



**Environmental Assessment Report for the
Cypress Venue
May 3, 2006**

Environmental Assessment Report for the Cypress Venue

Prepared for:

**Canadian Heritage
Western Region
300 West Georgia Street, 4th Floor
Vancouver, BC V6B 6C6
Attention: Geoff Karcher**

and

**British Columbia Ministry of Environment – BC Parks
PO Box 220
Brackendale BC V0N 1H0
Attention: Vicki Haberl**

Prepared by:

**Jacques Whitford Limited
4370 Dominion Street
Burnaby, BC V5G 4L7
Contact: Marc d'Entremont**

On behalf of:

**Vancouver Organizing Committee for the 2010 Olympic
and Paralympic Winter Games
Suite 400 – 1095 West Pender Street
Vancouver, BC V6E 2M6
Contact: George McKay**

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EXECUTIVE SUMMARY

Preface

On July 2, 2003, Members of the International Olympic Committee (IOC) selected Vancouver and Whistler as the host cities of the 2010 Olympic and Paralympic Winter Games. Consequently, British Columbia will host the 2010 Olympic Winter Games (the Games) in February and the 2010 Paralympic Winter Games in March.

The majority of the Olympic events and venues are proposed to take place in the Vancouver region, including the Opening and Closing Ceremonies, nightly Medal Ceremonies, Main Press Centre, International Broadcast Centre, Ice Hockey, Figure Skating, Speed Skating, Short Track Speed Skating, Curling, Freestyle Skiing and Snowboarding and the majority of the Arts and Cultural activities. Whistler will host Alpine Skiing, Biathlon, Cross-Country Skiing, Nordic Combined, Ski Jumping, Bobsleigh, Skeleton, Luge, and medals ceremonies for the Olympics. All of the Paralympic events will also be held at Whistler.

The Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games (VANOC) has committed to stage the 2010 Games in a manner that will advance the pursuit of sustainability. Moving beyond environmental management, sustainability has been formally integrated within the Games' operational plans through a Sustainability Management System that is comprised of stages of commitment, planning, implementation, monitoring and reporting.

Project Overview

VANOC is proposing to upgrade and operate the Cypress Mountain ski area to be the site for the Snowboard and Freestyle Skiing competitions for the 2010 Games. Cypress Mountain is an existing long-established operating ski area in the District of West Vancouver and is wholly contained within Cypress Provincial Park. With its existing ski facilities, spectacular city and ocean vista views, and location only 30 km from the future Olympic Village, the Cypress Mountain ski area is an excellent 2010 venue site.

For the Cypress Venue, VANOC has developed plans to minimize the permanent change within Cypress Provincial Park. Major changes for the venue will not be required because of the existing infrastructure and excellent transportation access. Although much of the work will be temporary Olympic overlay to be removed after the Games, there will be some permanent upgrades at the Cypress Mountain ski area, including:

- regrading for the parallel giant slalom snowboard course;
- new in-ground snowboard halfpipe;
- additional lighting for evening events;



- snowmaking system including a water reservoir;
- new Freestyle site for aerials and moguls events; and
- relocation of the Baden-Powell recreational trail.

As part of the legacy of the Olympic Games, Cypress Bowl Recreations Ltd., the operator of the Cypress Mountain ski area, have committed to operating the remaining Olympic facilities after the Games.

The construction, operation and decommissioning/legacy of the proposed activities are subject to an environmental assessment under *Canadian Environmental Assessment Act (CEAA)* and to a Level 2 review (Detailed Screen) under the BC Parks Impact Assessment process. Both the federal and provincial responsible authorities (i.e., Canadian Heritage and BC Parks) have agreed to a cooperative environmental assessment review for this venue. This report has been prepared to meet this requirement and includes the assessment and recommendations for management plans to address project related effects.

Assessment of Effects

The BC Parks Impact Assessment process has been adopted for this assessment and supplemented to ensure that the requirements of *CEAA* are also met. The BC Parks Impact Assessment process outlines a specific methodology and criteria to identify impacts on protected area values that may be associated with project activities. This process ensures that the stewardship of British Columbia's system of protected areas is included in all activities and practices that are conducted within these areas. Its purpose is to: provide for the assessment of all potential impacts of proposed actions in provincial protected areas; ensure provincially consistent standards are followed; provide an open and accountable assessment process; provide a forum for standardized and documented decision-making; and, provide for participation in the review process by the proponent, other agencies, First Nations, and the public.

Following the BC Parks Impact Assessment process allows evaluation of the significance of those impacts, determination of mitigation measures and assists with making decisions on whether or not the project should proceed. Important factors to consider during the decision making process include environmental and social values. For this project components of these values within the freshwater, terrestrial, atmospheric, socio-economic and cultural environments have been identified and selected for the assessment. A summary of the major potential environmental effects on the major values is provided in the table below.



Valued Components	Potential Effects	Generalized Significance Rating * Negative and Positive	Rating Justification
Freshwater Environment	Habitat loss or alteration	Low	Effects to <1% of creek and riparian habitat; restoration is planned
	Disruption of drainage	Low	Effects to <1% of freshwater values; design and planning changed to reduce effects
	Potential higher peak flows	Low	Effects to <1% of freshwater values
	Effect low-flow water volume	High (Positive)	May benefit by >10% due to more consistent flows as a result of snowmaking
	Decrease Cypress Creek volume during uptake	Low	Effect to <1% of freshwater values, no uptake in low-flow period is planned
	Bank instability	Low	Effects to <1% of freshwater values
	Sediment input	High to Low with mitigation	Effect to >10% of freshwater values; sediment and erosion control plan to mitigate
	Creek bed disturbance	High to Low with mitigation	Effects to >10% of freshwater values; mitigation to reduce turbidity
	Loss of riparian vegetation	Currently unknown	Detailed design is required to determine riparian impact
	Transportation of deleterious substances	High to Low with mitigation	Effects to >10% of freshwater values; mitigation to reduce spills
Terrestrial Environment	Sensory Disturbance	Low	Effect to <1% of wildlife, recovery expected within short term
	Habitat loss or alteration	Low Moderate (Positive)	Effects to <1% of wildlife habitat, positive habitat impacts after revegetation
	Disruption of drainage	Low	Effects to <1% terrestrial habitat; design and planning changed to reduce effects
	Increase risk of fire	High (vegetation) Low (wildlife)	Potentially >10% of habitat affected, but <1% of wildlife affected
	Mortality	Low	Effects to <1% of terrestrial environment
	Transportation of deleterious substances	Low (vegetation) Low with mitigation	Effects to <1% of vegetation, spill contingency plan to reduce effects
	Increase in inter- and intra-specific competition	Low	Effects to <1% of terrestrial, high level of adaptation expected
	Disruption of songbird migration pattern	Low	Effects to <1% expected, operational changes will be minimized
	Increased light pollution	Low	Effects to <1% of terrestrial environment effects currently occurring, operational changes will be minimized



Valued Components	Potential Effects	Generalized Significance Rating * Negative and Positive	Rating Justification
Atmospheric Environment	Increased emissions from construction equipment and bus traffic	Low	Activities will be short term and intermittent and not unlike the current level of activity occurring in the park from vehicular traffic.
	Increased noise levels from construction and operation activities	Low	Activities will be site specific and short term
	Increased light pollution	Low	Effects from lighting will be temporary
	Changes to the viewshed of the park	Low	Activities are planned for previously disturbed areas.
Socio-Economic Environment	Impedance to access	Moderate	There will be some concern for public access
	Negative effect on natural experience	Moderate	There will be some concern for natural experience
	Increase use	Moderate Low with mitigation Moderate (Positive)	There will be some concern in a positive and adverse direction, can be somewhat mitigated
Cultural Environment	Potential effects to archaeological sites	Low	Activities are planned for previously disturbed areas and there have been no previously recorded sites in these areas.

The majority of the potential effects were rated as Low to Moderate significance as per the BC Parks criteria. For those effects that have been rated as High significance, the implementation of identified mitigation measures will assist in reducing the significance of these effects.

A screening of potential cumulative effects was also conducted. Other activities considered in the cumulative effects screening included the installation and operation of the new Black Mountain chairlift, the construction and operation of the new day lodge and the expansion of the ski area and mountain bike park on Black Mountain. According to criteria developed by BC Parks there are five ways in which cumulative effects may occur in protected areas. These include:

- Sensory disturbance.
- Contaminant transportation.



- Habitat loss and fragmentation.
- Viewshed degradation; and
- Experiential degradation.

The assessment rated these potential cumulative effects as Moderate for some of the valued components. However, most of the activities associated with the development and operation of the Cypress Venue will be short-term, temporary and mitigable. Therefore, the potential cumulative effects within the park from the Cypress Venue are considered not significant.

Accidents, malfunctions and unplanned events were assessed that could possibly occur during the lifetime of the Project. These included:

- Spill of hydrocarbons or other hazardous materials;
- Introduction of sediment into watercourses;
- Failure of the snowmaking infrastructure; and
- Forest fires.

VANOC is committed to having an Environmental Management Plan in place prior to the project start-up. Emergency preparedness measures will be incorporated into the EMP that will address potential accidents and malfunctions associated with the construction and operation of the activities at the Cypress Venue.

Effects of the environment on the project that can potentially result in significant environmental effects, such as seismic activity, slope instability and avalanches, were considered. In order to address these potential effects a number of planning, designs, and construction strategies will be included in the project plans. These will be intended to minimize the potential environmental effects of the environment on the Project so that the risk of serious damage or interruption of service can be reduced to acceptable levels. Mitigation measures include, among other things, designing structures to relevant codes, and scheduling of activities to allow for weather disruptions.

Conclusions

The majority of the potential effects to the area stemming from the Cypress Venue development were rated as **Low** to **Moderate** significance as per the BC Parks criteria. For those effects that have been rated as **High** significance, the implementation of identified mitigation measures will assist in reducing the significance of these effects. Overall the findings indicate the project will have limited to **Low** impact if the management plans and mitigation measures are developed and implemented.



VANOC will address high significance activities in each phase of the project as part of the VANOC commitment to sustainability, through mitigation and through the development and implementation of an Environmental Management Plan (EMP). This EMP will be developed in consultation with Canadian Heritage, BC Parks and Cypress Bowl Recreations Ltd., and will comply with federal and provincial regulatory requirements. Prior to construction VANOC is committed to meeting with BC Parks and Cypress Bowl Recreations Ltd. to review the details of the EMP and update it accordingly with respect to the site conditions at that time.

VANOC will commit to, and provide assurances for reducing the significance of each activity in each phase of the Project as part of the VANOC sustainability commitment for the Games. A summary of commitments is provided below.

Based on the results of the environmental assessment, it is concluded that the Cypress Venue is not likely to cause significant adverse environmental effects.





VANOC Cypress Table of Commitments

Table 10-1 Summary of VANOC Commitments for the Cypress Venue - revised and final May 3, 2006					
Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
1a	General	All Phases	VANOC will <ul style="list-style-type: none"> Finalize the Environmental Management Plan (EMP) in consultation with PCH, BC Parks and CBRL. Participate in an on-site meeting with PCH, BC Parks and CBRL prior to construction to review the details of the EMP and update the EMP accordingly with respect to the site conditions at that time. Provide proposed bird survey methodology to the Canadian Wildlife Service and the BC Ministry of Environment for review prior to initiating any required bird surveys. Provide the results of completed bird surveys to the Canadian Wildlife Service and the BC Ministry of Environment for review prior to initiating any clearing activity. Review the proposed water quality monitoring program with Environment Canada and the BC Ministry of Environment. Collect baseline water quality information based on requirements identified in the reviewed water quality monitoring program. Review the proposed sediment and erosion control plan with DFO and DFO West Vancouver Lab. 	VANOC	All Agencies





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<ul style="list-style-type: none"> Hire a Squamish Nation Member to participate in the environmental and archaeological monitoring of construction from the start of the project. 		
1b		Construction and Decommissioning	VANOC will <ul style="list-style-type: none"> Employ a third party Environmental Monitor, with authority to require modifications to the EMP, sediment/erosion control measures and order temporary work stoppages. Ensure that contractors take appropriate precautions when pouring concrete and sealing forms, that runoff from curing concrete is monitored for acceptable pH levels and if the pH is outside the allowable limits, that the runoff is contained and neutralized and ensure that pH levels in receiving waters are monitored during concrete pouring and curing to ensure acceptable levels. 	VANOC and construction contractors	PCH, Fisheries and Oceans Canada; Ministry of Environment – Environmental Protection Division; Environment Canada – Pollution Prevention
1c		Operation - All	<ul style="list-style-type: none"> VANOC will develop a waste management plan that will prevent wildlife from foraging on garbage. 	VANOC and Contractors	Ministry of Environment
1d		Legacy	<ul style="list-style-type: none"> VANOC will commit to working with BC Parks in a legacy planning process with stakeholders to establish legacy plan options that VANOC can contribute funding towards, in conjunction with BC Parks and other contributors, to a maximum cost to VANOC of \$400,000. 	VANOC	Ministry of Environment





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
2a	Water Quality	All	VANOC will <ul style="list-style-type: none"> • monitor for water quality during construction, operations and decommissioning. • collect baseline water quality information as soon as possible and before construction to build on water sampling data collected October 19th, 2004 • monitor water quality for blast residues and • review the water quality monitoring program with the Ministry of Environment and Environment Canada prior to program implementation. 	VANOC	Ministry of Environment; Fisheries and Oceans Canada Environment Canada
2b		Construction	VANOC will <ul style="list-style-type: none"> • Complete earth works involved in the clearing and grading of the areas for site development during dry-periods where possible. • Ensure a qualified environmental monitor will oversee all activities near water courses and will have the ability to stop work if required. • Develop and implement a Sediment and Erosion Control Plan that has been reviewed with appropriate DFO representatives at the West Vancouver DFO lab. • Not use the Yew Lake wetland to filter out project related sediments from the water column. • Site the Cypress Creek Pump House at a disturbed area so that extensive riparian 	VANOC and construction contractors	PCH, Ministry of Environment – Environmental Protection Division; Fisheries and Oceans Canada – West Van Lab; Environment Canada – Pollution Prevention and Assessment Division Coastal Health





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			habitat is not affected <ul style="list-style-type: none"> • Consult with DFO regarding plans for work in Cypress Creek • Consult with Coastal Health during the planning stages of the plans for water trucking and provide plans and processes to Coastal Health for review and approval prior to implementing. • Assess the potential for ARD related to the project site development prior to any on site blasting occurring. • Review the ARD assessment report with PCH, BC Parks and CBRL, and if there is significant potential for ARD impacts develop a management plan prior to any blasting to include provisions to mitigate those impacts including protecting the water quality from being impacted from ARD associated with the project's development. • Review the ARD impact management plan with PCH, BC Parks and CBRL in advance of any blasting. 		
2c	Water Quality	Operation	VANOC will <ul style="list-style-type: none"> • Cover the Cypress Creek Pump House sump during dormant snowmaking periods, if possible, so that water can bypass the sump and flow naturally in the stream 		





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Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<p>channel.</p> <ul style="list-style-type: none"> • Implement mitigation measures that would effectively improve water quality and positively affect any fish and tailed frog populations; • improve drainage patterns on the Baden-Powell Trail, ensuring that the rerouted trail is directed away from springs, wetlands and sensitive areas. • Ensure road salt will not be used during the clearing of snow from the Cypress Bowl Road and parking areas. • Avoid adding snow hardening agents during test events and the Olympic Games period. • Should race requirements mandate the use of snow hardening agents, these additives will be applied in accordance with a management plan to be developed prior to November 2008 that will avoid or minimize effects on water quality and vegetation while maintaining racer safety. The management plan will be reviewed with PCH, CBRL and BC Parks. • Expand the water quality monitoring in 		





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			keeping with the management plan monitor for this activity immediately before and after race events.		
3a	Water Quantity	Construction	VANOC will <ul style="list-style-type: none"> • Ensure minimum base flows are maintained in Cypress Creek. • Construct and install the Cypress Creek Pump House during periods of low flow. 	VANOC and Contractors	Ministry of Environment – Fisheries and Oceans Canada
3b	Water Quantity	Operation	VANOC will <ul style="list-style-type: none"> • Ensure water will be pumped from Cypress Creek during period of high flow (e.g., November and December). • Maintain the minimum of 30% of mean annual discharge during water uptake periods through utilization of a low flow release structure at the Creek Pump House. • Comply with all water license requirements 		Ministry of Environment
4	Fish Resources	Construction	VANOC will <ul style="list-style-type: none"> • Obtain appropriate approvals for construction under the Water Act. • Limiting work to the fisheries work window for the Vancouver region (August 15 to September 15). 	VANOC and construction contractors	Department of Fisheries and Oceans; Ministry of Environment





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<ul style="list-style-type: none"> Install and maintain appropriate erosion control measures, such as siltation fencing, temporary diversion berms, and sandbag, rock or straw bales, as determined by a qualified environmental monitor and discussed with DFO. Monitor sediment control measures during construction and following major storm events. 		
5	Vegetation	Construction and Decommissioning	VANOC will <ul style="list-style-type: none"> Confine clearing of vegetation to the smallest area possible. Develop a planting plan and revegetate the area around the reservoir in consultation with BC Parks. Design final venue plans so that the removal of old growth trees is avoided, and address any old growth trees to be removed on a tree by tree basis through discussions with BC Parks, and CBRL Re-route the Baden-Powell alignment to avoid sensitive areas such as subapline wetlands in consultation with BC Parks and CBRL. Store equipment in previously disturbed 	VANOC and Contractors	Ministry of Environment; Environment Canada – Canadian Wildlife Service





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<p>areas.</p> <ul style="list-style-type: none"> Encourage Ministry of Transportation to avoid using salt on roads thereby minimizing the affect on vegetation adjacent to roadways. Review design plans to ensure that facilities are sited in previously disturbed areas to the greatest extent possible. Perform a dangerous tree survey after clearing the venue areas. Prepare a Vegetation Debris Management Plan as part of the EMP. Conduct a pre-construction rare plant survey for the upper portion of the Baden-Powell trail. 		
6	Sensitive Sites	Construction and Decommissioning	<p>VANOC will</p> <ul style="list-style-type: none"> Locate venue facilities to minimize, to the greatest extent possible, the impact to sensitive sites. Re-route the alignment of the Baden-Powell to avoid sensitive areas such as subapline wetlands in consultation with BC Parks and CBRL. Rope off and sign sensitive areas along the new trail to inform the public about the 	VANOC and Construction Contractors	Ministry of Environment;





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<p>importance of staying out of these sensitive areas.</p> <ul style="list-style-type: none"> • Maintain a 30 m set back from the dragonfly breeding habitat during reservoir construction. • Consult Dr. Rob Cannings at the Royal British Columbia Museum and Ministry of Environment for advice on how to avoid damage to the dragonfly breeding habitat and to confirm that the 30 m set back is an effective way to avoid impacting the dragonfly habitat. • Revegetate the outside berm of the reservoir in consultation with BC Parks. • Address any loss of old growth trees on a tree by tree basis through discussions with BC Parks, and CBRL. 		
7a	Terrestrial Wildlife Habitat	Construction	<p>VANOC will</p> <ul style="list-style-type: none"> • Review design plans to ensure that facilities are sited in previously disturbed areas to the greatest extent possible. • Retain and protect riparian habitats along creeks and major wetlands. • Assess the pump house and any other likely 	VANOC and Contractors	BC Parks; Ministry of Environment; Environment Canada – CWS; Fisheries and Oceans Canada





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Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<p>location for the presence of tailed frogs and if frogs are encountered, prepare and implement a tailed frog salvage plan.</p> <ul style="list-style-type: none"> • Avoid unnecessary vegetation clearing or disturbance and large woody debris will be left placed on the forest floor or at forest edges where feasible. • Maintain existing habitat conditions wherever possible. • Keep human disturbance to a minimum by restricting and managing access and human activity during construction and operation. • Require employees and contractors to drive responsibly by enforcing low vehicle speeds on all project-related roads. • Contain properly or remove all waste materials (e.g., food, oils) that may act as wildlife attractants. • Adhere to wildlife protection measures that include provisions to reduce attractants through proper waste disposal, educate employees and contractors on potential wildlife interactions and hazardous materials and spill contingency procedures. 		





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<ul style="list-style-type: none"> Provide employees and contractors with a wildlife management plan, including bear awareness training and overall wildlife management strategies, policies, and procedures (e.g., especially those designed to prevent direct mortality of terrestrial wildlife). Limit driving speed for construction and operational personnel to 40 km/hr and may be lower under specific conditions such as areas where specific wildlife concerns have been identified. 		
7b	Terrestrial Wildlife	Operation	<p>VANOC will</p> <ul style="list-style-type: none"> Limit human disturbance by restricting and managing access and human activity during construction and operation. Limit the use of outdoor lighting to the extent possible, with lights turned off when not required for Games operations or maintenance of Games facilities. Design light fixtures that reduce the amount of light emitted upwards. Contain properly or remove all waste 	VANOC and Contractors	Ministry of Environment; Environment Canada – CWS; Fisheries and Oceans Canada





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			<p>materials (e.g., food, oils) that may act as wildlife attractants.</p> <ul style="list-style-type: none"> • Avoid small mammal and amphibian mortality at the grizzly bars at the Creek Pump House by sizing the bars to prevent the entrapment of small animals. • Manage the water intake and pump house operations with consideration for tailed frogs if tailed frogs are found in this location. • Adhere to wildlife protection measures that include provisions to reduce attractants through proper waste disposal, educate employees and contractors on potential wildlife interactions and hazardous materials and spill contingency procedures. • Provide employees and contractors with a wildlife management plan, including bear awareness training and overall wildlife management strategies, policies, and procedures (e.g., especially those designed to prevent direct mortality of terrestrial wildlife). • Limit driving speed for construction and operational personnel to 40 km/hr and may be lower under specific conditions such as areas 		





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			where specific wildlife concerns have been identified.		
8a	Avifauna	Construction	<p>VANOC will</p> <ul style="list-style-type: none"> Minimize the area to be cleared where possible with the removal of old growth trees addressed on a tree by tree basis through discussions with BC Parks and CBRL. Undertake clearing activities outside of the peak migratory bird nesting season (May 1 to July 31) if feasible; if this is unreasonable due to construction timelines, complete a comprehensive survey for active nests to identify and protect nests from machine work until the nests are confirmed inactive. Include all species and their habitat identified in the report as possibly occurring, (Marbled Murrelet, Northern Goshawk, Band tailed pigeon, and Western Screech Owl) when conducting the nesting bird survey. Provide the proposed nesting bird survey methodology and results to BC Parks, Ministry of Environment and Environment Canada before clearing the area. 	VANOC and Contractors	Ministry of Environment; Environment Canada – CWS;





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Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<ul style="list-style-type: none"> Obtain permission from the Ministry of Environment and the Canadian Wildlife Service if any active nests protected by the Wildlife Act will be disturbed. Provide contractor staff relevant results of pre-construction surveys in order to identify any known locations of environmentally sensitive features, and use flagging, fencing or footprint adjustments to identify and protect particularly sensitive features in the field. Retain wildlife trees where possible. Blast outside of the peak migratory bird nesting season (May 1 to July 31) if feasible; if this is unreasonable due to construction timelines, a comprehensive survey for active nests should be conducted to identify and protect nests from work until the nests are confirmed inactive. Provide the proposed nesting bird survey methodology and results to BC Parks, Ministry of Environment and Environment Canada before any undertaking blasting in the area. Obtain permission from the Ministry of 		





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			Environment if any active nests protected by the Wildlife Act or the Migratory Birds Conventions are to be disturbed.		





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
8b	Avifauna	Operation	VANOC will <ul style="list-style-type: none"> Limit the use of outdoor lighting to the extent possible, with lights turned off when not required for Games operations or maintenance of Games facilities. Design light fixtures that reduce the amount of light emitted upwards. 	VANOC and Contractors	Ministry of Environment; Environment Canada – CWS; Fisheries and Oceans Canada
9a	Air Quality	Construction and Operation	<ul style="list-style-type: none"> VANOC will enforce a “no idle” policy for buses once they reach the parking area at the Cypress Venue. 	VANOC and Contractors	Ministry of Environment; Environment Canada
10a	Noise	Construction	VANOC will <ul style="list-style-type: none"> Ensure all internal combustion engines are fitted with appropriate muffler systems. Minimize noise generated during blasting through the use of minimal effective charge, shock matting, where possible. Avoid the use of engine brakes unless a safety situation demands their use. 	VANOC and Contractors	
10b	Noise	Operation	VANOC will	VANOC and Contractors	Ministry of Environment





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			<ul style="list-style-type: none"> • Use low-noise pumps for the snow making system and sound proof pump houses appropriately. • Operate the snow making system during the winter season when ambient noise is already a factor. • Avoid the use of engine brakes unless a safety situation demands their use. 		





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
11a	Viewshed	Construction	VANOC will <ul style="list-style-type: none"> Minimize areas to be cleared where possible. Install only the minimal amount of light structures. 	VANOC and Contractors	Ministry of Environment
11b	Viewshed	Operation	VANOC will <ul style="list-style-type: none"> Limit the use of outdoor lighting to the extent possible, with lights turned off when not required for Games operations or maintenance of Games facilities. Design light fixtures that reduce the amount of light emitted upwards. Revegetate the area around the reservoir with natural plant species in consultation with BC Parks. 	VANOC and Contractors	Ministry of Environment
12a	Recreation Access and Use	Construction	VANOC will <ul style="list-style-type: none"> Avoid, where possible, long term impacts to recreational access. Confine the clearing of vegetation to the smallest area possible. 	VANOC and Contractors	VANOC BC Parks, Ministry of Environment





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			<ul style="list-style-type: none"> • Revegetate the area around the reservoir in consultation with BC Parks. • Determine In consultation with BC Parks the most appropriate public safety approach for the reservoir considering the issue of aesthetics, and will finalize the Dam Safety Plan accordingly. • Reroute Baden-Powell trail in consultation with BC Parks and CBRL and open the trail to provide access to the top of Black Mountain before access to the area around the Freestyle facilities is restricted. • Avoid blocking trail heads with construction equipment. • Re-route the Baden-Powell trail away from sensitive subalpine wetlands. • Complete blasting activities near the Freestyle facilities before the mountain bike park opens (12:00) if possible. • Store staging and temporary storage of equipment in previously disturbed areas that do not restrict access to park facilities (i.e., will not block access roads and trails). 		





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
12b	Recreation Access and Use	Operation	VANOC will not restrict cabin owners' access to their properties during test competitions, pre Games, or the Games period.	VANOC and Contractors	VANOC BC Parks, Ministry of Environment





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
13	Cultural Environment		<p>VANOC will</p> <ul style="list-style-type: none"> • Implement commitments provided to the Squamish First Nation as outlined in VANOC's letter to the Squamish Nation dated April 26, 2006 • Complete an AIA for the lands proposed for development from the Cypress Venue. • Involve and consult affected First Nations in the AIA process. • Obtain all necessary permits needed to undertake the AIA. • Comply with the AIA report as approved by Archaeology Branch at the Ministry of Tourism, Sports and the Arts. • Have an archaeologist on site during construction if required. • Ensure that employees and contractors involved in project construction are instructed on the location of identified archaeological resources within the project site, and the means to protect archaeological resources within the project 	VANOC and Contractors	VANOC BC Parks, Ministry of Environment, Ministry of Tourism, Sports and the Arts, First Nations





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			<p>site.</p> <ul style="list-style-type: none"> • Stop work where a previously unidentified archaeological or heritage site is encountered during construction, and resume only after the Archaeologist and the First Nations have been notified and the appropriate provincial cultural and historical resources division (Archaeology Branch, B.C., Ministry of Tourism Sports and the Arts) has been informed. • Not undertake further work in the immediate vicinity of the previously unidentified archaeological or heritage site until a qualified archaeologist and the First Nations examines it and permission to proceed is granted by the provincial agency. • Ensure that if work is initiated in any area ahead of the completion of the AIA an archaeologist is brought to the site to review and assess the risk of impact in those areas prior to any disturbance. The level of risk will determine what if any work can proceed. 		





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
14	Accidents, Malfunctions and Unplanned Events	Construction and Decommissioning	VANOC will <ul style="list-style-type: none"> • Ensure all on-site fuel storage tanks and dispensing facilities are installed and operated in accordance with the Canadian Council of Ministers of the Environment (CCME) Environmental Code of Practice for fuel storage tank systems and other applicable Federal and Provincial Requirements. • Ensure that all construction and operations equipment is inspected for leaks on a regular basis and maintained in good working order. • Ensure that mobile equipment is refuelled, lubricated and serviced only at designated and approved locations • Respond to spills immediately in accordance with the procedures outlined in the Hazardous Material Spill Contingency Plan. • Ensure contractors take appropriate precautions when pouring concrete and sealing forms • Ensure runoff from curing concrete is monitored for acceptable pH levels and if the pH is outside the allowable limits, the runoff is contained and neutralized. • Remediate any contaminated soils arising from construction activity in accordance with provincial standards, off site, at an 	VANOC and Contractors	Ministry of Environment – Environmental Protection Division; Environment Canada; Fisheries and Oceans Canada





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
			appropriate location outside of the park. <ul style="list-style-type: none"> • Ensure all construction operations act in accordance with the Fire Contingency Plan. • Ensure that all the Cypress Venue facilities are designed and constructed in compliance with the BC Fire Code, BC Building Code and local amendments to the Code. 		





Reference	Environmental Component	Project Phase	VANOC Commitment	Responsibility	Approving Agency/Group
15	Effects of the Environment on the Project	All Phases	<ul style="list-style-type: none"> Prepare contingency plan for possible effects where appropriate, such as the Dam Safety Management Plan and the Fire Suppression Plan. Monitor snow levels on the slope adjacent to the reservoir up to and including the games period to assess avalanche potential in this area. 	VANOC and Contractors	Ministry of Environment, BC Parks

