Hartland Landfill Site Rehabilitation

2005 UBCM Community Excellence Awards
Leadership and Innovation Category
Submitted by Capital Regional District
June 17, 2005

Union of BC Municipalities
Community Excellence Awards
60 – 10551 Shellbridge Way
Richmond BC V6X 2W9

Dear Sir/Madam:

RE: COMMUNITY EXCELLENCE AWARDS

Thank you for providing an opportunity for municipal and regional district governments in British Columbia to showcase programs and services offered to local citizens.

In the Leadership and Innovation category of the Community Excellence Awards, I am, on behalf of the Capital Regional District (CRD), submitting the Hartland Landfill Reforestation Project for consideration. In support of our application, I have enclosed eight sets of the following documents:

- Completed application form
- CRD Board resolution supporting the application
- A one-paragraph summary and project summary report
- A five-page project summary

We believe that the Hartland Landfill Reforestation Project is an excellent example of the leadership and innovation that can be provided by local government in British Columbia. It provides a model of sustainability that we are proud of and, if given the opportunity, we look forward to showcasing this project at the UBCM convention in September.

Yours truly,

[Signature]

W. Eccleston
Acting Chief Administrative Officer

LH/jt
Encl.
The Capital Regional District (CRD) owns and operates Hartland landfill, which is the primary waste disposal facility within the Capital Region serving 340,000 people and receiving approximately 150,000 tonnes of municipal solid waste per year. Since 1985, over $30 million has been invested in capital works, environmental controls and general site improvements and the site is now run as a state-of-the-art, award-winning facility. In keeping with the Hartland landfill operation policy to comply with and exceed all relevant environmental legislation, the CRD has undertaken a site rehabilitation plan for the closed Phase 1 area to restore the land to blend in naturally with the surrounding forest, provide a habitat for local wildlife and create a self-sustaining eco-system. As outlined in the following project summary report, the Hartland landfill site rehabilitation project demonstrates leadership and innovation in all three domains of sustainability: economic, ecological and social.
It has been estimated that 200 million tonnes of garbage are generated each year in North America, the majority of which is disposed of in landfills. The solid waste industry generates $35 billion dollars of economic activity, of which $6.6 billion comes strictly from landfill tipping fees. This economic activity, as well as the sheer volume of wastes, are clear indicators of the impact that solid waste has on our communities.

The landfilling industry is one of the largest and fastest growing segments of the construction industry and an essential part of a solid waste management program. Landfills have a potentially significant impact on the environment, which can be minimized by strict guidelines on siting, design, construction, operation, closure and monitoring criteria. Furthermore, positive advancements in the management of solid waste can lead to innovative solutions and the integration of landfills into the community’s sustainable development plan.

The Capital Regional District (CRD) has completed stage one of a five-year project at Hartland landfill designed to restore the land which has been used as part of the landfill footprint to a condition that will blend in naturally with the surrounding forest. The development involves installing a growing medium over the existing landfill cover system and planting a broad variety of native species of over-story and under-story vegetation and ground cover to provide a self-sustaining natural ecosystem. This project goes above and beyond the standard minimum landfill closure requirements and demonstrates initiative and a commitment to environmental and social responsibility.

Hartland landfill is owned and operated by the CRD and is located 14 kilometers north of Victoria. It is the only municipal waste disposal facility in the region and receives municipal solid waste from Victoria and the surrounding communities. Hartland receives approximately 150,000 tonnes of refuse annually and is operated as a multi-purpose facility providing recycling, household hazardous waste collection, salvage area, yard and garden waste receiving and processing, controlled waste disposal and landfill services to commercial and residential customers.

Hartland landfill has been developed in two phases: Phase 1 is closed, having received 4.5 million m$^3$ of refuse, and Phase 2, with a capacity of 10 million m$^3$, is expected to last until 2048. The Phase 1 closure took place from 1995-1998 and consisted of an impermeable engineered cover system to control surface water runoff while preventing further production of leachate. Phase 2 is presently being developed in five cells along with a rock quarry operation, which produces aggregate for landfill cover.
The site rehabilitation is taking place at the Phase 1 closed landfill engineered cover system, which consists of a combination of materials put in place to create an impermeable barrier to precipitation. The total thickness is 1.2 metres of aggregates/compacted clay/40mil PVC membrane/topsoil. This cover was placed over the entire Phase 1 area of 10 hectares and planted with grasses from 1995-1998. This created an effective, stable closure. The proposed rehabilitation involved adding 1.5 metres of soil as a growing medium over the engineered cover system and then reforesting with native vegetation. The total cost of the cover system for Phase 1 was $7 million. The total cost for the rehabilitation project for Phase 1 is $380,000.

Ecological Sustainability

Of great importance is the responsible management and restoration of the land used to sustain the waste disposal needs of the Capital Region. The visual goal of the Hartland site is to have it blend into the natural surroundings. Hartland has some viewing access from certain vantage points on and off the site and by visitors and customers who come to the site. Typical vegetation of the adjacent lands includes Douglas fir, Western Red Cedar, Big-leaved Maple and Arbutus. Understory and ground cover vegetation include Ocean Spray, Oregon Grape, Salal and Creeping Blackberry.

In the past and at present, the landfill site provides a habitat for various wildlife species. Wildlife found at the site are black-tailed deer, squirrels, raccoons, mallard ducks, bald eagles, various gulls and other native bird species and mammals. One of the goals of the rehabilitation project is to recreate the natural habitat that would encourage the re-population of the landfill lands with native wildlife. This is being accomplished by reforestation and also by providing an on-site clean water source.

As discussed earlier, the Phase 1 landfill was closed with an engineered impermeable cover system that provides an ideal foundation on which to create the forest environment. Growing medium to a depth of 1.5 metres was placed on top of the engineered cover to act as the forest floor. The soil material was salvaged on-site from the adjacent area of the future landfill expansion. In this, the first stage of a 10-hectare project, approximately 16,000 m$^3$ of soil was stripped and trucked to the project site, placed and graded. In addition to the soil placement, a comprehensive drainage network was built to ensure stormwater control within the rehabilitation area. The drainage system consisted primarily of rip-rap ditches throughout. The significance of this aspect of the project is that the soil was reused on the same site from which it was taken, enhancing the probability of ultimate success of the reforestation component and maximizing the resource use (soil) within the overall landfill project area.

After the placement of the soil, a plant stock made up of a mixture of the natural vegetation similar to the surrounding lands was ordered, purchased and planted. The vegetation consisted of trees up to 2.5 metres in height down to 300 mm ground-cover. The plants were
placed at a rate of 3,000 plants per hectare. This is designed to create the most natural appearing vegetated forest community for this area.

Although the forest is intended to recreate the native lands and attract wildlife, initially deer are not welcome in that they can browse off the young shoots and tree growth before it has a chance to be established. Measures have been put in place to monitor and protect against this. The soil depth has been designed to provide enough moisture-carrying capacity such that the forest will be a natural, self-sustaining eco-system. The first year or two, however, will be a critical maintenance period to ensure adequate moisture is provided to the plants, either by natural precipitation or artificial watering. Once plants are established no maintenance will be required.

Within the forested area, a fresh-water pond was constructed to provide drinking water for wildlife. This is important because the landfill site has two ponds for the collection and discharge of leachate which can attract wildlife. Within the fresh-water pond area, cattails, pond-lilies and other aquatic plants are being established, again to produce the natural, self-sustaining eco-system. Surrounding the pond, a variety of vegetation has been planted to ensure shelter and security for wildlife activities. Within the pond, a pumped aeration system has been installed to enhance the oxygen supply and limit the proliferation of algae growth. Native fish species will be added at a later date.

The constructed eco-system of this area of the landfill has been created with considerable effort but has resulted in a significantly improved environment. The services of structural engineers, soil mechanic specialists and agrologists have been used to ensure all aspects of the project are covered. The rehabilitated landfill site, revegetated with native species, is now able to provide a suitable forest habitat for many of the animal species that have historically used the site. Additionally, wildlife viewing could be part of an important recreational feature in the future when the landfill closes. This project reaches well beyond the basic remediation requirement of a landfill site and is a demonstration of excellence in ecological leadership and innovation.

**Economic Sustainability**

Hartland landfill is planned to be a self-sustaining operation; revenue generated by the operation (tipping fees) pays for all capital and operating costs of running the site. The cost for the rehabilitation project was budgeted for in the annual operation and did not require any requisition (property taxes) for additional funds.
The project cost can be divided into three components:
1. soil excavation and placement
2. plant purchase
3. plant installation

**Soil Excavation and Placement**
The Hartland operation is more than a landfill. In addition to garbage disposal, a quarry is operated to produce a minimum of 35,000 m\(^3\) of aggregate annually for cover material. Part of the quarry operation involves stripping and stockpiling of topsoil. Topsoil is not usually a product that is used in the landfill operation and therefore is considered surplus to the site needs. However, the rehabilitation project provided a use for the large volume of soil that would otherwise be a liability.

Instead of stockpiling the loamy soil material for an unknown future use, it was transferred to the rehabilitation project area at a cost of $10,000, far below the cost of purchase and placement from off-site sources. The placement of this on-site material also provided a closed loop of usage for the site quarry construction by-products.

**Plant Purchase**
The plant requirement for the first stage of the project was 4,500 mature plants. Through a consultant, a request for pricing to grow and supply the required number of plants was issued. In order to allow lead time, the request for pricing was conducted approximately six months in advance of the actual required date. The cost for this first component was $32,500, which included overstory, understory and ground cover vegetation.

**Plant Installation**
The remaining task of the project was the installation of the plants. Tenders were issued for planting, with the work being awarded for $19,000.

**Summary**
The total cost of the rehabilitation project is $38,000 per hectare. This initial stage 1 area is a prototype for the entire 10 hectare project. This type of rehabilitation is a demonstration of responsible, environmental leadership coupled with economic responsibility. The economic benefit of site rehabilitation is clearly within the economic model of revenue verses cost and part of the life-cycle planning of the industrial site. The entire solid waste function is funded through the tipping fee and other revenues. The CRD solid waste function is the only agency in British Columbia that has zero requisition for all solid waste activities.
Social Sustainability

Some of the hallmarks of social sustainability include stakeholder engagement, public participation, knowledge sharing and creating community identity.

Stakeholder engagement and public participation are an integral part of the CRD solid waste function. Any major issues or projects, such as the Hartland site rehabilitation, are considered by the Solid Waste Advisory committee (SWAC) which is an advisory committee comprised of 23 members, including elected officials, solid waste industry stakeholders (e.g., haulers and processors), members of the community as well as a representative from the residential areas adjacent to the landfill. Using a committee process ensures ongoing public involvement and stakeholder engagement; moreover, any operational activities that may have an impact beyond the day-to-day routine require a public involvement process as outlined in the CRD’s Solid Waste Management Plan.

The public involvement process is designed to intensify as the potential for impact of the solid waste issue increases. The first stage is to inform the stakeholders of the CRD’s actions, policies or operations and provide opportunity for feedback. The second stage is to involve stakeholders by keeping them informed and soliciting feedback through calls, meetings, e-mail and letters prior to making final recommendations. The final stage is to consult all stakeholders throughout the process and consider public issues and concerns in final decisions. This process can involve numerous exchanges of information over an extended period of time.

Hartland landfill is situated within the rural area of Saanich. Approximately 50 site tours per year, involving about 1,200 participants, provide a means of feedback from the general public, local community, political leaders, consultants and operators from visiting jurisdictions. In addition to site tours, CRD staff also attend community meetings to inform and involve the local residents with ongoing changes.

The site rehabilitation project has been part of the communication stream involving the local community. The CRD has developed a communication strategy based on community involvement to create a community identity of the Hartland landfill. That image is one of responsible and innovative environmental management that is represented through many projects including the site rehabilitation. This project demonstrates the desire to provide a sustainable ecosystem as an outcome of the management of the region’s solid waste. This knowledge sharing with the community in a proactive approach leads to a cooperative acceptance of the ongoing activities at the landfill site.
MINUTES OF THE MEETING OF THE CAPITAL REGIONAL DISTRICT BOARD,
held Wednesday, June 8, 2005 in the Board Room


ABSENT: Directors J. Brownoff, C. Causton, F. Leonard, C. Pickup and D. Savoie

The Chair called the meeting to order at 1:30 p.m.

1. APPROVAL OF THE AGENDA

MOVED by Director Robinson, SECONDED by Director Lowe, that the agenda be approved.

CARRIED

Chair Amos welcomed Alternate Director Kahakauwila.

2. MINUTES OF THE MEETING OF MAY 25, 2005

MOVED by Director Blackwell, SECONDED by Director Lowe, that the minutes of the May 25, 2005 meeting be adopted.

CARRIED

3. REPORT OF THE CHAIR

The Chair noted that there were 1,700+ participants at the recent Federation of Canadian Municipalities conference in St. Johns, Newfoundland and that participants came back with some new ideas and knowledge.

4. REPORTS OF COMMITTEES

Core Area Liquid Waste Management – June 1, 2005

1. #EES 05-63 Core Area Liquid Waste Management Plan – Bowker Relief Sewer - Award of Contract 05-1523

MOVED by Director Blackwell, SECONDED by Director Lowe, that:

1) Contract 05-1523, Bowker Relief Sewer, be awarded to G & E Equipment Rentals Ltd. in the amount of $5,551,650.34 (including GST), subject to finalizing negotiated cost savings and receipt of approval from Land and Water BC Inc. for crossing Bowker Creek; and

2) the $5,551,650.34 cost be funded from Loan Authorization Bylaw 3205, which had $15,863,800 remaining as of 30 April 2005.

CARRIED
Environment – June 1, 2005

1. #ESW 05-62 CRD Composting Bylaw 2736

MOVED by Director Blackwell, SECONDED by Director Evans, that:
1) the revisions outlined in Appendix A to the staff report be incorporated into Bylaw 2736;
2) third reading of Bylaw 2736 of 10 November 2004 be rescinded; and
3) Bylaw 2736, as revised, be reintroduced for third reading and forwarded to the Minister of Water, Land and Air Protection for final approval.

CARRIED

2. #EES 05-59 Hartland Landfill Stage 1 Capital Works Program – Final Report

MOVED by Director Blackwell, SECONDED by Director Evans, that the staff report (#EES 05-59) be received for information.

CARRIED

3. #ESW 05-66 Union of British Columbia Municipalities Community Excellence Awards

MOVED by Director Blackwell, SECONDED by Director Evans, that the Capital Regional District submit the following four initiatives, together with any other submissions the Board may receive, to the Union of British Columbia Municipalities as its entries for the 2005 Community Excellence Awards:

   Best Practices Category
   1) Blue box curbside expansion
   2) Household hazardous waste collection and disposal

   Leadership and Innovation Category
   3) Hartland landfill gas collection and utilization
   4) Hartland landfill re-forestation program

CARRIED

Juan de Fuca Land Use – May 17, 2005

1. Subdivision Application – Waiver of the 10% Frontage Requirement - S-05-05 - West Coast Design for 8870 Randy’s Place

MOVED by Director Lund, SECONDED by Director Habkirk, that the Regional Board grant a waiver of the 10% minimum road frontage requirement as it applies to proposed Lots A and B of Lot 4, Section 8, Otter Land District, Plan VIP 56218 and that the Approving Officer be notified that the application is contrary to CRD policies.

CARRIED

2. Development Permit Applications

(a) R. Knight, 7825 Manatu Road

MOVED by Director Lund, SECONDED by Director Habkirk, that DP-03-05 be issued for Lot 3, Section 44, Sooke District, Plan 14181.

CARRIED
3. Report of Public Hearings

(a) Bylaw No. 3238, East Sooke Official Community Plan

MOVED by Director Lund, SECONDED by Director Habkirk, that:
1) the Report of the Public Hearing on Bylaw No. 3238 be received;
2) Bylaw No. 3238 be amended as set-out in item 3.(a)(2) - (pages 2 -8) of the Committee Report;
3) Bylaw No. 3238, as amended, be read a second time; and
4) a second Public Hearing be held by Director Lund or his Alternate.

CARRIED

(b) Bylaw No. 3239, Otter Point Official Community Plan

MOVED by Director Lund, SECONDED by Director Habkirk, that:
1) the Report of the Public Hearing on Bylaw No. 3239 be received;
2) Bylaw No. 3239 be amended as set-out in item 3.(b)(2) - (pages 9 – 14) of the Committee Report;
3) Bylaw No. 3239, as amended, be read a second time; and
4) a second Public Hearing be held by Director Lund or his Alternate.

CARRIED

Parks – June 1, 2005

1. Sooke Potholes Regional Park Update

MOVED by Director Evans, SECONDED by Director Habkirk, that the staff report be received for information.

Director Evans indicated that the following issues regarding the park have not yet been addressed by the District of Sooke, CRD and The Land Conservancy (TLC) and will require further consideration:

- Sooke believes it has a right-of-way through the park and will need assurance that any road will be built to Sooke's standards or that Sooke will be absolved of liability;
- TLC's proposal to gate the park may conflict with the use of the right-of-way which would have to remain open the public;
- Sooke wishes to know when the parcels of park land will be registered in the Land Title Office so that it can proceed with taxation.

The motion was then put,

CARRIED
2. Proposed Land Acquisitions – Informing Municipal Councils and Electoral Area Directors

MOVED by Director Brotherston, SECONDED by Director Blackwell, that the process outlined in the staff report for recommendations regarding the park land acquisition and disposal process be approved.

CARRIED

5. CORRESPONDENCE

Grants-in-Aid – Electoral Areas

MOVED by Director Tamboline, SECONDED by Director Lund, that the Board approve the payment of the following grants-in-aid for which the written approval of the Director has been received:

(1) Southern Gulf Islands Electoral Area Grants-in-Aid as approved by Director R. Tamboline:

  Galiano Conservancy Association $4,000.00
  Gulf Islands Centre for Ecological Learning 2,500.00

CARRIED

6. BYLAWS AND RESOLUTIONS

Bylaw No. 2736, "Capital Regional District Composting Facilities Regulation Bylaw No. 1, 2004"

MOVED by Director Blackwell, SECONDED by Director Cubberley, that third reading of Bylaw No. 2736 be rescinded.

CARRIED

MOVED by Director Blackwell, SECONDED by Director Cubberley, that Bylaw No. 2736 be amended in accordance with the Revisions To Composting Bylaw 2736 attached to the report.

CARRIED

MOVED by Director Blackwell, SECONDED by Director Cubberley, that Bylaw No. 2736, as amended, be read a third time.

CARRIED

Resolutions

Appointments to Juan de Fuca Economic Development Commission

MOVED by Director Lund, SECONDED by Director Tamboline, that in accordance with Bylaw No. 3064, the following persons be appointed to the Juan de Fuca Economic Development Commission:

For a term to expire July 1, 2007:

Ken Douch (reappointed)
Norm Feil
7. JUAN DE FUCA ELECTORAL AREA ITEMS

BYLAWS AND RESOLUTIONS

Bylaw No. 3238, "Official Community Plan for East Sooke Bylaw No. 1, 2004"

MOVED by Director Lund, SECONDED by Director Habkirk,
that Bylaw No. 3238 be amended as set-out in item 3.(a)(2) - (pages 2-8) of the May 17, 2005 Juan de Fuca Land Use Committee Report.

CARRIED

MOVED by Director Lund, SECONDED by Director Habkirk,
that Bylaw No. 3238, as amended, be read a second time.

CARRIED

Bylaw No. 3239, "Official Community Plan for Otter Point Bylaw No. 1, 2004"

MOVED by Director Lund, SECONDED by Director Habkirk,
that Bylaw No. 3239 be amended as set-out in item 3.(b)(2) - (pages 9-14) of the May 17, 2005 Juan de Fuca Land Use Committee Report.

CARRIED

MOVED by Director Lund, SECONDED by Director Habkirk,
Bylaw No. 3239, as amended, be read a second time.

CARRIED

Resolution

Delegation of Authority to Hold a Second Public Hearing re: Bylaws Nos. 3238 and 3239

MOVED by Director Lund, SECONDED by Director Habkirk,
that in accordance with the provisions of Sections 890 and 891 of the Local Government Act, the Director for Juan de Fuca Electoral Area, or Alternate Director, be delegated authority to hold a second public hearing with respect to Bylaws Nos. 3238 and 3239.

CARRIED

8. MOTION TO MOVE IN CAMERA IN ACCORDANCE WITH THE COMMUNITY CHARTER
   PART 4, DIVISION 3, SECTION 90(1): (e) acquisition, disposition or expropriation of land or improvements

MOVED by Director Evans, SECONDED by Director Habkirk,
that the Board move In Camera in accordance with the Community Charter Part 4, Division 3, Section 90(1): (e) acquisition, disposition or expropriation of land or improvements.

CARRIED

On motion the meeting adjourned at 1:44 p.m. to conduct In Camera business. The meeting reconvened at 1:46 p.m. to rise and report.
9. RISE AND REPORT

The Board reported on the following:

a) Expropriation – Seagirt Ponds (Two Ponds), East Sooke
Juan de Fuca Electoral Area Parks Commission
Lot 19, Section 97, Sooke District, Plan 14984

The Board, as the approving authority, passed the following motion to approve the expropriation of PID: 004-311-752 Lot 19, Section 97, Sooke District, Plan 14984 that the expropriating authority approved March 23, 2005:

Whereas by resolution dated March 23, 2005, the Capital Regional District Board authorized the expropriation of the fee simple interest in the following land for the purpose of establishing a community park to be operated as part of the Juan de Fuca Electoral Areas Community Parks Function: PID 004-311-752 Lot 19, Section 97, Sooke District, Plan 14984; and

Whereas all owners of the said land have been served with a Notice of Expropriation in accordance with the requirements of the Expropriation Act; and

Whereas the owners have not requested an inquiry within the time required under section 10 of the Expropriation Act;

Therefore be it resolved that the Capital Regional District, as the approving authority under section 18 of the Expropriation Act, approves the expropriation of the land and further authorizes the advance payments to the parties as recommended under the expropriation appraisal report dated March 30, 2005, prepared by Glenn Balderston, AACI, P. App., of D.R. Coell & Associates Inc.; and

The Chairperson and Secretary are hereby empowered to do all things necessary to give effect to this resolution.

10. ADJOURNMENT

MOVED by Director Blackwell, SECONDED by Director Robinson, that the meeting adjourn at 1:46 p.m.

CARRIED

CERTIFIED CORRECT

__________________________________________  __________________________________________
CHAIR       CORPORATE SECRETARY
COMMUNITY EXCELLENCE AWARDS
APPLICATION FORM

Name of Local Government: CAPITAL REGIONAL DISTRICT
Project or Program Title: HARTLAND LANDFILL REFORESTATION PROJECT

SELECT THE CATEGORY YOU ARE ENTERING:

- Use ONE application form per project
- Choose only ONE category below

BEST PRACTICES

☐ Best Practices
☐ Best Practices - Website (Address: www.__________)
☐ Best Practices - Best Annual Reporting

LEADERSHIP & INNOVATION

☐ Small Community (population under 5,000)
☐ Mid-Size Community (population between 5,000 - 20,000)
☐ Large Community (population over 20,000)
☐ Regional District

☐ PARTNERSHIPS: Local Government and School Board Collaboration

Application Check-list:

My submission contains:

☐ 8 copies of the completed application form
☐ 8 copies of the one-paragraph summary of the project/program being submitted
☐ 8 copies of the five-page summary report
☐ 8 copies of the resolution supporting the application from council/RD board
☐ 1 CD/electronic copy of my entire submission
☐ 1 copy of annual report (if applicable)

Contact Person: ALAN SUMMERS, PENG
Contact Title: MANAGER, SOLID WASTE
Email: A.SUMMERS@CRD.BC.CA
Phone: 250-360-3080 Fax: 250-360-3079

By making this application, I understand that all materials will be kept by UBCM and are available for viewing by other UBCM members through the UBCM Community Excellence Awards library.

Signature: [Signature] Name (print): ALAN SUMMERS Date: JUNE 17, 2005

DEADLINE: JUNE 20, 2005

Questions? Call Joslyn at 604-270-8226, Ext. 103