, 2012

BC Ministry of Environment
West Coast Region – Environmental Protection Division
2080A Labieux Road
Nanaimo, BC
V9T 6J9

ATTENTION: Luc Lachance, P.Eng.

REFERENCE: Response to Vancouver Island Health Authority Comments “South Island Aggregates, Review of Technical Assessment Report for an Authorization to Discharge Waste” dated November 2, 2012

We have reviewed the comments provided by Lynne Magee of the Vancouver Island Health Authority (VIHA) in the above-referenced letter. The comments pertain to the application for an authorization to discharge waste at 640 Stebbings Road within the Cowichan Valley Regional District (File PR-105809). The Site is owned by South Island Aggregates Ltd. (SIA), and the application was prepared by Active Earth Engineering Ltd. (Active Earth).

The comments and recommendations made in the November 2, 2012 VIHA letter have been restated and/or paraphrased prior to our responses below. Numbered responses are provided for ease of future reference/discussion.

ITEM 1 – OTHER AGENCY RESPONSES

VIHA Comment 1

We are interested in receiving the responses to the CVRD and the Shawnigan Residents Association.

Response 1

VIHA will be provided with a copy of the consultation report once complete which documents all correspondence with other agencies.
ITEM 2 – WATER DISCHARGE

VIHA Comment 2

Is the 200 year design storm event adequate to deal with less severe but more frequent back to back events?

Has the impermeable nature of the bedrock been considered in the design of the system, as all incident precipitation on the Site must be managed.

Response 2

The 2, 10 and 200 year storm events have been considered for this site. These storm events have differing intensities, but are all based on a 24 hour Type 1A SCS hyetograph rainfall distribution with all calculations confirmed using HydroCAD stormwater modeling software. The design of the system considered the worst-case storm event (1 in 200 probability), combined with a conservative snowpack / snowmelt scenario, in addition to antecedent rainfall conditions. This exceeds standard engineering practice for stormwater management and is considered more than adequate to deal with less severe, more frequent storm events.

The entire Site was assumed to be impermeable for the flow modelling undertaken during the design of the Site water management system.

ITEM 3 – SOIL MANAGEMENT AREA

Comment 3

What are the specifics of the soil management area – details of cover, soil heights and criteria for determining when soils are covered?

Response 3

There are no specific criteria for soil stockpile heights, but it is common to work with stockpiles/windrows that are no more than 2-3 m in height. The TAR describes the stockpile covering program, which essentially states the soils will be covered during rainy times and periods of dry dust-producing weather at a minimum. However, it is most likely that a large covered building will be constructed over the Soil Management Area to protect against weather and minimize labour associated with continually covering the stockpiles with tarps.

ITEM 4 – EFFLUENT TREATMENT AND DISCHARGE MONITORING

Comment 4

Is it proposed to sample the effluent discharge on a monthly basis for specified parameters. Will there be other process parameters that could be monitored onsite with a field test kit on a more regular basis to ensure that the water treatment process is operating optimally? If so, these parameters could also be used as a quick field test to monitor receiving water for changes.

The results will be compared to the BCAAWWQG and Aquatic Life standards. It is recommended that when presenting the results to the public, the results be compared to the GCDWQ as well, to clearly show that the levels are also suitable for drinking water.
Response 4

As stated in the TAR, the effluent discharge monitoring frequency will increase during periods of higher flow and will be monitored weekly during peak flow conditions. The monitoring frequency is volume and time-dependent, such that samples will be collected every 2,000m³ and monthly. This is considered to be a conservative level of monitoring for the proposed system. It should also be noted that regular system inspections will be undertaken that will include assessment of the treatment system operability.

The tables in the final TAR compare all surface water results to the BCAAWQG, CSR AW and GCDWQ criteria.

ITEM 5 – ONGOING OPERATIONS

Comment 5

It is our understanding that the granite mining will continue until the material value is exhausted, and reclamation activities will be undertaken concurrently with the mining activities. What assurances are in place that monitoring for fractures and anomalies under newly mined zones will be identified? Will the plan adequately address mining gradients to keep the surface water from flowing towards the soil management area?

Response 5

There are several assurances with respect to fractures underlying newly mined zones as follows:

- No fracturing has been identified to date following six years of mining activity.
- Drilling on Site and surrounding wells has identified 75 m of very low permeability rock from ground surface.
- Surficial geology mapping has confirmed the shallow bedrock is massive, uniform and unfractured (BC Geological Survey report entitled “Bedrock Geology of the South Island Aggregates Stebbings Road Quarry”).
- The base of the mine will be inspected prior to construction of permanent encapsulation cells.
- The bedrock is covered by a minimum of 1m of low permeability soil (clay) beneath the permanent encapsulation area.

The plan will adequately address mining gradients, as summarized in the following points:

- The Soil Management Area is located outside of the mine footprint.
- Surface water collection/diversion works will intercept surface flows prior to reaching the SMA.
ITEM 6 – OTHER IMPACTS

Comment 6
There is no discussion of the impact of the facility on transportation corridors, noise of trucks, increased traffic, etc. Will there be an increase that could cause concerns to the community?

Response 6
There will be no net increase in traffic as a result of the proposed facility. The mine permit requires the mine to be reclaimed. The proposal requests a change in the quality of soil used for reclamation but not the volume; therefore the net traffic to the Site is unchanged.

ITEM 7 – EMERGENCY RESPONSE PLAN

Comment 7
Any emergency related to the water treatment plant, the soil treatment facility/operation resulting in a spill to Shawnigan Creek, or any discharges of contaminated water to the environment should be reported to VIHA.

Public notification should also be made to inform local residents of the nature of the emergency, the actions to be taken to remediate the situation, any real or potential impacts to the environment, the nature and extent of ongoing monitoring of the situation and overall remediation actions, and any actions the public could be required to take to prevent exposure to health hazards.

Ongoing public notification of routine analyses for the various processes including soil or water testing, after treatment and point of discharge to the environment is also encouraged.

Response 7
An Emergency Response Plan has already been prepared for the facility and forms part of the TAR (Appendix M). Generally, spill and other emergency notifications are registered with the Provincial Emergency Program (PEP) as a one-window reporting approach. PEP then issues notifications to stakeholders and responsible agencies and departments who then issue appropriate public notifications and alerts.
CLOSURE

Please contact the undersigned if further information and/or clarification is required.

Yours truly,

ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.
Principal, Senior Hydrogeologist

David Kneale, P.Geo.
Principal, Senior Hydrogeologist

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    Hubert Bunce, Section Head – Business & Standards
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    Marty Block, South Island Aggregates
    Lynne Magee, Regional Drinking Water Coordinator, VIHA
    Gary Horwood, President, Shawnigan Residents Association
    Dennis Lowen, Lowen Hydrogeology Consultants Ltd.
APPENDIX O
VIHA COMMENTS AND RESPONSE
Bedrock Geology
of the
South Island Aggregates
Stebbins Road Quarry

Kirk Hancock, B.Sc., P.Geo.
BC Geological Survey – Energy, Mines and Natural Gas
Province of British Columbia

30 October, 2012
1. Introduction

South Island Aggregates [SIA] operates a bedrock aggregate quarry on Stebbings Road, 5 km south of Shawnigan Lake area, southern Vancouver Island (Fig. 1). The company has applied for a permit to use mined out areas of this quarry to treat and dispose of contaminated soils, allowing for land reclamation as mining progresses. However, concerns regarding the potential impacts on the quality of groundwater and drinking water have been raised. This report considers the bedrock geology and its relationship to groundwater at the quarry.

2. Context and purpose of report

This report summarizes a geological examination of the SIA quarry. Of particular concern is characterizing fractures in bedrock and how they could influence groundwater flows. The author performed two days of field mapping on the property in September, 2012. The investigation was undertaken at the request of the Senior Mines Inspector, Southwest Region, Ministry of Energy, Mines and Natural Gas (MEMNG).

3. Location and topography

The Stebbings Road quarry of South Island Aggregates [SIA] is located near Shawnigan Lake Road and five kilometres south of Shawnigan Lake (Fig. 1). The countryside is moderate to dense forest with numerous logging cuts in various stages of regrowth. The topography is rugged and steep in places. Cover is thin, generally less than two metres, and comprises glacial debris and soil. The SIA quarry consists of a single, open quarry in bedrock.

4. Regional geology

The SIA quarry is underlain by rocks of the Wark Gneiss complex (Fig. 2; Muller, 1980). This complex consists mainly of foliated to massive hornblende-plagioclase gneiss with minor quartz and magnetite. Locally, small lenses of limestone are infolded with the gneiss. Uranium-lead zircon geochronology (Muller, 1977) indicates the gneiss formed about 295 – 384 million years ago (Palaeozoic); potassium-argon dating (Muller 1977) indicates that the rocks were metamorphosed as recently as 163-274 million years ago (Mesozoic). The Wark Gneiss is typically in fault contact with the Colquitz Gneiss, an irregularly foliated biotite-quartz-plagioclase gneiss with mafic Wark-like inclusions. Muller (1980) suggested that both gneisses are the metamorphic equivalents of the Palaeozoic Sicker Group, which underlie a large part of Vancouver Island. The Sicker Group is a several kilometer thick sequence of submarine volcanic flows, tuffs, volcanogenic mass flows and fine grained siliciclastic sedimentary rocks.

The Wark Gneiss complex consists of massive to well foliated gabbro to diorite. Grain sizes range from sub-millimetre scale to about 5 mm. In places the rock appears pristine and massive; in others it is strongly deformed with a well developed gneissic texture. The rock typically weathers buff to green-grey, and weathered surfaces usually show rock textures well. On fresh surfaces, the rock ranges from medium to dark green and grain textures are difficult to distinguish in all but the coarsest material. The rock is hard and resistant, forming hills, knobs and other prominences.
Figure 1: Location of the South Island Aggregates Stebbings Road Quarry
Figure 2: Map showing regional geology of the Shawnigan Lake area (modified from Muller, 1980).

Geology:

Dark Purple: Wark Gneiss complex
Light Purple: Colquitz Gneiss
Light Blue: Limestone
Red: Saltspring Intrusions
Regionally, limestone forms slivers and pods within the Wark Gneiss complex. It occurs either within well developed gneissic textured parts of the complex or between major faults that cross-cut the complex. An example of the latter is at the Butler Brothers limestone quarry, 500 metres south of the SIA quarry, where limestone forms a structural slice between Wark Gneiss complex to the north and Colquitz Gneiss to the south.

Northeast of the quarry, near Mill Bay (Figs. 1, 2), granitic plugs of the Saltspring Island suite cross cut the Colquitz Gneiss; dykes related to such Saltspring bodies are developed regionally. The Saltspring Island intrusions formed approximately 410 million years ago (Devonian) (Muller, 1980; Greenwood & Mihalynuk, 2009).

5. Local Geology

The area of the SIA quarry and property were mapped as part of this study (Fig. 3). Quaternary cover, comprising glacigenic sediments and soil, is generally less than 2 m thick. Three rock types were recognized in the field: 1) medium- to coarse-grained, dark green gabbro; 2) medium- to fine-grained, medium to dark green diorite; and 3) pale green, fine-grained diorite. The first two constitute the predominant bedrock in the quarry. The relative proportion of diorite and gabbro and their relationship to each other is complex. Some textures suggest the body is in part a migmatite, whereas others show a more uniform mass of one rock type or another. As part of the Wark Gneiss complex, this is very typical. Boundaries between the gabbro and dark green diorite are transitional over several centimetres to millimetres. Neither rock type displays a gneissosity. The variability of textures is shown in Photos 1, 2 and 3.

The pale green diorite forms dykes that cross cut the gabbro and dark green diorite. A shallowly-dipping (120°/20°) one metre thick dyke is exposed in the south pit face (Photo 4). Adjacent to the dyke, a relatively wide (5-20 cm) baked contact is developed in the host. At the contact with host diorite / gabbro, a broken zone of biotite/chlorite/hornblende, 5 – 20 centimetres wide is present. The edge of the dyke has numerous thin fingers extending into the host rock, and the amount of apparent alteration increases adjacent to these fingers.

The log for a water well, drilled between the SIA site office and Shawnigan Creek, is reportedly collared in limestone. However, evidence of limestone is lacking anywhere in outcrop, and cuttings from drilling may have been misidentified.

6. Bedrock lithology and petrography

Petrographic and X-Ray diffraction [XRD] work by Applied Petrographic Services, Inc. was done on three representative samples provided by SIA from the active quarry (Jana, 2011). A brief summary of the findings is included here. Three rock samples were selected based on colour: light, medium, and dark green. The petrographic analysis classed them as tonalite, quartz diorite and hornblende diorite respectively. Based on the descriptions in the petrographic report, the writer associates the three rock types by field description to petrographic description as follows: Gabbro is the hornblende diorite; diorite is the quartz diorite; and the fine-grained diorite is the tonalite. While the writer does not know the precise location of where in the quarry the samples came from, the descriptions are consistent with the three rock types seen in the field.
Figure 3: Map showing SIA quarry area. Mapped outcrops (red) and dykes (green “D”). Approximate outline of quarry, September 2012 (yellow line). Water well (Blue dot). Base image from Google Earth.
Photo 1:

Showing the variable texture of Wark Gneiss complex. Note contrasting coarse and fine grained material. Knife is 30 cm long.

Station 10

Photo 2:

Showing blocky weathering along fracture planes [upper left corner of image] plus compositional segregation [right of image].

Station 30

Photo 3:

Showing a typical weathered outcrop of massive gneiss with veinlets, fracture planes and compositional variation.
Alteration of bedrock is generally pervasive but slight to moderate. The petrographic and XRD work determined that hornblende is essentially unaltered and plagioclase is variably altered to sericite and chlorite. In the field, alteration was not readily apparent. Scattered chlorite knots are locally developed, forming clots up to a few centimeters across but generally in the one centimeter range. Sparse (< 1%) mm-scale cubes of pyrite are dispersed in both bedrock and fractures, consistent with rock geochemistry reported by Buchanan and Fillipone (2012).

7. Structure

7.1 Fractures

The writer spent time examining the nature of individual fractures. From field observations, the author has divided fractures into three types. The first are “tight” fractures, typically < 1-2 mm across, and with little to no bounding alteration. The second are “filled” fractures typically > 2 mm across, and visibly filled with chlorite ± quartz ± calcite, and possibly other minerals. Third, and dealt with under a separate heading below (7.3), are veins. These are typically quartz-filled with widths approaching 1 cm.

Most fractures are < 1 mm across and lack visible infills. These ‘tight’ fractures are knife sharp and only rarely bordered by zones of alteration. Where developed, alteration zones of chlorite and epidote extend no more than 2 millimetres beyond fractures. Petrographic work shows that these narrow fractures are usually filled with sericite.

Filled fractures are uncommon, and are generally 1 - 3 mm across. In the field, chlorite, epidote and quartz were identified as fracture fills; petrographic analysis identified sericite and calcite. Some fractures display chlorite (± quartz, calcite, and sericite) slickensides indicating displacement along the fracture surface (Photo 8). Iron oxide on fracture faces seems to diminish with depth, consistent with recent weathering.

Rocks in the quarry break along fractures over limited distances when struck with a hammer. Large faces created by blasting are developed only along chlorite-filled fractures (Photo 5); otherwise, the rock breaks across fracture lines. Similarly, examination of blast rock indicates breakage across sparse filled fractures and numerous faces where the rock has broken across fracture planes. Anecdotal evidence from SIA staff supports the observation that the rock is both hard to break and does so in a mostly irregular pattern. Hence rock breakage appears to be only minimally controlled by fractures.

Outside of the active quarry, fractures are difficult to see. Generally, weathered surfaces show a thin tracery of lines that criss-cross each other (Photo 3). Spacing of sub-parallel fracture lines is typically on the 10 cm scale. However, when struck the rock does not necessarily break along the visible lines, leaving jagged faces. Weathering has accented the lines of fracture and some outcrops show blocky breakage that mimics the fracture pattern (Photo 2). Elsewhere, mostly at the southeast corner of the property, some glacial plucking of down-ice faces along fracture planes is present, though again, is poorly developed.

A northeast-trending, moderately dipping (055°/68°SE) brittle shear zone, 30-50 cm wide is exposed along the pit face at Station 5 (Photo 6). It consists of an anastomosing network of fractures separating broken rock fragments that are set in a clay matrix and partially cemented by
Photo 4:

Showing low angle dyke [outlined] in gabbro host. Face is approximately 8 metres high.

Station 6

Photo 5:

Showing large blast face and fracturing

Station 5

Photo 6:

Blast face with brittle shear zone outlined. Hammer for scale, across shear.

Station 5
calcite. The material within the shear zone is broken and there is evidence of open spaces, but the open volume was not quantified.

There appears to be one, marginally preferred, fracture orientation of 190°/85°W. Along the south wall of the quarry, rock breaks preferentially along these surfaces. Spacing is on a one to two metre scale (Photo 7). Secondary fracture orientations show some breakage but are moderately to poorly developed. Fracture faces tend to be curvi-planar over several metres.

7.2 Veins

Few veins were seen on the SIA property. One quartz filled vein, 15 – 20 centimetres wide, with an internal, braided texture is present in the south wall of the pit at Station 4. The vein is oriented 120°/72°SW. Other veins are small, about one centimetre wide, filled with quartz with minor chlorite, epidote or calcite and typically only a few metres long (Photo 3). Some follow fractures and others do not. At one location, Station 3, a single discrete, irregular quartz rimmed vug about two centimetres long was observed adjacent to a fracture plane. Vugs or similar open spaces within veins were not seen elsewhere.

7.3 Orientation analysis

To determine trends and relationships, a total of 96 structural measurements were taken from 31 stations (Fig. 3), including orientations of 83 fractures, 7 slickenside surfaces, 5 veins, and 3 dykes (Figs. 4 and 5).

Measurements of tight fractures failed to indicate preferred orientations (Fig 4a). Combining sparse data of filled fractures and fractures with slickensides, suggests a vague pattern (Fig. 4b) with a roughly east-west group and a more north-south group. The general high dispersion of fracture orientations is consistent with a massive, intrusion-like bedrock body that has experienced multiple episodes of deformation over geological time.

Dykes and veins suggest two groups of trends: one west-northwest/east-southeast and the other north/south (Fig. 5). The west-northwest trend may reflect the regional structural trend of the gabbro block that the SIA quarry sits within. However, the number of measurements is inadequate to draw definitive conclusions.

8. Comments on the presence and absence of water in fractures.

During the site investigation no water was observed in any fractures. Although Shawnigan Creek was observed to be flowing with water, fractures in adjacent bedrock were dry (Photo 9). Furthermore, a series of bench tests were performed on rock samples from the quarry (Hoog and Weiher, 2011). Repeated wetting/drying and freeze/thaw tests determined that the rock does not absorb water and does not spall due to freezing.

The onsite water well, Ministry Well ID Plate Number 16588, was drilled east and adjacent to Shawnigan Creek, near the site office. The hole was dry to a depth of 258 feet before a fracture was penetrated and water entered the hole. At the time of the author’s investigation, the well was dry.
Figure 4: Stereonets showing fracture planes. 
4a) “tight” fractures. 4b) “filled” fractures.

Figure 5: Stereonet showing dyke and vein planes. 
Green planes - dykes. Pink planes - veins.

Equal angle stereonet. 
Stereo plots generated on Stereonet 7 application, R. Allmendinger, Cornell University, USA 
http://www.geo.cornell.edu/geology/faculty/RWA/programs/stereonet-7-for-windows/
Photo 7:

Showing fracture series in quarry. Oriented at approximately 190°/85°W and spaced at 1 - 2 metres. Note the curvi-planar fracture surfaces: white line traces one such surface.

Station 5

Photo 8:

Showing near vertical fracture face with slickensides indicating lateral motion (black arrow). Hammer for scale, handle is 30" long.

Station 3

Photo 9:

Shawnigan Creek at SIA bridge crossing. Showing fractures in creek parallel to hammer and flowing water. Hammer for scale, handle is 30" long.

Station 1
Relative to other materials, such as coarse-grained sedimentary rocks in which pore spaces between detrital grains are well connected, igneous and metamorphic rocks commonly consist of crystals that interlock in three dimensions and hence transmit fluids poorly. Nonetheless, if pervasively fractured, crystalline rocks may be good aquifers. In the present example, a well developed network of interconnected, closely spaced fractures that could promote water movement is lacking. Instead, rocks in the SIA quarry display fractures and veins filled with various materials, and only few isolated, brittle shear zones. Hence these rocks are unlikely to transmit well. Observations at building sites in downtown Victoria, much of which is underlain by Wark Gneiss, are consistent with this interpretation. At these sites, water ingress is from surface runoff, and in periods of moderate to heavy rain, the open excavations must be pumped out. Brittle shear zones however, such as observed at station 5, may have been intersected in the well east of Shawnigan Creek, and have the potential to focus flow.

9. Summary

The SIA quarry is underlain by fine- to coarse-grained diorite/gabbro of the Lower Paleozoic [possibly Devonian] Wark Gneiss complex. Dykes of tonalite, probably part of the Saltspring Intrusions of similar age, are present though uncommon. The gneiss is fractured extensively but the fractures are very narrow, poorly connected and filled. Open fractures of any size are very rare. Drilling of the onsite water well showed that the rock was dry; water flow was only observed when a single, and possibly a second, open fracture was penetrated at depth. The bedrock at the SIA quarry site appears to have minimal permeability or porosity.

10. Acknowledgements

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11. References


November 21, 2012

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ATTENTION: Luc Lachance, P.Eng.


We have reviewed the above report prepared by Mr. Kirk Hancock, B.Sc., P.Geo. and find the conclusions are consistent with our investigation results at the Site. In summary, the geology and the hydrogeology both indicate that the shallow bedrock does not readily transmit the flow of water and is considered to be an aquitard.

Yours truly,
ACTIVE EARTH ENGINEERING LTD.

Matt Pye, P.Eng.