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GreenShores Rating Matrix, Pilot Version 2, 2008

Project Name: Nanoose Green Shore Project - Snaw-naw-as (Nanoose) First Nation Green Shore Project CPMS #8538

Project Location: Snaw-naw-as Reserve at Nanoose Bay (I.R. No. 0), Vancouver Island, BC

New or Existing Development: Existing

Shore Protection Planned: Y

Development Category: Other: Campground on First Nation Reserve

Stage: Complete

Names of Project Assessors: Rowland Atkins, M.Sc, P. Geo – Golder Associates
 Cara MacDonald, MBCSLA, ISA - MacDonald Gray Consultants
 Rob Russell, M.Sc, R.P. Bio. – Biological Consultant

	All Submittals Received?	N	
	All Reports by Qualified Professionals Received?	N	

	PROJECT AND BUILDING SITING	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
PBS1	Siting of New Permanent Structures: requires 1, 2 and option A OR B		Prerequisite: 0,1		Not applicable to this project.
	1) Setback => to what local / regional regulations require		<i>Site plan showing NB, ground elevation, setbacks, flood control heights for PS's.</i>		
	2) Setback => Specified Flood Construction Levels				
	Option A: >/= 15m setback from natural boundary				
	If on bluff, setback > 3X vertical bluff height				
	Setback >/= 2m vertical elevation above natural boundary				
	Option B: Allows for 50 years of erosion without shore protection, with a report from Qualified Coastal Professional		<i>QCP report – see pg 16</i>		
	Score (one prerequisite credit available) 0 or 1		Prerequisite: 0,1		
PBS2	Siting of New Permanent Structures: Option A OR B		Optional: 0,2		Not applicable to this project.
	Option A: existing property is being re-developed or upgraded and shore protection exists along the shoreline: must meet requirements 1-4				
	1) Setback must be beyond where natural boundary location would be if there was no shore protection, plus the following requirements:		<i>QCP report as per PBS1 Option B + projection of NB thru Project's life, climate change impacts, etc. – see pg 20.</i>		
	2) Extra setback for predicted change in natural boundary in projected life				
	3) Extra allowance for required 5 meter riparian zone				
	4) Existing structures moved / removed to comply with above				
	Option B: existing property is being re-developed or upgraded and where no shore protection exists along the shoreline:				
	1) Any new permanent structure shall be setback landward of the extrapolated position of the Natural Boundary plus the allowance for the required riparian zone (5m) over the		<i>See above</i>		

	PROJECT AND BUILDING SITING	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
	projected life				
	1) Any new permanent structure shall be setback landward of the extrapolated position of the Natural Boundary plus the allowance for the required riparian zone (5m) over the projected life				
	2) Any existing structures seaward of the extrapolated position of the Natural Boundary will be moved or replaced with new to conform with (1) above.				
	Score		Optional: 0, 2		
PBS3	Site Design with Conservation of Shoreline: (For site plans and subdivision designs affecting a shore area.)		Optional: 1		Not applicable to this project.
	Minimum of 75% of the shoreline is a conservation area (needs definition) or park.		<i>Site plan showing: conserv'n area - widths, length; plan for protection; etc. – see pg 23</i>		
	Average width of 30 m or greater, measured as the horizontal distance perpendicular to the natural boundary, with a minimum width of 7.5 m at any given point.				
	Score		Optional: 1		
PBS4	Re-Development of Contaminated Sites (upland)		Optional: 1		Not applicable to this project.
	Develop on a contaminated site and provide remediation as required by provincial or federal contaminated site standards.		<i>Letter from authority and report that remediation completed – pg.27</i>		
	Score		Optional: 1		

	SHORE HABITAT AND COASTAL PROCESSES	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
SHCP1	Conservation of Critical and Sensitive Habitats		<i>Plan of critical habitat; report indicating 'no net loss'/net gain; QEP certifying – pg. 19</i>		
	No net loss of critical or sensitive habitats within development shore zone. Off-site compensation for habitat losses cannot be used to meet this credit requirement.	Y			No sensitive or critical habitats were identified at the site by the QEPs, therefore a plan showing locations was not provided. Text describing foreshore habitat characteristics was provided, however, more detailed shoreline plans describing habitat characteristics of the site would have been helpful to the reviewer. A habitat balance sheet (in addition to detailed text) including descriptions of mitigation was provided that corresponded to the “compensation plan”. There was no letter signed by the QEPs specific to a compensation plan, however, the QEPs did stamp and sign the CEAA assessment document, which amounts to the same thing.
	Score		Prerequisite: 0,1	1	
SHCP2	Riparian Zone		<i>Site plan showing location relative to dev't; proof of protection/ designation; plan for protection – pg.31</i>		
	Conserve and restore riparian zone. Where restoration is needed, a re-vegetation plan/design prepared by a registered professional biologist or certified landscape architect with experience in coastal riparian ecosystems is required.	Y			Although a site plan showing the location and typical species composition of the existing riparian zone was not submitted, Section 4.2.1 of the Chatwin Engineering Environmental Scoping Report provides a thorough list of vegetation found within the CDFmm and states that the site was ‘mainly cleared of vegetation’ at the time and provides a description of the minimal existing plant material on the campground site. The assessor deems this a sufficient submittal for this project. A site plan showing the location of restoration planting relative to the development is shown as Figure 3 in the Chatwin Engineering Environmental Scoping Report. The minimum requirement for restoration is 5m beyond the natural boundary. This plan provides for a 10m buffer area including

	SHORE HABITAT AND COASTAL PROCESSES	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
					<p>the berm and backshore exceeding the minimum 50% shore length requirement. The plan shows this work beyond the proposed 1878 Observed High Water Mark (OHWM) to the east, but does not indicate the natural boundary anywhere on the plan as required.</p> <p>Protection measures as described on Page 5 of the Chatwin Engineering Green Shore Design Application and as observed on-site include restricted public access in the form of (3) access points made up of permeable material. The low fence guides pedestrians to these access points rather than allowing foot traffic through the riparian zone. Additional protection of the riparian area will take place during the scheduled monitoring period over the next 5 years which allows for re-nourishment and plant replacement if required.</p> <p>Page 6 of the Chatwin Engineering Green Shore Design Application describes the planting scheme and list of native plant species. It describes a density on the berm of 2 plants/ m2 incorporated into the shore protection works and on the backshore 1 tree/ 3 m2 and 1 shrub/ m2. It appears that the final shrub planting density exceeds the proposed densities and reflects the natural conditions of adjacent foreshore vegetation. The success rate at the time of the first Monitoring Report performed by Chatwin Engineering determined a 95% success rate in the plant material. Since that report a temporary irrigation system has been installed and has resulted in continuing success.</p> <p>The CEAA assessment document is stamped and signed by a Qualified Environmental Professionals certifying that the riparian zone has been designated. Pre and post construction photographic documentation is shown in the Chatwin Engineering Green Shore Design Application.</p>

	SHORE HABITAT AND COASTAL PROCESSES	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
	Score		Prerequisite: 0,1	(1)	(Provisional) Revisions: 1. Indicate location of Natural Boundary on Site Plan
SHCP3	Conservation of Coastal Sediment Processes		Prerequisite: 0,1		
	Shore Sediment Supply: A OR B A) Site development must be designed such that the need for shore protection works is not required over the life of the project or a 50 year cycle of natural erosion, whichever is greater OR	N	<i>QCP report of coastal sediment balance and pathways – see pg. 35</i>	0	The consideration of a life cycle for the design or a 50 years cycle of natural erosion does not appear documented in the project files.
	<i>B) If shore protection works are required, provide a design that emulates natural sediment supply to the foreshore for a 50 year cycle of natural erosion of life of the project, whichever is greater. Texture and size of sacrificial material must be appropriate to the site.</i>	Y		1	Design of shoreline restoration emulates the natural sediment supply and the natural longshore transport regime.
	Score		Prerequisite: 0,1	1	
SHCP4	Rehabilitation of Critical and Sensitive Habitats (Riparian or Foreshore)		Optional: 1		
	Develop and implement a critical/sensitive habitat rehabilitation plan for the development shore zone (creation of riparian or foreshore critical/sensitive habitat.) No minimal threshold area for this credit is specified, but the applicant needs to demonstrate that the rehabilitation plan has an 80% or greater success factor 12 months after construction or planting as measured by plant viability or area colonized.	Y	<i>Rehabilitation plan prepared by QEP – see pg. 39</i>		No critical or sensitive habitats were specifically defined, however, the existing habitat characteristics were described in some detail and mitigation plans to account for impacts to the these habitats by the shoreline treatment were given in detail. It was asserted that the riparian vegetation rehabilitation plan would have a minimum 80% chance of survival 12-24 months after construction and replanting. A very good monitoring/ rehabilitation plan is in place to ensure that foreshore riparian habitats are appropriately restored and productive capacity is maximized.

	SHORE HABITAT AND COASTAL PROCESSES	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
	Score			1	

	SHORE HABITAT AND COASTAL PROCESSES	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
SHCP5	Rehabilitation of Degraded Habitats		Optional: 1 or 2		
	Provide remediation of degraded foreshore within 1 km of the development site. The remediation plan should address a minimum of 50% of the targeted degraded area. If the remediation plan includes addressing contaminated sediments, then provincial or federal contaminated site standards or remediation levels specified by the local regulatory authority must be met.	Y	<i>Foreshore rehabilitation plan by QEP – see pg. 41</i>	1	The restoration addresses 100% of the target property within 1 km of the site. The restoration consists of remediation of degraded habitat but does not appear to include contaminated sites.
	Given the technical difficulties associated with the removal of bulkhead protection (seawalls, riprap) a bonus point is awarded if this strategy is employed to remediate degraded habitats.	N		0	No seawalls have been removed.
	Score		Optional: 1 or 2	1	

SHCP6	Enhanced Riparian Zone		Optional: 0.5 – 4		The CEAA assessment document is stamped and signed by a Qualified Environmental Professionals certifying that the riparian zone has been designated.
	For sites meeting the riparian prerequisite credit an additional 0.5 points will be given for extending the riparian conservation zone by	Y			Although a site plan showing the location and typical species composition of the existing riparian zone was not submitted, Section 4.2.1 of the Chatwin Engineering Environmental Scoping Report provides a thorough list of vegetation found within the CDFmm and states that the site was 'mainly cleared of vegetation' at the time and provides a description of the minimal existing plant material on the campground site. The assessor deems this a sufficient submittal for this project.

	SHORE HABITAT AND COASTAL PROCESSES	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
	A) each additional 15% of shoreline length to a maximum of 90% of the development property shoreline – to a maximum of 1.5 points.	Y	<i>Site plan and letter/report by QEP; pre- and post photos – see pg. 43</i>	1.5	A site plan showing the location of restoration planting relative to the development is shown as Figure 3 in the Chatwin Engineering Environmental Scoping Report. The length of the project is described as 300m long in the Chatwin Engineering Green Shore Design Application. The minimum requirement for restoration is 50% shore length. The site plan shows the berm and backshore planting improvements to an extent of 265m for a total of 88% of the shore length. The plan also shows the remaining 35m of the site to receive removal of invasive vegetation and concrete debris.
	B) each additional 5m of riparian zone width to a maximum average width of 30 m – a maximum of 2.5 additional points.	Y		0.5	On the site plan noted above and associated details the combined berm and backshore width is shown at 10m. The minimum requirement is a 5m width.
	Score		Optional 0.5 – 4	2.0	(Provisional) Revisions: 1. Indicate location of Natural Boundary on Site Plan
SHCP7	Light Pollution Reduction		Optional 1		
	Upland only 1. Document that no more than 5% of the total designed fixture lumens located above the natural boundary are emitted to areas below the natural boundary.				Not applicable to this project.
	Score		Optional 1		
SHCP8	Remediation of Coastal Sediment Processes		Optional 1-2		
	Demonstrate the restoration of alongshore or across shore sediment processes, either through removal of existing structures, provision of sacrificial sediment materials or other means.	N	<i>QCP report in concert with SHCP 3 – see pg. 47</i>	0	Material has been filled out into the foreshore to replace lost land that has contributed to coastal sediment processes through erosion. No structures have been removed and the application of sacrificial fill does not appear to be documented (also the use of sacrificial fill was not included in the design based

	SHORE HABITAT AND COASTAL PROCESSES	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
					on discussion on site during field review)
	For removal of bulkhead protection (seawalls, riprap) a bonus point is awarded if this strategy is employed to remediate coastal sediment processes.	N		0	No seawalls removed, no bonus point.
	Score		Optional 1-2	0	

	STORMWATER MANAGEMENT	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
SM1	Integrated Stormwater Planning and Design	N	<i>Stormwater Management Plan by QP – see pg 49</i>		Although the improvements on the foreshore reduced the stormwater runoff to below pre-development conditions as described in Chatwin Engineering's Nannoose Green Shore Project Pilot Study Submission, no formal stormwater management plan was submitted for the project.
	Minimum 20% of the development footprint – 1 Point or				
	Minimum 40% of the development footprint – 2 Points or				
	Minimum 60% of the development footprint – 3 Points				
	Score			Optional: 1-3	0

	PROJECT DEVELOPMENT PROCESS	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?	
PDP1	Environmental Management Plan		Prerequisite: 1 <i>Copy of Environmental Management Plan with proof that it adheres to BMPs; copy of Environmentl Monitoring report (sample) – see pg. 53</i>			
	Develop and follow a site specific environmental management plan that includes:					An appropriate EMP was developed and described in detail in the EA.
	2. Appropriate shore construction timing windows.	Y				Appropriate construction timing windows were identified. However, due to funding approval delays, construction was put off until the winter months when weather made the work more difficult. Innovative construction techniques allowed the work to proceed (still within appropriate timing windows).
	3. Measures taken to prevent the risk of hazardous materials and contaminant spills, including oil, gas and hydraulic fluid.	Y				EMP measures described in the EA covered this concern.
	4. Response plan and equipment available in the event of an accidental spill of hazardous materials.	Y				EMP measures described in the EA covered this concern.

	PROJECT DEVELOPMENT PROCESS	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
	5. On site briefing and reporting requirements for environmental monitoring by a Qualified Environmental Professional.	Y			The requirement of an on-site briefing of the contractors was noted and discussion with one of the QEPs indicates that regular positive contact with the contractor occurred.
	6. A post construction monitoring plan if applicable.	Y			Yes, monitoring is ongoing for several more years. Where concerns have arisen, they are being addressed.
	Score		Prerequisite: 0,1	1	
	PDP2 Innovation		Optional: 1-2		
	1) For credits with a specific performance measure – designs and techniques that (A) exceed the specified performance measure by 50% or (B) demonstrate a novel method of meeting the specified performance measure.	N	<i>Written rationale by QP, authorization by applicable authority – see pg. 55</i>	0	No specified performance measure was exceeded by 50%.
	2) For credits without a specific performance measure or a performance measure that cannot be exceeded (e.g. “conserve 100% of...”) - demonstrate a novel method of meeting the credit or,	N		0	A floating sediment curtain is not really that innovative having been widely used over at least the past decade. Also, the single groyne that was included is a “structural addition” may not have been necessary. The same effect could have been achieved by filling in front of the up-coast seawall thereby eliminating a seawall and revitalizing a longer section of shore.
	3) Demonstration that the project design has addressed a specific issue or situation not covered by any GREEN SHORES credit, but which addresses GREEN SHORES principles.	Y		1	Exceeds SCHP Credit 2 and 6 and addresses a specific issue or situation not covered by any Green Shores credit, but addresses Green Shores principals: beach logs and composted seaweed were salvaged and reused in the berm installation as described in the Chatwin Engineering Nanoose Green Shore Project Pilot Study Submission. The use of existing materials augments soils, conserves the natural environment, reduced the amount of imported material required, provides organic input to the nearshore environment and protects the

	PROJECT DEVELOPMENT PROCESS	Y/N/?	Submittals	Score	Elaboration on decision. What revision, if any, is required?
					berm from erosional processes. Many designs are all too ready to truck away good marine/littoral material and truck in "clean" fill. The carbon saving alone is probably worth the credit, a fact that is not covered by Green Shores. Carbon savings could help offset the climate driven rise in sea levels which is important to coastal management. Credit should also be given for "reducing the engineered footprint" by foregoing installation of one rock groyne and eliminating unnecessary lok-block treatment. Photographs of these applications are shown in the Chatwin Engineering Green Shore Design Application.
	Score		Optional: 1-2	1	
PPD3	Outreach and Public Education		Optional: 1		
	Public signage on key shore issues, the project design concept and project performance or	Y	<i>Written documentation, photos of examples – see pg. 57</i>	1	As described and/ or shown in all of the supporting documentation listed above an 8' x 4' interpretive sign on the key shore issues, the project design concept and project performance was installed. The project is posted on the Green Shores website under design examples.
	Tours and interpretive walks				
	An on-going coastal stewardship program for owners, occupants and site users	Y		1	Has revitalized coastal stewardship by local band and interest in shoreline management. There appears to be continued interaction with campground users, neighbours, etc.
	Any other public outreach initiative that can be demonstrated to meet the credit objective.	Y		1	Chatwin has completed (2) presentations at Green Shores Workshops, (1) Community presentation and a news article to appear in local newspaper. Power Point presentations of these outreach initiatives have been provided.
	Score		Optional: 1	1	

Comments:

SCHP Credit 2 and 6:

1. Do we assume that since submissions are to be prepared by a qualified professional that plant densities and sizes are appropriate? Would there be value to listing minimum size and density requirements to be met just as the lengths and width requirements? This would be difficult as all shorelines are different and are composed of different species. Maybe there is a required 12-month success rate like the requirements for SCHP Credit 4?

PDP Credit 2: Innovation:

1. There needs to be an interpretation of the regional context of "novel" since the concept of backshore restoration and beach filling is well documented over the last 15 years, just not in BC.

PPD Credit 3: Additional stewardship and outreach components that are not covered under the Green Shores Rating Credits:

1. An eagle carving done by one of the local band members was incorporated into the interpretive sign furthering the sense of pride and ownership for the local community.
2. Members of the band were hired for the construction and planting crew providing a direct economic benefit and sense of ownership to the local community.

General:

1. Having a checklist for submission requirements that corresponds to the Credit outline would be useful for both the proponent and assessor. I am sure that this project deserves the SCHP 2 and 6 credits, but because one item is missing from the site plan we are not able to award it. As a first time assessor it took a long time to cross-reference between the requirement and submittal sections of the Green Shores Rating Credits and all of the supporting documentation provided by Chatwin Engineering.

Certification Summary

	Prerequisite Credit Subtotal:		5 required	4
	Optional Credit Subtotal:		20 possible	6
	Credit Total:			10
	Certification Level:			
	GREEN SHORES Certified - All Prerequisites plus 3 Points	<input type="checkbox"/>		
	Silver Certified - All Prerequisites plus 6 Points	<input type="checkbox"/>		
	Gold Certified - All Prerequisites plus 10 Points	<input type="checkbox"/>		
	Not Certified:	<input checked="" type="checkbox"/>		

Summary of revisions or/and submittals or reports required:

- (3) of the prerequisite credits are provisional: Indicate location of Natural Boundary on Site Plan.

	Green Shores Certification Effort Survey	Hours	Rate / hour	Cost \$\$	
	Proponents:				
	Time expended by proponent for rating process				
	Extra costs incurred by proponent for rating process				
	Assessors:				
	Time expended by assessor for rating process				
	Rowland Atkins	11	\$145.00	\$1,595.00	
	Cara MacDonald	12.5	\$90.00	\$1,125.00	
	Rob Russell	8	\$110.00	\$880.00	
	Expenses incurred for rating process				
	Rowland Atkins			\$154.60	
	Cara MacDonald			\$19.00	
	Rob Russell			\$32.00	