

PART 3: DETAILED PROPOSAL

Please attach a detailed proposal description that addresses the following (A-D):

A. Please describe the proposed activity and provide the following information:

- a) Purpose of the land use or occupancy;
- b) Details of the existing uses, vegetation cover, wildlife present, water resources, geology, and historical/cultural significance of the proposed site and adjacent area;
- c) Location and size of all proposed and current improvements (facilities/structures);
- d) If applicable, details of the physical changes to the site that would be required to meet the needs of the proposal and the proposed mitigation of such changes;
- e) Construction schedule (if applicable) for proposed new permanent and/or temporary facilities;
- f) Photographs of the site and area adjacent to the proposed land use/occupancy;
- g) Proposed site and adjacent area description and mapping in terms of its current legal status;
- h) Type of transportation and access route to the proposed site(s); and
- i) The initial 5 year operational plan related to this proposal.

B. List all experiences of the applicant and/or others involved in this proposal in previous park use permits including the name, number, date and location of the permit(s).

C. Describe expected or potential impacts on the park's environmental, cultural, recreational values changes including, but not limited to:

- a) Habitat for vegetation and wildlife, particularly listed species or species at risk;
- b) Any watercourses or water bodies (diversions, flows, potential siltation, etc.);
- c) Special features such as unique geological formations;
- d) Access to the park, and the area of the park under consideration;
- e) aesthetics and visual values;
- f) Cultural values, including traditional use of the area by First Nations;
- g) Park visitors and local communities, including public health and safety and recreational use or enjoyment of the park; and
- h) Actions that will be taken to mitigate identified impacts on the park(s).

D. Provide maps of the proposed application area, including (if required):

- a) **General Location Map:** A map(s) of the individual protected areas within the application, drawn to 1:50 000 to 1:250 000 (or larger if required to encompass boundaries of permit area) scale that illustrates at a landscape level scale the general location of the area under application, including boundaries of the proposed permit area and major landmarks, travel/access routes.
- b) **Permit Area Map:** Where the land use/occupancy utilizes improvements or structures, a more detailed map(s) of the proposed permit area(s) within each park, drawn to 1:20 000 to 1:50 000 scale showing the exact proposed boundaries of the permit area, including the area (in hectares) as well as any watercourses or other identifying features (trails, facilities, roads, etc.). The permit area map must clearly identify the location of travel/access routes, and specific activity site(s). If applicable, the location and construction description of any temporary facilities or the use of existing facilities within the permit area, as well as the location and size of all proposed improvements must also be included.
- c) **Detailed Site Map:** Where the operation proposes to use any existing or to construct any new improvements, a detailed site map at 1:1 000 to 1:5 000 scale must be submitted identifying the location of all improvements (buildings, structures, roads, power lines, fences, docks, etc.) in relation to the boundaries of the permit area.

PART 4: APPLICATION CERTIFICATION

All applications must be complete. Incomplete applications will not be processed until information is submitted. All of the following must be attached to or enclosed with this application form:

- **completed application form, including attached management plan;**
- **map(s) to standards detailed in application requirements;**
- **attachments as indicated below; and**
- **non-refundable application fee (plus applicable taxes).**

Upon submission of a complete application and application fee, allow 140 days to evaluate proposals. Applications requiring additional steps, or supplying insufficient information may delay evaluation. BC Parks reserves the right to deny any application. The information you provide will be subject to the *Freedom of Information and Protection of Privacy Act*. The submission of this form does not in any manner convey any rights to use or occupy land within a park, protected area, recreation area or conservancy.

- Businesses must either be licensed to do business in BC, or if licensed/incorporated outside of British Columbia (considered to be 'extra-provincial companies') must be in compliance with section 375 of the *Business Corporations Act* to operate in British Columbia.
- Extraprovincial societies must be registered under the *Society Act* in British Columbia in order to hold a park use permit or resource use permit. An extraprovincial society is a society or association formed outside British Columbia, and includes a branch of that society or association.

Additional costs and requirements:

Upon evaluation of the proposal it may be determined that additional costs and requirements must be provided prior to issuance of the permit, such as financial guarantees, or survey and inspection costs (as per Section 21 of the *Park Act*).

Commercial General Liability (CGL) insurance in the amount of \$2 million per occurrence may be required as a minimum for in parks, protected areas, conservancies and recreation areas. Applications will be assessed to determine whether additional types of insurance, such as aviation liability or marine liability, may also be required. Insurers must be licensed to do business in British Columbia or Canada.

Additional information on insurance is available at

http://www.env.gov.bc.ca/pasb/applications/process/park_use.html#insurance

THE APPLICANT HEREBY CERTIFIES THAT ALL THE INFORMATION PROVIDED IN THIS APPLICATION IS TRUE AND CORRECT.

Signature of Applicant or Authorized Signatory of Applicant: _____

Date: April 13, 2016

Interest will be charge on all overdue accounts, the interest rate charged is 3% + the prime lending rate of the principal banker to the Province as established each 3 month quarter starting Oct 1st.

Send completed application and proposal description to:

Ministry of Forests, Lands,
and Natural Resource Operations
FrontCounter BC

For additional information on how or where to submit your application, please call the FrontCounter BC Contact Centre or visit the website to determine an office nearest you:

Call FrontCounter BC toll free at: **1-877-855-3222**

FrontCounter BC Website: <http://www.frontcounterbc.ca/locations/index.html>

PLEASE RETAIN A COPY OF THIS APPLICATION FOR YOUR RECORDS

First Nations Consultations

Consulting with First Nations

The Province of British Columbia's legal duty to consult with First Nations arises from section 35 of the *Canadian Constitution Act*, which recognizes and affirms aboriginal and treaty rights. The duty to consult arises when the Crown has knowledge, real or constructive, of the potential existence of the Aboriginal right or title and contemplates conduct that might adversely affect it. Consultation with First Nations will be guided by principles of good faith, and meaningful dialogue with the intent to fully understand the nature and scope of the aboriginal right, the potential to adversely affect that aboriginal right, and address those potential impacts to an aboriginal right while balancing societal interests.

Agreements with First Nations

In many locations, the Province has agreements with First Nations. These agreements may be referred to as Collaborative Management Agreements, Reconciliation Protocol Agreements, Memorandum of Understanding or simply Working Agreements. In some cases the Province and Canada have entered into a treaty with a First Nation, which contains certain provisions regarding treaty rights within parks and protected areas. Modern treaties contain provisions to address those treaty rights in the management of parks and protected areas where a treaty right exists.

These agreements apply to a variety of parks and protected areas and conservancies and include obligations by the Province to discuss operational delivery of programs in addition to information associated with applications for park use permits with a First Nation. These discussions provide the First Nation and the Province with an opportunity to raise any questions or concerns associated with a park use permit application and/or the proposed activity in relation to aboriginal rights or title.

Important Considerations for Park Use Permit Applications

Applicants for park use permits should be aware of the Province's consultation obligations with First Nations and associated time requirements to seek meaningful consultation. There may be occasions when BC Parks may require additional, detailed information to allow for the necessary review of an application. It is important that applicants provide the necessary, detailed information as requested on the application form in order to avoid a longer than anticipated period of time to evaluate the application.

Page 384 of 401 to/à Page 387 of 401

Withheld pursuant to/removed as

s.13; s.16

BC Parks and COS

(250)387-1288

*Regional Director
BC Parks, South
Coast Region
(604)924-2227*

*Regional Planning Section Head
BC Parks, South Coast Region
(604)898-3678, ext. 2227*

Reviewed by	Initials	Date
DM		
DMO		
ADM		
Dir./Mgr.		
Author		

DRAFT



File Number: PUP #102714/Tetrahedron Park

March 22, 2017

VIA EMAIL

Janette Loveys
Chief Administrative Officer
Sunshine Coast Regional District
1975 Field Road, Sechelt, BC, V0N 3A1

**RE: BC Parks Comments Chapman Lake Water Supply Expansion Project
Environmental Assessment Report (AECOM 2016)**

Dear Janette,

My staff and I have reviewed the following report to SCRD prepared by AECOM: *Chapman Lake Water Supply Expansion Project Environmental Assessment* report dated November 2016. The Water Supply Expansion Project is hereafter referred to as the 'Chapman Lake Project' and the Environmental Assessment report as the 'Chapman Lake EA'):


Sincerely,

Jennie Aikman
Regional Director
South Coast Region, BC Parks

cc Joanna Hirner, Conservation Specialist, South Coast Region, BC Parks

BC Parks comments on Chapman Lake EA

Thursday, October 12, 2017
7:56 AM

Subject	BC Parks comments on Chapman Lake EA
From	Hirner, Joanna ENV:EX
To	Aikman, Jennie S ENV:EX; Galand, Lise FLNR:EX; Dalziel, Rod ENV:EX
Sent	Wednesday, March 22, 2017 7:19 AM
Attachments	 2017BCPark sComment...

Hi everybody,

Attached are some draft comments based on my review of the latest Environmental Assessment for the Chapman Lake expansion project. Please take a look and provide any comments/questions/edits as you like. Note I think Jennie was hoping to provide these to SCRD before a meeting scheduled for tomorrow, so if you have time to review today that would be great (thus the high importance).

Lise I think these comments echo many of your comments without being too repetitive. At least that is what I was trying for.

Best regards,

Joanna

Joanna Hirner (RPBio)
Conservation Specialist
BC Parks, South Coast Region
604-924-2228



File Number: PUP #102714/Tetrahedron Park

March 22, 2017

VIA EMAIL

Janette Loveys
Chief Administrative Officer
Sunshine Coast Regional District
1975 Field Road, Sechelt, BC, V0N 3A1

RE: BC Parks Comments *Chapman Lake Water Supply Expansion Project Environmental Assessment Report (AECOM 2016)*

Dear Janette,

Please accept the following comments on behalf of BC Parks regarding the *Chapman Lake Water Supply Expansion Project Environmental Assessment* report dated November 2016, prepared by AECOM for the Sunshine Coast Regional District (SCRD). In this letter the Water Supply Expansion project is referred to as the 'Chapman Lake Project' and the Environmental Assessment report as the 'Chapman Lake EA':

1. In our June 8, 2016 comments we requested additional information regarding the background and rationale for undertaking the Chapman Lake Project, as well as additional description of other water supply and demand management options considered. Section 1 and 2 of the Chapman Lake EA provide additional details regarding the rationale, but description of other supply and demand management options is still lacking. We assume this type of information is available in the Comprehensive Regional Water Plan (CRWP) (Opus Dayton Knight 2013) but request a summary be provided in support of the Park Use Permit application.
2. The Chapman Lake EA states that the SCRCD has committed that new infrastructure installed through the Chapman Lake Project will "only be utilized during periods of drought and until the long term source development projects specified in the SCRCD's Comprehensive Regional Water Plan are constructed". We request a description of the long term source development and demand management projects that are being developed including timelines. Demand management and development of other water sources are of interest because they will reduce future dependence on Chapman Lake water and allow greater flexibility to manage drawdown to protect values at Chapman Lake.
3. Section 2 and Appendix A provide analyses of historical and current hydrology of the Chapman Creek watershed and how climate change may alter hydrology in the future. Our interpretation is that although existing data and climate models can be used to make predictions, important uncertainties remain regarding future hydrology and climate conditions:
 - a. The characterization of current hydrology in the Chapman Creek watershed and its capacity to meet future water demands is primarily based on analysis of water gauge data collected in the Chapman Creek watershed 1959 to 1988. More recent data analysis is limited to data collected since 2014 when remote monitoring and management of lake levels was implemented associated with the existing Chapman Lake dam. Thus the analysis may not fully reflect more recent changes in the hydrology of the watershed since the late 1980s.

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BC Parks and Conservation Officer Service Division
South Coast Region

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- b. The analysis presented suggests that uncertainties remain regarding how the Chapman Creek watershed will respond to climate change. For example, the analysis in Appendix A uses model predictions for the Metro Vancouver area extrapolated to the Sunshine Coast. To increase the potential accuracy of climate change predictions for the Chapman Creek watershed, Appendix A recommends a more detailed hydrological and hydraulic assessment of water balance in the watershed based on climate projection information, and comparison of local geographic and climate data to Metro Vancouver data to confirm the relevance of Metro Vancouver projections applied to Chapman Creek. These additional assessments have not been done.
4. Although there is uncertainty regarding the future hydrology of Chapman Creek, generally the predictions related to climate change are smaller snowpack, longer and drier summers, and dry conditions that will extend further into the fall. In our June 8, 2016 comments we expressed concern about the potential for increased frequency of drought, and the associated increased frequency, extent and duration of drawdown, to cause long-term changes to the water table and recharge rates of Chapman Lake. The Chapman Lake EA does not provide analysis or discussion of this issue, other than to state that the recharge rate is fast, based on the fact that the lake went from almost -3m to full pool over 4.5 days of rainfall in the fall of 2015. However, it is unclear whether rapid recharge would continue with climate change and under repeated and prolonged drought and drawdown conditions.
5. The analysis of fish habitat and environmental flow needs presented in Section 5.3.6 (p. 56) and Appendix G suggests that the current operating procedure of providing a minimum of 0.2 m³/s during low flows is adequate for rearing salmonids, but not consistently adequate for adult salmonids migrating upstream. The requirement to provide adequate flow for migrating adult salmonids in the future may increase future drawdown requirements and presents a source of uncertainty around predicting the future frequency and severity of drawdown of Chapman Lake.
6. Most of the conclusions regarding the residual effects of the operation of the Chapman Lake Project (as summarized in the Executive Summary and Table 28) are based on the assumption that drawdown below -3 m would be relatively infrequent and of short duration. Related to the previous three comments (#3-5), our interpretation is that important uncertainties remain around the assumption of low frequency and short duration of large drawdowns, especially in the long-term. For example, if increased drawdown is required in the future to provide adequate flows for fish, large drawdowns may be more frequent and longer lasting than predicted, leading to larger than expected residual effects on environmental components in and around Chapman Lake. This in turn suggests that the conclusions of low to moderate residual effects associated with operation of the Chapman Lake project are also uncertain, and residual effects may be larger than predicted. Monitoring during operation will be required to detect impacts and develop mitigation/adaptive management. Comments for specific values are provided below.
7. Section 6.3.1.2 (p. 69-70) provides assessment of residual effects on soil and vegetation during operation. The assessment considers the following potential impacts: exposure of shoreline and associated increased risk of erosion and sedimentation, and additional hydrological drawdown of wetlands during drought conditions. The Chapman Lake EA concludes that long term effects are not expected "given that these events are relatively infrequent and of short duration". However, there are reasons to be uncertain about the assumption that large drawdowns and associated impacts will continue to be infrequent and short in duration, especially in the longer-term. In addition, if multiple years of drought and large and extended drawdowns lead to a long term lowering of the water table, this could have important impacts on soils and vegetation. This issue has not been addressed in the Chapman Lake EA.

8. Section 6.5.2.2 (p. 79-80) suggests that Dolly Varden in Chapman Lake will be resilient to potential impacts of operational drawdown on spawning because there are multiple age classes in the lake. I.e. if spawning is restricted in one year due to drought, there will be a cohort of spawners available to spawn the next year. However, drought events (even a 1:25 year drought) can occur more than one year in a row and drought events may become more frequent in the future due to climate change. Thus the potential for drawdown to negatively affect spawning may be greater than assumed in the Chapman Lake EA report.
9. Monitoring of the Dolly Varden population in Chapman Lake is required during operation to detect negative changes that could result from more frequent, longer and deeper drawdowns. A monitoring program plan will need to be designed with appropriate methods and measurements that allow for detection of changes in the Dolly Varden population. It is not clear from the Chapman Lake EA if the data collected to date are sufficient to provide baseline to monitor changes in population over time. The monitoring plan will identify if additional information needs to be collected pre and/or during construction. Monitoring will need to continue during operation to detect impacts and develop and implement mitigation as needed.
10. Section 6.5.2.1 (p. 79) states that full drawdown during construction is unlikely to negatively affect Dolly Varden because 2016 observations suggest that even a full -8m drawdown will not cause complete blockage of access to spawning creeks. In addition, the assessment assumes that Dolly Varden will spawn later in the fall when construction will be complete and Chapman Lake will be refilling. These assumptions regarding access to spawning streams and spawning timing need to be tested through additional life history study to determine when Dolly Varden spawn relative to lake re-filling, and how timing may influence impacts from drawdown. For example, if spawner migration to stream spawning locations occurs prior to lake refilling, fish may have to migrate through channels in open mud flats exposing them to possible sedimentation and predation. At a minimum, monitoring of spawning access and timing should be initiated during the drawdown associated with the construction period. Better understanding of life history will help reduce uncertainty around potential impacts of drawdown during operation and will be useful for developing mitigation during operation.
11. Note that the Dolly Varden population at Chapman Lake is likely of high conservation value because it is a mono-culture headwater population of genetically isolated Dolly Varden. This type of population may be rare or even unique (additional review of existing information could determine how rare this type of population is). In addition, Dolly Varden are associated with cold water and may be at increased risk of population declines through climate change and more frequent drought events, even in the absence of artificial reservoir drawdowns. The Chapman Lake population may be particularly vulnerable as an isolated population with no incoming gene flow. All of the above increases the importance of monitoring to better understand and mitigate potential impacts of increasing frequency, duration and extent of drawdown during operation.
12. Section 6.4.4.2 (p. 73-74) discusses potential residual effects on Western Toad, even though there are no known observations of Western Toads in the Chapman Lake area. However, the presented analysis can be extrapolated to aquatic breeding amphibians generally, which are common and important in the wetlands surrounding Chapman Lake. The Chapman Lake EA suggests that potential residual effects on toads during operation will be minimal even under increased drawdown because lowest water levels will occur in late summer once the majority of tadpoles have gone through metamorphosis. This will not be true for neotenous Northwestern Salamanders which spend their entire lives in the aquatic environment. Neotenous salamanders have been observed in Chapman Lake tributaries and may occur in adjacent wetlands. Northern Pacific Treefrog tadpoles and Long-toed Salamander larvae were abundant in wetlands at the east end of the lake during late

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August 2016 field surveys, suggesting that tadpoles remain late in the season during typical low water periods. Also, there is the outstanding question regarding the potential for multiple years of drought and large drawdowns to lead to a long term lowering of the water table in the area, which could reduce suitable habitat for amphibians. Thus uncertainty remains regarding the extent of residual effects on amphibians.

13. Mercury and formation of methylmercury (Sections 5.3.1.4, 6.5.1.2):

- a. Fish tissue sample results reported in Section 5.3.1.4 (p. 47-48) show total mercury in fish tissue was above the CCME and BC Tissue Residue Guidelines to Protect Wildlife from Mercury Toxicity in four of the five fish sampled. However, Section 5.3.1.4 states "there was no evidence during the 2016 field study to indicate that the elevated levels of mercury in the Dolly Varden of Chapman Lake was anything but natural." We request more details explaining why the Chapman Lake EA came to this conclusion.
- b. Tissue sampling for mercury was conducted to establish a baseline for comparison to samples collected in the future because of concern that increasing drawdown may lead to elevated levels of methylmercury in the food web. High levels of methylmercury are known to be generated in newly created reservoirs, but evidence also suggests that large drawdown in established reservoirs may also lead to increases in methylmercury formation (see Azimuth 2015, cited in the Chapman Lake EA). Discussion presented in Section 6.5.1.2 (p. 76-77) suggests that methylmercury formation related to drawdown is not a problem at Chapman Lake because it is much smaller, experiences less drawdown, and has less inundation of vegetation than Carpenter Lake, the reservoir studied in Azimuth (2015). However, Carpenter Lake is only one reservoir where elevated mercury levels have been potentially linked to water level fluctuations. References in Azimuth (2015) and elsewhere (e.g. Willacker *et al.* 2016 <http://dx.doi.org/10.1016/j.scitotenv.2016.03.050>) document studies that included a range of waterbody sizes and conditions (including smaller reservoirs and a range of drawdown regimes). These studies repeatedly showed relationships between water level fluctuations and increased mercury in fish. The 2016 tissue sample results for Chapman Lake combined with evidence in the literature suggests to us a possible link between elevated mercury levels in fish tissue and the existing drawdown regime in Chapman Lake. In addition, increasing drawdown in the future may exacerbate this problem. We recommend that fish tissue sampling be included in the monitoring program during operation.
- c. Total mercury in the water column (which includes methylmercury) was well below water quality criteria (as reported in Section 6.5.1.2 and Appendix D). However, mercury accumulates in the sediment and this is primarily where methylmercury formation occurs. The sediments may be the source of higher than criteria levels of mercury observed in fish tissue. Analysis of metals (including mercury) in sediment should be included in future monitoring, including during the summer of construction to provide a baseline pre-operation.

14. Section 3.2 (p. 15): The schedule for construction must be designed to minimize the duration of deep and maximum (-8 m) drawdown as much as possible.

15. Section 5.0: The data collected during the 2016 field assessment and the details of sampling methods and sampling locations will be required to allow for comparison with future field assessments and data (i.e. to monitor environmental change and impacts). Most of this information appears to be included in the Chapman Lake EA and its appendices. Digital versions of spatial data files for sampling locations, occurrence records, Terrestrial Ecosystem Mapping (TEM), etc. will also be needed. Please confirm that SCR D has been or will be provided with digital spatial data (including TEM polygons) and any other raw data/sampling information required for future monitoring.

16. In Section 5.3.4 (p. 54) fish habitat in south eastern stream was rated low to moderate in part due to no fish captured. Note that on August 24th Joanna Hirner (Conservation Specialist, BC Parks) observed a small fish (assumed to be Dolly Varden) in a pool associated with this stream.
17. Section 5.4.5 (p. 60-61) presents the results of Terrestrial Ecosystem Mapping (TEM). The red-listed Sitka sedge/peat-mosses Fen community was identified in some polygons that overlap or are adjacent to the permit area and construction temporary use area as shown in Figure 6 (p. 14). Protecting this plant community is a priority that must be reflected in the Construction Environmental Management Plan (EMP) still to be developed as described in Section 7.0. Monitoring for changes in the Sitka sedge/peat mosses Fen community that may result from more frequent and extended large drawdowns is also a priority during the operation phase.
18. Section 6.4.4.3 Coastal Tailed Frogs: It appears no targeted surveys were conducted for Coastal Tailed Frog in Chapman Creek downstream of the Chapman Lake dam. Although not described in this report, we assume that mitigation will be designed and implemented for fish during construction at the dam outlet and immediately downstream (i.e. isolation of construction areas and salvage of fish). These mitigation measures for fish should be adapted to also protect Coastal Tailed Frog (e.g. survey efforts and methods designed to salvage tailed frog tadpoles).
19. Section 6.5.1.1 (p. 76) includes the following statement: "If mitigation measures are not fully effective, elevated sediment levels released into Chapman Creek should have minimal impact on drinking water as there are numerous pools in the creek that will allow sediments to drop out of suspension during the approximately 17 km course from Chapman Lake to the intake at the water treatment plant." This statement does not acknowledge likely impacts of sediment release on aquatic life (fish, invertebrates, Coastal Tailed Frogs) in Chapman Creek. Prevention of any sediment releases should be a priority for environmental management during construction.
20. Section 6.5.2.1 (p. 78-79) discusses de-stratification of the water column (and associated changes in temperature and dissolved oxygen) as a potential impact of full draw down to -8 m during construction. A slow rate of drawdown is presented as a measure to prevent de-stratification. De-stratification presumably could also occur during operation, especially during large drawdown events or if drawdown occurs quickly. Impacts of drawdown on stratification, temperature, and dissolved oxygen should be closely monitored during construction to help understand potential impacts and design mitigation for operation including measures to prevent rapid drawdown.
21. Section 6.5.2.2 (p. 80) states that the proposed 2 m plunge pool will prevent impacts to fish that drop 8 m from dam crest to the channel below. A fisheries biologist from FLNRO consulted during our review made additional suggestions regarding design of the plunge pool:
 - Engineer the pool with the objective that fish enter and exit the pool safely;
 - Design the pool so that fish are easily directed into the deepest part of the plunge pool and are not bouncing off of the bedrock
 - Size and locate pool so that it contains refuge areas for fish to recover after their fall.
22. Section 6.5.2.2 (p. 80) states that intakes of the new pipe will be fitted with a trash screen with 25 mm openings, and concludes that there is a low risk of fish being negatively affected by use this screen. Is it feasible to have a screen with hole sizes smaller than 25 mm to reduce the risk as much as possible? If it is not feasible and a 25 mm screen is used, the passage of fish through the intake pipe should be monitored. If a problem is detected (e.g. too many fish passing through the pipe into the creek below), then adaptive management procedures should be applied.
23. Section 7.0 (p. 85-86) describes the Environmental Management Plans (EMPs) that will be developed for the construction and operation phases. These plans will need to be developed in detail

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in advance of construction/operation, and BC Parks will require review and approval of these plans as part of the Park Use Permit. The construction plan will need to mitigation measures as listed in Section 7.0, but some additional mitigation not listed in Section 7.0 needs to be added to the plans. This includes prevention and management of invasive plants, fuel and spill management, archaeological resource management, and socio-cultural impact management.

24. Given that the rock sample used for determining the potential for Acid Rock Drainage and Metal Leaching was weathered, the recommendations regarding further testing in Section 7.0 (p. 85-86) should be implemented.
25. Monitoring (sections including 6.5.2.4 [p. 81-82] and 7.0 [operation EMP, p. 86]): Monitoring for effects on key values during construction and operation is proposed several times in the Chapman Lake EA. We support these recommendations, and a detailed monitoring plan needs to be developed prior to construction. As stated previously in these comments, the future frequency, extent and duration of drawdowns are uncertain, which means residual effects are also uncertain. Monitoring will allow for testing of assumptions regarding residual effects, detection of negative impacts, and implementation of mitigation and adaptive management to reduce negative impacts. Key effects and values to be monitored include:
 - Dolly Varden: spawning timing and access; population condition; tissue sampling; changes to habitat quality and quantity
 - Effects of drawdown on the water table and wetlands, including wetland vegetation (Sitka sedge/peat mosses [Fen]) and amphibians
 - Water and sediment quality, including monitoring for sloughing of exposed sediments
 - Aquatic vegetation
26. Also related to monitoring, it is not clear that the data collected in 2016 is suitable and sufficient to allow for future comparative monitoring relative to pre-construction conditions. For example, sampling of aquatic vegetation as described in Section 5.3.5 (p. 55-56) is qualitative. Qualitative assessments tend to be hard to repeat and detect only major changes. Monitoring must be designed to be quantitative and repeatable to allow for detection of changes during operation. Using the aquatic vegetation example, long-term monitoring of cover and species composition on transects or plots would provide quantitative data. Monitoring during the construction year must be designed to provide data that can be used for the long-term monitoring plan.

Sincerely,



Jennie Aikman
Regional Director
South Coast Region, BC Parks

cc Dave Crosby, Manager of Utility Services, SCRD
Remko Roseboom, Manager Water Authorizations, FLNRO
Lise Galand, Senior Aquatic Ecologist, FLNRO
Rod Dalziel, Area Supervisor Sunshine Coast, BC Parks
Joanna Hirner, Conservation Specialist, South Coast Region, BC Parks

RE: BC Parks comments on Chapman Lake

Monday, October 16, 2017

11:24 AM

Subject	RE: BC Parks comments on Chapman Lake
From	Dalziel, Rod ENV:EX
To	Hirner, Joanna ENV:EX
Sent	Wednesday, March 22, 2017 2:50 PM

Hey Joanna,

Thanks for all your work on this. I have been trying to pick away at a review myse priorities recently have not got very far. Sorry I was unaware of tomorrows deadl time to review your comments today but I will try and take a look first thing tomo

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environme

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📧 Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



BC Parks has recently launched new speciality plates! Get your BC Parks licence p

From: Hirner, Joanna ENV:EX

Sent: Wednesday, March 22, 2017 7:19 A

To: Aikman, Jennie S ENV:EX; Galand, Lise FLNR:EX; Dalziel, Rod

Subject: BC Parks comments on Chapman Lake

Importance: High

Hi everybody,

Attached are some draft comments based on my review of the latest Envir Assessment for the Chapman Lake expansion project. Please take a look ar comments/questions/edits as you like. Note I think Jennie was hoping to p SCRd before a meeting scheduled for tomorrow, so if you have time to rev would be great (thus the high importance).

Lise I think these comments echo many of your comments without being t least that is what I was trying for.

Best regards,

Joanna

Joanna Hirner (RPBio)

Conservation Specialist

BC Parks, South Coast Region

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MINISTRY OF ENVIRONMENT INFORMATION NOTE

March 22, 2017

File: 280-20

CLIFF/tracking #: 308756

XReference #306778

PREPARED FOR: Honorable Mary Polak, Minister of Environment

ISSUE: Tetrahedron Park requires park boundary amendment or re-designation of the park to accommodate an application from the Sunshine Coast Regional District to install infrastructure to withdraw water from Chapman Lake.

BACKGROUND:

Gray and Chapman creeks, both of which have headwaters in Tetrahedron Park, have been the principal sources of domestic drinking water to coastal communities within the Sunshine Coast Regional District (SCRD), including Sechelt long before the establishment of the park. Water is drawn from a system of alpine lakes that are within the Class A provincial park, including Chapman Lake and Edwards Lake.

Tetrahedron Park (6,000 ha) was established in 1995 to protect the integrity of the community watershed and preserve the significant wilderness, natural and recreational values of the area. The park is named and described in Schedule D of the *Protected Areas of British Columbia Act*, which enables section 30 of the *Park Act* respecting the continuation of uses that pre-existed establishment of the park to apply. As such, BC Parks has been able to issue a park use permit to the SCRD to allow for the continued management of the existing community watershed infrastructure.

Although some consideration was given to establishing the area as a protected area under the *Environment and Land Use Act* or some other designation in 1995, the area was established as a Class A park with a commitment to “re-designate” the park at some time in the future if the need to expand the community watershed infrastructure arose.

This commitment was reiterated in the approved park management plan (1997). The park management plan supports the continued use of the park’s alpine lakes for community water supply purposes, and commits that “[w]here regional water supply improvements are proposed within the park, an impact assessment and comprehensive public consultation process will be developed. . . . A number of designation options will be prepared and a decision will be sought that will enable BC Parks to authorize the SCRD to enhance and manage the Chapman/Gray Creel watersheds within the park for future population needs. A public consultation process to review any options proposed by government that may affect the existing park status will be implemented.”

The SCRD currently maintains infrastructure on Chapman and Edwards lakes in Tetrahedron Park under a park use permit. The SCRD also has several water licences under the *Water Sustainability Act* which authorize limited storage on Chapman Lake and set the volume of water withdrawal.

In August 2015, the SCRD advanced to Level 4 water restrictions due to extreme drought conditions and water shortages. The SCRD approached the Water Authorization Branch (FLNR) and BC Parks for emergency amendments to their water licence and park use permit with the intention of expanding their infrastructure in the park. Specifically, the SCRD proposed employing a siphoning system to be installed on a float in Chapman Lake to draw additional water from the lake. They also applied for a short term authorization to remove an additional 1,000,000 m³, through a *Water Act* section 8 approval for the short-term use of water.

In August 2015, BC Parks issued a park use permit amendment to the SCRD for a temporary (one year) authorization to install the emergency siphon system. The permit term mirrored the temporary water license issued to the SCRD under the *Water Act*, with an additional two weeks to allow time to remove the siphon infrastructure from the park. A few days after the permit was issued, rains recharged the lake to full pool and so the SCRD never proceeded with the installation of the siphon system.

In April 2016, the SCRD made application to BC Parks for a park use permit amendment to construct a trench to install permanent piping in Chapman Lake to allow for an additional drawdown of the lake by 5 metres, to a total drawdown of 8 metres (their current permit allows for a drawdown of 3 metres). They also applied for a new water license under the *Water Sustainability Act* to allow for the removal of an additional 1,000,000 m³ of water from the lake.

In August 2016, the SCRD completed additional field work for an environmental impact and environmental flow needs assessment. In October 2016, FLNR amended the approval for the installation and use of the siphon with an additional one year term and included a requirement to release an additional amount of water towards the downstream section of Chapman Creek to protect the salmon runs in that reach.

On January 30, 2017, the SCRD submitted an updated park use permit amendment application, and they have undertaken consultation with First Nations, local stakeholder groups, and the local community. The SCRD wishes to complete procurement of a contractor to complete construction of the trenching system in summer 2017. They have received a \$5.5M grant for the project from the Ministry of Community, Sport and Cultural Development (MCSCD).

s.13,s.14

DISCUSSION:

s.13,s.16

s.13,s.16

NEXT STEPS:

s.13,s.16

Attachments: Map of Tetrahedron Park

Contact:

Jim Standen, ADM

BC Parks and COS

(250)387-1288

Alternate Contact:

Jennie Aikman,

Regional Director

BC Parks, South

Coast Region

(604)924-2227

Prepared by:

Vicki Haberl,

Regional Planning Section Head

BC Parks, South Coast Region

(604)898-3678, ext. 2227

Reviewed by	Initials	Date
DM		
DMO		
ADM		
Dir./Mgr.		
Author	VH	22-03-17

DRAFT

Re: Fwd: fyi - on Chapman Lake

Monday, October 16, 2017
3:40 PM

Subject	Re: Fwd: fyi - on Chapman Lake		
From	s.22		
To	s.22	Dalziel, Rod ENV:EX; s.22	s.22
Sent	Thursday, March 23, 2017 8:42 PM		

So I guess I am a little slower ther^{s.22},

What do you all think of the date?

s.22


On 3/23/2017 1:42 PM, ^{s.13} wrote:

of note -

<http://www.thelocalweekly.ca/chapman-lake-pipeline-project-delayed/>

RE: BC Parks comments on Chapman Lake

Monday, October 16, 2017
12:25 PM

Subject	RE: BC Parks comments on Chapman Lake
From	Dalziel, Rod ENV:EX
To	Hirner, Joanna ENV:EX
Sent	Thursday, March 23, 2017 10:35 AM
Attachments	 2017BCPark sComment...

Hello Joanna,

Excellent work. Attached are some comments in your document as well as listed below.

- Chapman Lake EA page vi states "The intake for the pipe would have an in 965.1 m..." but the initial application (April 2016) proposal identified 966r change?
- Chapman Lake EA page ix under Air Quality states the use of dust suppression mitigation measure. What is the product used? Would this be allowable watershed?
- Chapman Lake EA page ix under Noise and Terrestrial Resources mentions breeding windows but no dates specified.
- Chapman Lake EA page 15 bullet 7 "In order to install the intake end of the may have to be drawn down below the -8 m level depending on the type of used." What if drought conditions are experienced at this time when we a below -8m?
- Chapman Lake EA page 41 Sediment Quality – Does not appear to provide depths. Only 2 samples taken in alluvial fan where incising may occur. Wa Engineer involved?

Again sorry I have not been able to conduct a more thorough review of the which I will endeavour to do.

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3
Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-
Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca



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From: Dalziel, Rod ENV:EX
Sent: Wednesday, March 22, 2017 2:51 PM
To: Hirner, Joanna ENV:EX
Subject: RE: BC Parks comments on Chapman Lake

Hey Joanna,

Thanks for all your work on this. I have been trying to pick away at a review with other priorities recently have not got very far. Sorry I was unaware of the deadline. I don't have time to review your comments today but I will try to do the first thing tomorrow.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3

Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-

Rod.Dalziel@gov.bc.ca

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From: Hirner, Joanna ENV:EX

Sent: Wednesday, March 22, 2017 7:19 A

To: Aikman, Jennie S ENV:EX; Galand, Lise FLNR:EX; Dalziel, Rod

Subject: BC Parks comments on Chapman Lake

Importance: High

Hi everybody,

Attached are some draft comments based on my review of the latest Environmental Assessment for the Chapman Lake expansion project. I look and provide any comments/questions/edits as you like. Note I was hoping to provide these to SCRD before a meeting scheduled for today if you have time to review today that would be great (thus the high importance). I think these comments echo many of your comments without being repetitive. At least that is what I was trying for.

Best regards,

Joanna

Joanna Hirner (RPBio)

Conservation Specialist

BC Parks, South Coast Region

604-924-2228

RE: Park Use Permit (PUP) #102714 Amendment Application, Chapman Lake

Monday, October 16, 2017
3:41 PM

Subject	RE: Park Use Permit (PUP) #102714 Amendment Application, Chapman Lake
From	Aikman, Jennie S ENV:EX
To	Dalziel, Rod ENV:EX
Cc	Murai, Launa Y ENV:EX; Bell, Danielle L GCPE:EX
Sent	Thursday, March 23, 2017 4:13 PM

Thanks for sharing this Rod – I have included Launa and Danielle on this email so they are aware.

I agree that now that the letter to the Board is public, you can share a copy with those who have been inquiring.

Jennie

Jennie Aikman
Regional Director
South Coast Region, BC Parks
Ministry of Environment
Office phone: (604) 924-2227
Cell phone: (778) 875-8494

From: Dalziel, Rod ENV:EX
Sent: Thursday, March 23, 2017 3:57 PM
To: Aikman, Jennie S ENV:EX
Subject: RE: Park Use Permit (PUP) #102714 Amendment Application, Chapman Lake

Hello Jennie,

<http://www.thelocalweekly.ca/chapman-lake-pipeline-project-delayed/>

As it seems the SCRD has released details of the letter to the public and media is it fair to distribute as I have been receiving requests. Give me a call if you wish to discuss.

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
✉: Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca



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From: Aikman, Jennie S ENV:EX
Sent: Monday, March 6, 2017 10:58 AM

To: Dalziel, Rod ENV:EX

Cc: Anderson, Wade R ENV:EX; Hirner, Joanna ENV:EX

Subject: FW: Park Use Permit (PUP) #102714 Amendment Application, Chapman Lake

Hi Rod,

Please see the attached letter to the SCRD Board Chair, Garry Nohr, regarding the park use permit and need for boundary amendment or re-designation. Please do not distribute this letter further at this time.

Now that this information is with the Board, I would like to discuss with you how we are going to manage the messaging to the TAC and other stakeholders. I am around today, so please give me a call if you are available.

Jennie

Jennie Aikman

Regional Director

South Coast Region, BC Parks

Ministry of Environment

Office phone: (604) 924-2227

Cell phone: (778) 875-8494

From: Aikman, Jennie S ENV:EX

Sent: Monday, March 6, 2017 10:47 AM

To: 'Garry.Nohr@scrd.ca'

Cc: Janette Loveys; Standen, Jim ENV:EX; Morrison, Ken ENV:EX; Rosenboom, Remko FLNR:EX

Subject: Park Use Permit (PUP) #102714 Amendment Application, Chapman Lake

Dear Mr. Nohr,

Please see the attached letter regarding the Sunshine Coast Regional District's park use permit amendment application for Chapman Lake in Tetrahedron Park.

With regards,

Jennie

Jennie Aikman

Regional Director

South Coast Region, BC Parks

Ministry of Environment

MINISTRY OF ENVIRONMENT INFORMATION NOTE

March 24, 2017
File: 280-20
CLIFF/tracking #: 308756
XReference #306778

PREPARED FOR: Honorable Mary Polak, Minister of Environment

ISSUE: Tetrahedron Park requires a park boundary amendment or re-designation of the park to enable the Sunshine Coast Regional District to install new infrastructure to withdraw water from Chapman Lake.

BACKGROUND:

Gray and Chapman creeks, both of which have headwaters in Tetrahedron Park, have been the principal sources of domestic drinking water to coastal communities within the Sunshine Coast Regional District (SCRD), including Sechelt, long before the establishment of the park. Water is drawn from a system of alpine lakes that are within the Class A provincial park, including Chapman Lake and Edwards Lake.

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This commitment was reiterated in the approved park management plan (1997). The park management plan supports the continued use of the park’s alpine lakes for community water supply purposes, and commits that “[w]here regional water supply improvements are proposed within the park, an impact assessment and comprehensive public consultation process will be developed. . . . A number of designation options will be prepared and a decision will be sought that will enable BC Parks to authorize the SCRD to enhance and manage the Chapman/Gray Creek watersheds within the park for future population needs. A public consultation process to review any options proposed by government that may affect the existing park status will be implemented.”

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s.13,s.14

DISCUSSION:

s.13,s.16

s.13,s.16

NEXT STEPS:

s.13,s.16

s.13,s.16

Contact:*Jim Standen, ADM**BC Parks and COS**(250)387-1288***Alternate Contact:***Jennie Aikman,**Regional Director**BC Parks, South**Coast Region**(604)924-2227***Prepared by:***Vicki Haberl,**Regional Planning Section Head**BC Parks, South Coast Region**(604)898-3678, ext. 2227*

Reviewed by	Initials	Date
DM		
DMO		
ADM		
Ex. Dir. ROB		
Ex Dir, PSA		
Mgr, PLA	KM	24-03-17
Reg. Dir., SC	JA	23-03-17
Author	VH	22-03-17

BC Parks Comments *Chapman Lake Water Supply Expansion Project Environmental Assessment Report (AECOM 2016)*

Comments prepared by Joanna Hirner, Registered Professional Biologist, Conservation Specialist, South Coast Region, BC Parks
March 24, 2017

In these comments the Water Supply Expansion project is referred to as the 'Chapman Lake Project' and the Environmental Assessment report as the 'Chapman Lake EA':

1. In our June 8, 2016 comments we requested additional information regarding the background and rationale for undertaking the Chapman Lake Project, as well as additional description of other water supply and demand management options considered. Demand management and development of other water sources are of interest because they will reduce future dependence on Chapman Lake water and allow greater flexibility to manage drawdown to protect values at Chapman Lake. Section 1 and 2 of the Chapman Lake EA provide additional details regarding the rationale, but description of other supply and demand management options considered and proposed for the future is still lacking. We assume this type of information is available in the Comprehensive Regional Water Plan (CRWP) (Opus Dayton Knight 2013) but request a summary of the long term source development and demand management projects that are being developed, including timelines, be provided in support of the Park Use Permit application. Also, are there any plans to scale back or decommission infrastructure at Chapman Lake once other sources are developed?
2. The following four comments (#3-6) relate to the uncertainties that exist regarding the future frequency, extent and duration of drawdown ("drawdown regime"). Uncertainty regarding drawdown regime is in turn related to uncertainties in future hydrology, climate, and downstream environmental flow needs. In a general sense, the following four comments are meant to demonstrate that important uncertainty exists regarding future drawdown regime, and thus conclusions regarding residual impacts are uncertain. Unless a specific request is made, no response is required to these comments, other than to acknowledge that future drawdown regime is uncertain and thus undesirable impacts may be more likely than suggested in the Chapman Lake EA.
3. Section 2 and Appendix A provide analyses of historical and current hydrology of the Chapman Creek watershed and how climate change may alter hydrology in the future. Our interpretation is that although existing data and climate models can be used to make predictions, important uncertainties remain regarding future hydrology and climate conditions, as outlined below.
 - a. The characterization of current hydrology in the Chapman Creek watershed and its capacity to meet future water demands is primarily based on analysis of water gauge data collected in the Chapman Creek watershed 1959 to 1988. More recent data analysis is limited to data collected since 2014 when remote monitoring and management of lake levels was implemented associated with the existing Chapman Lake dam. Thus the analysis may not fully reflect more recent changes in the hydrology of the watershed since the late 1980s.
 - b. The analysis presented suggests that uncertainties remain regarding how the Chapman Creek watershed will respond to climate change. For example, the analysis in Appendix A uses model predictions for the Metro Vancouver area extrapolated to the Sunshine Coast. To increase the potential accuracy of climate change predictions for the Chapman Creek watershed, Appendix A recommends a more detailed hydrological and hydraulic assessment of water balance in the watershed based on climate projection information, and comparison of local geographic and climate data to Metro Vancouver data to confirm the relevance of Metro Vancouver projections applied to Chapman Creek, although these analyses have not been done.

We request confirmation of whether or not the more detailed hydrological analyses as recommended in Appendix A will be done.

4. Although there is uncertainty regarding the future hydrology of Chapman Creek, generally the predictions related to climate change are smaller snowpack, longer and drier summers, and dry conditions that will extend further into the fall. In our June 8, 2016 comments we expressed concern about the potential for increased frequency of drought, and the associated increased frequency, extent and duration of drawdown, to cause long-term changes to the water table and recharge rates of Chapman Lake. The Chapman Lake EA does not provide analysis or discussion of this issue, other than to state that the recharge rate is fast, based on the fact that the lake went from almost -3m to full pool over 4.5 days of rainfall in the fall of 2015. However, it is unclear whether rapid recharge would continue with climate change and under repeated and prolonged drought and drawdown conditions. We request further discussion of the risk that the water table could be lowered over the long-term under more frequent drought and more frequent and extended large drawdown, and the associated risk of changes to recharge rates of Chapman Lake.
5. The analysis of fish habitat and environmental flow needs presented in Section 5.3.6 (p. 56) and Appendix G suggests that the current operating procedure of providing a minimum of 0.2 m³/s during low flows is adequate for rearing salmonids, but not consistently adequate for adult salmonids migrating upstream. The requirement to provide adequate flow for migrating adult salmonids in the future may increase future drawdown requirements and presents a source of uncertainty around predicting the future frequency and severity of drawdown of Chapman Lake. We are not requesting further analysis of this issue at this time other than acknowledgement that drawdowns of Chapman Lake could be larger and more frequent than assumed in the Chapman Lake EA. We are also interested in responses to additional questions raised by FLNRO regarding environmental flow needs.
6. Most of the conclusions regarding the residual effects of the operation of the Chapman Lake Project (as summarized in the Executive Summary and Table 28) are based on the assumption that drawdown below -3 m would be relatively infrequent and of short duration. However, our interpretation is that important uncertainties remain around the assumption of low frequency and short duration of large drawdowns, especially in the long-term. For example, if increased drawdown is required in the future to provide adequate flows for fish, large drawdowns may be more frequent and longer lasting than predicted, leading to larger than expected residual effects on environmental components in and around Chapman Lake. This in turn suggests that the conclusions of low to moderate residual effects associated with operation of the Chapman Lake project are also uncertain, and residual effects may be larger than predicted. Monitoring during operation will be required to detect impacts and develop mitigation/adaptive management, and a plan for monitoring during operation will need to be developed (see comment #28).
7. Section 6.3.1.2 (p. 69) provides assessment of residual effects on soil and vegetation during operation. The assessment considers the following potential impacts: exposure of shoreline and associated increased risk of erosion and sedimentation, and additional hydrological drawdown of wetlands during drought conditions. The Chapman Lake EA concludes that long term effects are not expected “given that these events are relatively infrequent and of short duration”. However, large drawdowns and associated impacts may be more frequent and longer in duration than suggested, especially in the longer-term. In addition, it is unknown whether or not multiple years of drought and large and extended drawdowns could lead to a long term lowering of the water table, which could have important impacts on vegetation. Thus it should be acknowledged that impacts are uncertain and may be greater than suggested in the Chapman Lake EA. We also request that wetland water levels and wetland vegetation be monitored during operation to detect potential impacts of drawdown and possible changes in water table.

8. The issue of sedimentation and potential for erosion, instability or bank failure of shoreline during large drawdown has not been clearly considered. For example, the analysis of sediment quality in Section 5.2.3 (p. 41) does not appear to include an analysis of sediment depth, which could influence bank stability. Section 6.5.1.2 (p. 77) states that concern has been expressed regarding instability of the deltas around major tributaries that flow into Chapman Lake, but concludes that a major movement of lake sediments is unlikely because the bathymetry of the lake is not steep in these areas. However, the potential for slope failures in other steeper areas of the lake bed does not appear to have been considered. The potential for rapid refilling of the lake during rain events to cause slope failures also does not appear to have been considered. We request additional analysis of the potential for sloughing of sediments during large or extended drawdown throughout all areas of the lake, and suggest involvement of a Geotechnical Engineer in this analysis.
9. Section 6.5.2.2 (p. 79-80) suggests that Dolly Varden in Chapman Lake will be resilient to potential impacts of operational drawdown on spawning because there are multiple age classes in the lake, i.e. if spawning is restricted in one year due to drought, there will be a cohort of spawners available to spawn the next year. However, drought events (even a 1:25 year drought) can occur more than one year in a row and drought events may become more frequent in the future due to climate change. Thus the potential for drawdown to negatively affect spawning may be greater than assumed in the Chapman Lake EA report. No response is required to this comment other than to acknowledge that risks of impacts to Dolly Varden are likely greater than expected and thus monitoring of Dolly Varden during operation will be required (see next comment).
10. Monitoring of the Dolly Varden population in Chapman Lake is required during operation to detect negative changes that could result from more frequent, longer and deeper drawdowns. It is not clear from the Chapman Lake EA if the data collected to date are sufficient to provide baseline to monitor changes in population over time. A monitoring program plan will need to be designed with appropriate methods and measurements that allow for detection of changes in the Dolly Varden population. The monitoring plan will identify if additional information needs to be collected pre and/or during construction. Monitoring will need to continue during operation to detect impacts and develop and implement mitigation as needed.
11. Section 6.5.2.1 (p. 79) states that full drawdown during construction is unlikely to negatively affect Dolly Varden because 2016 observations suggest that even a full -8m drawdown will not cause complete blockage of access to spawning creeks. In addition, the assessment assumes that Dolly Varden will spawn later in the fall when construction will be complete and Chapman Lake will be refilling. These assumptions regarding access to spawning streams and spawning timing need to be tested through additional life history study to determine when Dolly Varden spawn relative to lake refilling, and how timing may influence impacts from drawdown. For example, if spawner migration to stream spawning locations occurs prior to lake refilling, fish may have to migrate through channels in open mud flats exposing them to possible sedimentation and predation. At a minimum, monitoring of spawning access and timing should be initiated during the drawdown associated with the construction period. Better understanding of life history will help reduce uncertainty around potential impacts of drawdown during operation and will be useful for developing mitigation during operation.
12. Note that the Dolly Varden population at Chapman Lake is likely of high conservation value because it is a mono-culture headwater population of genetically isolated Dolly Varden. This type of population may be rare or even unique (additional review of existing information could determine how rare this type of population is). In addition, Dolly Varden are associated with cold water and may be at increased risk of population declines through climate change and more frequent drought events, even in the absence of artificial reservoir drawdowns. The Chapman Lake population may be particularly vulnerable as an isolated population with no incoming gene flow. All of the above increases the importance of monitoring to better understand and mitigate potential impacts of increasing frequency, duration and extent of drawdown during operation.



13. Section 6.4.4.2 (p. 73-74) discusses potential residual effects on Western Toad, even though there are no known observations of Western Toads in the Chapman Lake area. However, the presented analysis can be extrapolated to aquatic breeding amphibians generally, which are common and important in the wetlands surrounding Chapman Lake. The Chapman Lake EA suggests that potential residual effects on toads during operation will be minimal even under increased drawdown because lowest water levels will occur in late summer once the majority of tadpoles have gone through metamorphosis. This will not be true for neotenuous Northwestern Salamanders which spend their entire lives in the aquatic environment. Neotenuous salamanders have been observed in Chapman Lake tributaries and may occur in adjacent wetlands. Northern Pacific Treefrog tadpoles and Long-toed Salamander larvae were abundant in wetlands at the east end of the lake during late August 2016 field surveys, suggesting that tadpoles remain late in the season during typical low water periods. Also, there is the outstanding question regarding the potential for multiple years of drought and large drawdowns to lead to a long term lowering of the water table in the area, which could reduce suitable habitat for amphibians. Thus uncertainty remains regarding the extent of residual effects on amphibians.
14. Mercury and formation of methylmercury (Sections 5.3.1.4, 6.5.1.2):
 - a. Fish tissue sample results reported in Section 5.3.1.4 (p. 47-48) show total mercury in fish tissue was above the CCME and BC Tissue Residue Guidelines to Protect Wildlife from Mercury Toxicity in four of the five fish sampled. However, Section 5.3.1.4 states “there was no evidence during the 2016 field study to indicate that the elevated levels of mercury in the Dolly Varden of Chapman Lake was anything but natural.” We request more details explaining why the Chapman Lake EA came to this conclusion.
 - b. Tissue sampling for mercury was conducted to establish a baseline for comparison to samples collected in the future because of concern that increasing drawdown may lead to elevated levels of methylmercury in the food web. High levels of methylmercury are known to be generated in newly created reservoirs, but evidence also suggests that large drawdown in established reservoirs may also lead to increases in methylmercury formation (see Azimuth 2015, cited in the Chapman Lake EA). Discussion presented in Section 6.5.1.2 (p. 76-77) suggests that methylmercury formation related to drawdown is not a problem at Chapman Lake because it is much smaller, experiences less drawdown, and has less inundation of vegetation than Carpenter Lake, the reservoir studied in Azimuth (2015). However, Carpenter Lake is only one reservoir where elevated mercury levels have been potentially linked to water level fluctuations. References in Azimuth (2015) and elsewhere (e.g. Willacker *et al.* 2016 <http://dx.doi.org/10.1016/j.scitotenv.2016.03.050>) document studies that included a range of waterbody sizes and conditions (including smaller reservoirs and a range of drawdown regimes). These studies repeatedly showed relationships between water level fluctuations and increased mercury in fish. The 2016 tissue sample results for Chapman Lake combined with evidence in the literature suggests to us a possible link between elevated mercury levels in fish tissue and the existing drawdown regime in Chapman Lake. In addition, increasing drawdown in the future may exacerbate this problem. We recommend that fish tissue sampling be included in the monitoring program during operation.
 - c. Total mercury in the water column (which includes methylmercury) was well below water quality criteria (as reported in Section 6.5.1.2 and Appendix D). However, mercury accumulates in the sediment and this is primarily where methylmercury formation occurs. The sediments may be the source of higher than criteria levels of mercury observed in fish tissue. Analysis of metals (including mercury) in sediment should be included in future monitoring, including during the summer of construction to provide a baseline pre-operation.

15. The executive summary states that the intake for the pipe will have an invert elevation of 965.1 m but the April 2016 permit application identified an invert elevation of 966 m. Why this change?
16. Section 3.2 (p. 15): This section states that “in order to install the intake end of the pipe the lake may have to be drawn down below the -8m level depending on the type of coffer dam used.” What if drought conditions are experienced at this time when lake is already below -8 m? The schedule for construction and choice of coffer dam used must be designed to minimize the duration of deep and maximum (-8 m) drawdown as much as possible.
17. Section 5.0: The data collected during the 2016 field assessment and the details of sampling methods and sampling locations will be required to allow for comparison with future field assessments and data (i.e. to monitor environmental change and impacts). Most of this information appears to be included in the Chapman Lake EA and its appendices. Digital versions of spatial data files for sampling locations, occurrence records, Terrestrial Ecosystem Mapping (TEM), etc. will also be needed. Please confirm that SCRD has been or will be provided with digital spatial data (including TEM polygons) and any other raw data/sampling information required for future monitoring.
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- Engineer the pool with the objective that fish enter and exit the pool safely;
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28. Monitoring (sections including 6.5.2.4 [p. 81-82] and 7.0 [operation EMP, p. 86]): Monitoring for effects on key values during construction and operation is proposed several times in the Chapman Lake EA. We support these recommendations. A detailed monitoring plan will need to be developed prior to construction, and BC Parks will require review and approval of these plans as part of the Park Use Permit. As stated previously in these comments, the future frequency, extent and duration of drawdowns are uncertain, which means residual effects are also uncertain. Monitoring will allow for testing of assumptions regarding residual effects, detection of negative impacts, and implementation of mitigation and adaptive management to reduce negative impacts. Key effects and values to be monitored include:
- Dolly Varden: spawning timing and access; population condition; tissue sampling; changes to habitat quality and quantity
 - Effects of drawdown on the water table and wetlands, including wetland vegetation (Sitka sedge/peat mosses [Fen]) and amphibians
 - Water and sediment quality, including monitoring for sloughing of exposed sediments
 - Aquatic vegetation
29. Also related to monitoring, it is not clear that the data collected in 2016 is suitable and sufficient to allow for future comparative monitoring relative to pre-construction conditions. For example, sampling of aquatic vegetation as described in Section 5.3.5 (p. 55-56) is qualitative. Qualitative assessments tend to be hard to repeat and detect only major changes. Monitoring must be designed to be quantitative and repeatable to allow for detection of changes during operation. Using the aquatic vegetation example, long-term monitoring of cover and species composition on transects or plots would provide quantitative data. Monitoring during the construction year must be designed to provide data that can be used for the long-term monitoring plan.

BC Parks Comments re: the Chapman Lake Water Supply Expansion Project Environmental Assessment

Thursday, October 12, 2017
7:50 AM

Subject	BC Parks Comments re: the Chapman Lake Water Supply Expansion Project Environmental Assessment
From	Aikman, Jennie S ENV:EX
To	Janette Loveys
Cc	Dave Crosby; Rosenboom, Remko FLNR:EX; Galand, Lise FLNR:EX; Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX
Sent	Friday, March 24, 2017 6:06 PM
Attachments	 Ltr to SCRD re BC Park...  BC Parks Comments...

Hi Janette,

Please see the attached letter and summary of our comments on the *Chapman Lake Water Supply Expansion Project Environmental Assessment* report submitted in January 2017.

With kind regards,
Jennie

Jennie Aikman
Regional Director
South Coast Region, BC Parks
Ministry of Environment
Office phone: (604) 924-2227
Cell phone: (778) 875-8494



File Number: PUP #102714/Tetrahedron Park

March 24, 2017

VIA EMAIL

Janette Loveys
Chief Administrative Officer
Sunshine Coast Regional District
1975 Field Road
Sechelt, BC V0N 3A1

Dear Janette,

RE: BC Parks Comments on the *Chapman Lake Water Supply Expansion Project Environmental Assessment Report (AECOM 2016)*

Please accept the attached summary of comments from BC Parks regarding the *Chapman Lake Water Supply Expansion Project Environmental Assessment* report dated November 2016, prepared by AECOM for the Sunshine Coast Regional District (SCRD) and submitted to BC Parks on January 30, 2017.

The environmental assessment report is substantially complete; however in addition to providing the comments on the report's findings, we are requesting some additional information in the attached summary. We are requesting a response by May 5th, 2017.

Please let me know if you have any questions.

Sincerely,

Jennie Aikman
Regional Director
South Coast Region, BC Parks

cc Dave Crosby, Manager of Utility Services, SCR
Remko Rosenboom, Manager Water Authorizations, FLNRO
Lise Galand, Senior Aquatic Ecologist, FLNRO
Rod Dalziel, Area Supervisor Sunshine Coast, BC Parks
Joanna Hirner, Conservation Specialist, South Coast Region, BC Parks

Ministry of Environment
BC Parks and Conservation Officer Service Division
South Coast Region

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1610 Menzies Street
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BC Parks Comments *Chapman Lake Water Supply Expansion Project Environmental Assessment Report (AECOM 2016)*

Comments prepared by Joanna Hirner, Registered Professional Biologist, Conservation Specialist, South Coast Region, BC Parks
March 24, 2017

In these comments the Water Supply Expansion project is referred to as the 'Chapman Lake Project' and the Environmental Assessment report as the 'Chapman Lake EA':

1. In our June 8, 2016 comments we requested additional information regarding the background and rationale for undertaking the Chapman Lake Project, as well as additional description of other water supply and demand management options considered. Demand management and development of other water sources are of interest because they will reduce future dependence on Chapman Lake water and allow greater flexibility to manage drawdown to protect values at Chapman Lake. Section 1 and 2 of the Chapman Lake EA provide additional details regarding the rationale, but description of other supply and demand management options considered and proposed for the future is still lacking. We assume this type of information is available in the Comprehensive Regional Water Plan (CRWP) (Opus Dayton Knight 2013) but request a summary of the long term source development and demand management projects that are being developed, including timelines, be provided in support of the Park Use Permit application. Also, please address if there any plans to scale back or decommission infrastructure at Chapman Lake once other sources are developed.
2. The following four comments (#3-6) relate to the uncertainties that exist regarding the future frequency, extent and duration of drawdown ("drawdown regime"). Uncertainty regarding drawdown regime is in turn related to uncertainties in future hydrology, climate, and downstream environmental flow needs. In a general sense, the following four comments are meant to demonstrate that important uncertainty exists regarding future drawdown regime, and thus conclusions regarding residual impacts are uncertain. Unless a specific request is made, no response is required to these comments, other than to acknowledge that future drawdown regime is uncertain.
3. Section 2 and Appendix A provide analyses of historical and current hydrology of the Chapman Creek watershed and how climate change may alter hydrology in the future. Our interpretation is that although existing data and climate models can be used to make predictions, important uncertainties remain regarding future hydrology and climate conditions, as outlined below.
 - a. The characterization of current hydrology in the Chapman Creek watershed and its capacity to meet future water demands is primarily based on analysis of water gauge data collected in the Chapman Creek watershed 1959 to 1988. More recent data analysis is limited to data collected since 2014 when remote monitoring and management of lake levels was implemented associated with the existing Chapman Lake dam. Thus the analysis may not fully reflect more recent changes in the hydrology of the watershed since the late 1980s.
 - b. The analysis presented suggests that uncertainties remain regarding how the Chapman Creek watershed will respond to climate change. For example, the analysis in Appendix A uses model predictions for the Metro Vancouver area extrapolated to the Sunshine Coast. To increase the potential accuracy of climate change predictions for the Chapman Creek watershed, Appendix A recommends a more detailed hydrological and hydraulic assessment of water balance in the watershed based on climate projection information, and comparison of local geographic and climate data to Metro Vancouver data to confirm the relevance of Metro Vancouver projections applied to Chapman Creek, although these analyses have not been done. We request

confirmation of whether or not the more detailed hydrological analyses as recommended in Appendix A will be done.

4. Although there is uncertainty regarding the future hydrology of Chapman Creek, generally the predictions related to climate change are smaller snowpack, longer and drier summers, and dry conditions that will extend further into the fall. In our June 8, 2016 comments we expressed concern about the potential for increased frequency of drought, and the associated increased frequency, extent and duration of drawdown, to cause long-term changes to the water table and recharge rates of Chapman Lake. The Chapman Lake EA does not provide analysis or discussion of this issue, other than to state that the recharge rate is fast, based on the fact that the lake went from almost -3m to full pool over 4.5 days of rainfall in the fall of 2015. However, it is unclear whether rapid recharge would continue with climate change and under repeated and prolonged drought and drawdown conditions. We request further discussion of the risk that the water table could be lowered over the long-term under more frequent drought and more frequent and extended large drawdown, and the associated risk of changes to recharge rates of Chapman Lake.
5. The analysis of fish habitat and environmental flow needs presented in Section 5.3.6 (p. 56) and Appendix G suggests that the current operating procedure of providing a minimum of 0.2 m³/s during low flows is adequate for rearing salmonids, but not consistently adequate for adult salmonids migrating upstream. The requirement to provide adequate flow for migrating adult salmonids in the future may increase future drawdown requirements and presents a source of uncertainty around predicting the future frequency and severity of drawdown of Chapman Lake. We are not requesting further analysis of this issue at this time other than acknowledgement that drawdowns of Chapman Lake could be larger and more frequent than assumed in the Chapman Lake EA. We are also interested in responses to additional questions raised by FLNRO regarding environmental flow needs.
6. Most of the conclusions regarding the residual effects of the operation of the Chapman Lake Project (as summarized in the Executive Summary and Table 28) are based on the assumption that drawdown below -3 m would be relatively infrequent and of short duration. However, our interpretation is that important uncertainties remain around the assumption of low frequency and short duration of large drawdowns, especially in the long-term. For example, if increased drawdown is required in the future to provide adequate flows for fish, large drawdowns may be more frequent and longer lasting than predicted, leading to larger than expected residual effects on environmental components in and around Chapman Lake. This in turn suggests that the conclusions of low to moderate residual effects associated with operation of the Chapman Lake project are also uncertain, and residual effects may be larger than predicted. Monitoring during operation will be required to detect impacts and develop mitigation/adaptive management, and a plan for monitoring during operation will need to be developed (see comment #28).
7. Section 6.3.1.2 (p. 69) provides assessment of residual effects on soil and vegetation during operation. The assessment considers the following potential impacts: exposure of shoreline and associated increased risk of erosion and sedimentation, and additional hydrological drawdown of wetlands during drought conditions. The Chapman Lake EA concludes that long term effects are not expected "given that these events are relatively infrequent and of short duration". However, large drawdowns and associated impacts may be more frequent and longer in duration than suggested, especially in the longer-term. In addition, it is unknown whether or not multiple years of drought and large and extended drawdowns could lead to a long term lowering of the water table, which could have important impacts on vegetation. Thus it should be acknowledged that impacts are uncertain and may be greater than suggested in the Chapman Lake EA. We also request that wetland water levels and wetland vegetation be monitored during operation to detect potential impacts of drawdown and possible changes in water table.

8. The issue of sedimentation and potential for erosion, instability or bank failure of shoreline during large drawdown has not been clearly considered. For example, the analysis of sediment quality in Section 5.2.3 (p. 41) does not appear to include an analysis of sediment depth, which could influence bank stability. Section 6.5.1.2 (p. 77) states that concern has been expressed regarding instability of the deltas around major tributaries that flow into Chapman Lake, but concludes that a major movement of lake sediments is unlikely because the bathymetry of the lake is not steep in these areas. However, the potential for slope failures in other steeper areas of the lake bed does not appear to have been considered. The potential for rapid refilling of the lake during rain events to cause slope failures also does not appear to have been considered. We request additional analysis of the potential for sloughing of sediments during large or extended drawdown throughout all areas of the lake, and suggest involvement of a Geotechnical Engineer in this analysis.
9. Section 6.5.2.2 (p. 79-80) suggests that Dolly Varden in Chapman Lake will be resilient to potential impacts of operational drawdown on spawning because there are multiple age classes in the lake, i.e. if spawning is restricted in one year due to drought, there will be a cohort of spawners available to spawn the next year. However, drought events (even a 1:25 year drought) can occur more than one year in a row and drought events may become more frequent in the future due to climate change. Thus the potential for drawdown to negatively affect spawning may be greater than assumed in the Chapman Lake EA report. No response is required to this comment other than to acknowledge that risks of impacts to Dolly Varden are likely greater than expected and thus monitoring of Dolly Varden during operation will be required (see next comment).
10. Monitoring of the Dolly Varden population in Chapman Lake is required during operation to detect negative changes that could result from more frequent, longer and deeper drawdowns. It is not clear from the Chapman Lake EA if the data collected to date are sufficient to provide baseline to monitor changes in population over time. A monitoring plan will need to be developed prior to construction, and designed with appropriate methods and measurements that allow for detection of changes in the Dolly Varden population. The monitoring plan will identify if additional information needs to be collected pre and/or during construction. Monitoring will need to continue during operation to detect impacts and develop and implement mitigation as needed.
11. Section 6.5.2.1 (p. 79) states that full drawdown during construction is unlikely to negatively affect Dolly Varden because 2016 observations suggest that even a full -8m drawdown will not cause complete blockage of access to spawning creeks. In addition, the assessment assumes that Dolly Varden will spawn later in the fall when construction will be complete and Chapman Lake will be refilling. These assumptions regarding access to spawning streams and spawning timing need to be tested through additional life history study to determine when Dolly Varden spawn relative to lake refilling, and how timing may influence impacts from drawdown. For example, if spawner migration to stream spawning locations occurs prior to lake refilling, fish may have to migrate through channels in open mud flats exposing them to possible sedimentation and predation. At a minimum, monitoring of spawning access and timing should be initiated during the drawdown associated with the construction period. Better understanding of life history will help reduce uncertainty around potential impacts of drawdown during operation and will be useful for developing mitigation during operation.
12. Note that the Dolly Varden population at Chapman Lake is likely of high conservation value because it is a mono-culture headwater population of genetically isolated Dolly Varden. This type of population may be rare or even unique (additional review of existing information could determine how rare this type of population is). In addition, Dolly Varden are associated with cold water and may be at increased risk of population declines through climate change and more frequent drought events, even in the absence of artificial reservoir drawdowns. The Chapman Lake population may be particularly vulnerable as an isolated population with no incoming gene flow. All of the above increases the importance of monitoring to better understand and mitigate potential impacts of increasing frequency, duration and extent of drawdown during operation.


13. Section 6.4.4.2 (p. 73-74) discusses potential residual effects on Western Toad, even though there are no known observations of Western Toads in the Chapman Lake area. However, the presented analysis can be extrapolated to aquatic breeding amphibians generally, which are common and important in the wetlands surrounding Chapman Lake. The Chapman Lake EA suggests that potential residual effects on toads during operation will be minimal even under increased drawdown because lowest water levels will occur in late summer once the majority of tadpoles have gone through metamorphosis. This will not be true for neotenuous Northwestern Salamanders which spend their entire lives in the aquatic environment. Neotenuous salamanders have been observed in Chapman Lake tributaries and may occur in adjacent wetlands. Northern Pacific Treefrog tadpoles and Long-toed Salamander larvae were abundant in wetlands at the east end of the lake during late August 2016 field surveys, suggesting that tadpoles remain late in the season during typical low water periods. Also, there is the outstanding question regarding the potential for multiple years of drought and large drawdowns to lead to a long term lowering of the water table in the area, which could reduce suitable habitat for amphibians. Thus uncertainty remains regarding the extent of residual effects on amphibians.
14. Mercury and formation of methylmercury (Sections 5.3.1.4, 6.5.1.2):
 - a. Fish tissue sample results reported in Section 5.3.1.4 (p. 47-48) show total mercury in fish tissue was above the CCME and BC Tissue Residue Guidelines to Protect Wildlife from Mercury Toxicity in four of the five fish sampled. However, Section 5.3.1.4 states "there was no evidence during the 2016 field study to indicate that the elevated levels of mercury in the Dolly Varden of Chapman Lake was anything but natural." We request more details explaining why the Chapman Lake EA came to this conclusion.
 - b. Tissue sampling for mercury was conducted to establish a baseline for comparison to samples collected in the future because of concern that increasing drawdown may lead to elevated levels of methylmercury in the food web. High levels of methylmercury are known to be generated in newly created reservoirs, but evidence also suggests that large drawdown in established reservoirs may also lead to increases in methylmercury formation (see Azimuth 2015, cited in the Chapman Lake EA). Discussion presented in Section 6.5.1.2 (p. 76-77) suggests that methylmercury formation related to drawdown is not a problem at Chapman Lake because it is much smaller, experiences less drawdown, and has less inundation of vegetation than Carpenter Lake, the reservoir studied in Azimuth (2015). However, Carpenter Lake is only one reservoir where elevated mercury levels have been potentially linked to water level fluctuations. References in Azimuth (2015) and elsewhere (e.g. Willacker *et al.* 2016 <http://dx.doi.org/10.1016/j.scitotenv.2016.03.050>) document studies that included a range of waterbody sizes and conditions (including smaller reservoirs and a range of drawdown regimes). These studies repeatedly showed relationships between water level fluctuations and increased mercury in fish. The 2016 tissue sample results for Chapman Lake combined with evidence in the literature suggests to us a possible link between elevated mercury levels in fish tissue and the existing drawdown regime in Chapman Lake. In addition, increasing drawdown in the future may exacerbate this problem. We recommend that fish tissue sampling be included in the monitoring program during operation.
 - c. Total mercury in the water column (which includes methylmercury) was well below water quality criteria (as reported in Section 6.5.1.2 and Appendix D). However, mercury accumulates in the sediment and this is primarily where methylmercury formation occurs. The sediments may be the source of higher than criteria levels of mercury observed in fish tissue. Analysis of metals (including mercury) in sediment should be included in future monitoring, including during the summer of construction to provide a baseline pre-operation.

15. The executive summary states that the intake for the pipe will have an invert elevation of 965.1 m but the April 2016 permit application identified an invert elevation of 966 m. Please explain the change.
16. Section 3.2 (p. 15): This section states that “in order to install the intake end of the pipe the lake may have to be drawn down below the -8m level depending on the type of coffer dam used.” Has consideration been given to a possible situation where drought conditions are experienced at this time when lake is already below -8 m? The schedule for construction and choice of coffer dam used must be designed to minimize the duration of deep and maximum (-8 m) drawdown as much as possible.
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RE: BC Parks Comments re: the Chapman Lake Water Supply Expansion Project Environmental Assessment

Monday, October 16, 2017
12:27 PM

Subject	RE: BC Parks Comments re: the Chapman Lake Water Supply Expansion Project Environmental Assessment
From	Rosenboom, Remko FLNR:EX
To	Janette Loveys
Cc	Dave Crosby; Galand, Lise FLNR:EX; Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX; S ENV:EX
Sent	Monday, March 27, 2017 8:07 AM
Attachments	 Chapman Lake EA_2...

Hi Janette,

Please find attached the comments to the *Chapman Lake Water Supply Expansion Project Environmental Assessment* report submitted in January 2017 in support of licence application for additional storage on Chapman lake. Please note that it provides guidance on a Flow Management Strategy for Chapman Creek for

Kind Regards,
Remko



Manager Water Authorizations
South Coast Natural Resource Region
Ministry of Forests, Lands and Natural Resource Operations

Office: 604-586- 2803
Assistant: 604-586-5626

Email: remko.rosenboom@gov.bc.ca
www.gov.bc.ca/water

Our Vision: Economic prosperity and environmental sustainability

From: Aikman, Jennie S ENV:EX
Sent: Friday, March 24, 2017 6:06 PM
To: Janette Loveys
Cc: Dave Crosby; Rosenboom, Remko FLNR:EX; Galand, Lise FLNR:EX; Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX
Subject: BC Parks Comments re: the Chapman Lake Water Supply Expansion Project Environmental Assessment

Hi Janette,

Please see the attached letter and summary of our comments on the *Chapman Lake Water Supply Expansion Project Environmental Assessment* report submitted in January 2017.

With kind regards,
Jennie

Jennie Aikman



March 24, 2017

File 2005157

Janette Loveys
Chief Administrative Officer
Sunshine Coast Regional District
1975 Field Road, Sechelt, BC, V0N 3A1

Re: FLNRO Comments on Chapman Lake Water Supply Expansion Project Environmental Assessment Report (AECOM 2016)

Dear Janette Loveys,

My staff and I have reviewed the report provided to Sunshine Coast Regional District (SCRD) by AECOM: *Chapman Lake Water Supply Expansion Project Environmental Assessment* dated, November 2016, (hereafter referred to as the 'Chapman Lake EA').

We have provided the following questions/comments regarding the Chapman Lake EA:

1. Section 2.1 (page 7) indicates that; "The current operating procedure is to maintain at least 0.3 m³/s in the creek below the water intake for the water treatment plant under normal conditions, and 0.2 m³/s under low flow conditions. The amount released from Chapman Lake is determined by the amount of flow measured at the stream flow gauge located downstream of the SCRД water intake." How will low flow releases change (increase) to accommodate adult pink salmon migration and spawning? How will the increase in water demand during adult pink migration and spawning impact the water demand?
2. Section 2.1 (page 7) indicates; "The fish hatchery located downstream of the SCRД intake also has a water licence on Chapman Creek, and it typically uses up to 0.1 m³/s of the instream flow but their water licence allows them to take a maximum of 0.28 m³/s." If the hatchery demand is increased in the future (i.e., to the fully licensed amount of 0.28 m³/s), how will this potential increase in hatchery demand be accounted for?
3. Section 2.2 (page 8) states; "Chapman Lake watershed is just 8.6 km² (13%) of the entire watershed captured by Station 08GA060 of 64.5 km²". Estimated flows into Chapman Creek in tables 1 and 2 were based on this Chapman Lake watershed area. However, Section 5.2.1 (page 36) indicates that the catchment area of the lake is 6.58 km² which equates to roughly 10% of the watershed captured by Station 08GA060 and would alter the calculations in tables 1 and 2, thereby reducing the total available water in Chapman Lake from June 1 to Sept 30. Please explain the difference between the definitions of watershed area and catchment area for Chapman Lake.

4. Section 2.3 (page 10) states; “The current project to access additional water from Chapman Lake was developed to address this short fall over the short term, while additional sources of drinking water were developed.” Please define “short term” in this case. What additional sources of drinking water are being developed?
5. Section 2.4 states; “The predicted values used here are not expected to be reached until 2050”, indicating that the estimated 19% reduction in rainfall is not expected to be reached until 2050, but what about potential incremental reductions in rainfall in the next 10 to 20 years? How will potential incremental reductions in rainfall in the next 10-20 years reduce the available water during the low flow months?
6. Section 6.5.2.3 (Pages 80, 81), “Summary of Residual Effects” indicate that most effects are expected to be low because lake drawdown is only expected to happen infrequently. The confidence in these ratings is only ‘Moderate’ due to the uncertainty in the frequency of drought conditions that will require a drawdown of 8m. It is also stated that “Any effect on the Dolly Varden population in a drought year would be offset by spawning the following year.” Given the aforementioned uncertainty in the frequency of drought conditions, isn’t it possible to have consecutive drought years which would indicate that the effects on the DV populations would not be offset? What would be the impacts to the DV population over consecutive drought years?
7. Section 7 (page 85), The Emergency Management Plan (EMP) should also include the proposed monitoring and follow-up measures provided in section 6.5.2.4.
8. There are discrepancies between the ‘Geographic Extent’ and ‘Overall Impact’ ratings for Aquatic resources in the table presented in the Executive Summary (page ix) and Table 28 (page 89). Please make the appropriate corrections.
9. Page 80; “The project should not result in any change in the populations of Dolly Varden in Chapman Lake or downstream in Chapman Creek.” How will AECOM be able to detect a change in the DV fish population based on the information collected thus far? What methods will be used to monitor change in the DV population over time?
10. Section 6.5.2.4 recommends a study during construction to confirm the findings of the Chapman Lake EA and assess fish and fish habitat around the lake and in the tributaries, including fish access as well as follow-up monitoring of the indicators of effects of the project on fish and fish habitat. We agree that further monitoring should be conducted throughout the project to adequately assess and mitigate any potential impacts to fish and fish habitat.

11. We have mentioned in our previous comments of September 16, 2016, that we are concerned about how the lake drawdown will impact the water table. Is it possible that the water table could be permanently lowered as a result of combined impacts from lake drawdown and multiple years of drought conditions? Is there potential for prolonged lowering of the water table as a result of this project?

Please provide a response to these comments by May 5, 2017.

Summer 2017 Flow Management Strategy in Chapman Creek

In addition to the above questions/comments, we agree with the comment provided by fisheries biologist Dr. Dave Bates in his letter dated January 20, 2017, directed to SCRD, which states; “there should be an expectation that the response in the river and habitat changes below the intake will be monitored. In particular, the response of upstream migrating adult Pink Salmon.”

Given that 2017 is a peak year for pink salmon returns, it is important to determine an effective flow management strategy for Chapman Creek to facilitate pink spawning in August and September.

As mentioned in a previous email to the SCRD (dated December 9, 2016), it appears that Environmental Flow Needs (EFN) of 0.20 or 0.22 cms are acceptable for rearing salmonids; however, these flows are not adequate for migration of spawning Pink or early-run Coho salmon. Consequently, further work is needed to;

- Propose an all year round EFN that would allow for the adequate migration of salmonids, or
- Propose a detailed Flow Management Plan focused on the migration of salmonids or;
- A combination of an increased EFN and an Flow Management Plan (FMP) during the migration period.

If a FMP is developed, it should include;

- The target flow requirements and rationale to allow for adequate migration of salmonids;
- Details regarding monitoring for all three reaches during low flows to ensure returning fish have adequate flow and depth to facilitate migration through all reaches;
- Adaptive management measures (e.g., planned water releases for years with high pink salmon returns);
- Any possible implications from planned water releases (e.g., ramping during peak pink years and their associated mitigation measures);
- Details regarding implementation and effectiveness monitoring and reporting to ensure that the flow management plan is implemented correctly and meets the needs of the impacted species in Chapman Creek.

This recommendation was also supported by fisheries biologist Dr. Dave Bates in his letter of January 20, 2017 to SCRD where he indicated that “a ‘plan’ to address returning adult pink salmon must be developed ASAP. It is this population that is the most susceptible.”

In order for a Chapman Creek Flow Management Plan to be implemented prior to the peak pink salmon run this year, we need to receive a draft plan for our review by May 15th, 2017 and a finalized plan by July 15th, 2017.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Remko', with a long horizontal stroke extending to the right.

Remko Rosenboom
Manager Water Authorizations

cc: Dave Crosby, Manager of Utility Services, Sunshine Coast Regional District
Jennie Aikman, Regional Director, South Coast Region BC Parks
Joanna Hirner, Conservation Specialist, South Coast Region BC Parks
Lise Galand, Senior Aquatic Ecologist, Ministry of Forests, Lands and Natural Resource Operations

RE: BC Parks Comments re: the Chapman Lake Water Supply Expansion Project Environmental Assessment

Monday, October 16, 2017
12:29 PM

Subject	RE: BC Parks Comments re: the Chapman Lake Water Supply Expansion Environmental Assessment
From	Janette Loveys
To	Aikman, Jennie S ENV:EX
Cc	Dave Crosby; Rosenboom, Remko FLNR:EX; Galand, Lise FLNR:EX; Hirner, Joanna ENV:EX; I
Sent	Monday, March 27, 2017 8:59 AM

Good Morning Jennie,

I acknowledge receipt of your email.

Thank you, Janette

Janette Loveys
Chief Administrative Officer
Sunshine Coast Regional District
1975 Field Road Sechelt, BC V0N 3A1
Phone: 604-885-6811
Fax: 604-885-7909

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From: Aikman, Jennie S ENV:EX [<mailto:Jennie.Aikman@gov.bc.ca>]
Sent: Friday, March 24, 2017 6:06 PM
To: Janette Loveys <Janette.Loveys@scrd.ca>
Cc: Dave Crosby <Dave.Crosby@scrd.ca>; Rosenboom, Remko FLNR:EX <Remko.Rosenboom@gov.bc.ca>; Galand, Lise FLNR:EX <Lise.Galand@gov.bc.ca> ENV:EX <Joanna.Hirner@gov.bc.ca>; Dalziel, Rod ENV:EX <Rod.Dalziel@gov.bc.ca>
Subject: BC Parks Comments re: the Chapman Lake Water Supply Expansion Project Environmental Assessment

Hi Janette,

Please see the attached letter and summary of our comments on the *Chapman Lake Water Supply Expansion Project Environmental Assessment* report submitted in January 2017.

With kind regards,
Jennie

Jennie Aikman
Regional Director
South Coast Region, BC Parks
Ministry of Environment
Office phone: (604) 924-2227
Cell phone: (778) 875-8494

RE: FLNRO Comments re: the Chapman Lake Water Supply Expansion Project

Monday, October 16, 2017
3:40 PM

Subject	RE: FLNRO Comments re: the Chapman Lake Water Supply Expansion Project
From	Janette Loveys
To	Rosenboom, Remko FLNR:EX
Cc	Dave Crosby; Galand, Lise FLNR:EX; Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX
Sent	Monday, March 27, 2017 9:02 AM

Good Morning Remko,

Thank you for your email.

We will get back to you with any questions we might have.

Janette Loveys
Chief Administrative Officer
Sunshine Coast Regional District
1975 Field Road Sechelt, BC V0N 3A1
Phone: 604-885-6811
Fax: 604-885-7909

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From: Rosenboom, Remko FLNR:EX [<mailto:Remko.Rosenboom@gov.bc.ca>]
Sent: Monday, March 27, 2017 8:10 AM
To: Janette Loveys <Janette.Loveys@scrd.ca>
Cc: Dave Crosby <Dave.Crosby@scrd.ca>; Galand, Lise FLNR:EX <Lise.Galand@gov.bc.ca>; Hirner, Joanna ENV:EX <Joanna.Hirner@gov.bc.ca>; Dalziel, Rod ENV:EX <Rod.Dalziel@gov.bc.ca>; Aikman, Jennie S ENV:EX <Jennie.Aikman@gov.bc.ca>
Subject: FLNRO Comments re: the Chapman Lake Water Supply Expansion Project

Hi Janette,

Please ignore and delete the email I send a few minutes ago as I was send in error. Sorry for this inconvenience.

Please find attached the comments to the *Chapman Lake Water Supply Expansion Project Environmental Assessment* report submitted in January 2017 in support of your water licence application for additional storage on Chapman lake. Please note that this letter also provides guidance on a Flow Management Strategy for Chapman Creek for this summer.

Kind Regards,
Remko



Manager Water Authorizations
South Coast Natural Resource Region
Ministry of Forests, Lands and Natural Resource Operations


Office: 604-586- 2803
Assistant: 604-586-5626

Email: remko.rosenboom@gov.bc.ca
www.gov.bc.ca/water

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RE: Request for Park Use Permit - SCRD (FOI)

Friday, October 13, 2017
1:00 PM

Subject	RE: Request for Park Use Permit - SCRD (FOI)
From	Dalziel, Rod ENV:EX
To	Anderson, Wade R ENV:EX
Cc	Aikman, Jennie S ENV:EX
Sent	Wednesday, March 29, 2017 3:31 PM
Attachments	 PUP #102714

OK..

Jennie: are we able to share the current active PUP (which is the attached siphon amendment permit with the temp siphon expiry of 06 Sept Aug 2016) with **s.22**

Rod Dalziel

Sunshine Coast Area Supervisor
 BC Parks - South Coast Region - Ministry of Environment
 PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
 Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
Rod.Dalziel@gov.bc.ca
 Visit the BC Parks website @ bcparks.ca



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From: Anderson, Wade R ENV:EX
Sent: Wednesday, March 29, 2017 3:20 PM
To: Dalziel, Rod ENV:EX; Coupar, Meghan FLNR:EX
Cc: Hillyer, Tammy FLNR:EX; Aikman, Jennie S ENV:EX
Subject: RE: Request for Park Use Permit - SCRD (FOI)

Please clear with Jennie before providing the permit

Wade R. Anderson

Parks and Protected Areas Section Head
 South Coast Region
 BC Parks
 Telephone: (604) 898-3678 (ext 2232)
 Mobile: (604) 848-5472
 Fax: (604) 898-4171
 Email: Wade.Anderson@gov.bc.ca
 BC Parks Website: www.gov.bc.ca/bcparks



From: Dalziel, Rod ENV:EX
Sent: Wednesday, March 29, 2017 3:18 PM
To: Coupar, Meghan FLNR:EX; Anderson, Wade R ENV:EX
Cc: Hillyer, Tammy FLNR:EX
Subject: RE: Request for Park Use Permit - SCRD (FOI)

Thanks, Meghan.

I will contact s.22 and provide the current active permit.

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca



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From: Coupar, Meghan FLNR:EX
Sent: Wednesday, March 29, 2017 12:41 PM
To: Anderson, Wade R ENV:EX
Cc: Dalziel, Rod ENV:EX; Hillyer, Tammy FLNR:EX
Subject: Request for Park Use Permit - SCRD (FOI)
Importance: High

Hi Wade and Rod,

I spoke to a s.22 yesterday, he is requesting a copy of the Sunshine Coast Regional District's (SCRD) Park Use Permit – Authorization #102714.

Below is the information received from s.22 (Mar 28):

- s.22
- Trying to get a copy of the SCRD Park Use Permit. He has tried to obtain a copy directly from SCRD and they are not willing to provide him with a copy.
- s.22 has also tried to contact the Area Supervisor – Rod Dalziel but has not received a call or email back from Rod to date.
*FYI s.22 first call to me was on Friday March 24th and I see Rod you have been out of the office 5 days so you may not have received any of s.22 requests. I have advised s.22 that you are currently away, so he is aware.
- Doesn't understand why no one is willing to provide a copy of this permit. He has indicated that he will escalate this to higher ups if necessary but doesn't want to take that route.

I've looked into this permit in EPUPS, it is currently in a **Major Amendment (Draft Permit stage) and is unsigned.**

I have been advised by Carol that this type of request would go to the Area Supervisor or Section Head, this may require an FOI if they require a copy of the Draft Amendment Permit
(I think the current permit is ok to release without an FOI to the best of my understanding).

Contact Information:

s.22

Phone s.22

If you have any questions please let me know.

I tol:s.22 I would get back to him today, I will advise him that the request is with you Wade and Rod for follow up.

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Sections

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Ministry of
Environment

PARK USE PERMIT

LAND USE / OCCUPANCY

This Park Use Permit No. **102714** (the "Permit") is issued under the authority of the *Park Act*

(the "Park")

See "Management Plan Schedule, Permit Area Description" for a complete list of Parks and Protected Areas

FROM:
HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA, represented by the Minister responsible for the *Park Act* (the "Province") at the following address:

TO:

Sunshine Coast Regional District

(the "Permittee") at the following address:

**Ministry of Environment
BC Parks
South Coast Region
200 - 10470 - 152nd Street
Surrey BC V3R 0Y3**

**1975 Field RD
Sechelt, BC V0N 3A1**

THE PROVINCE AND THE PERMITTEE AGREE AS FOLLOWS:

ARTICLE I - GRANT OF PERMIT

- 1.01 The Province, on the terms and conditions of this Permit, grants to the Permittee permission to enter upon and use that part of the Park (the "Permit Area") described, and for the purposes described, in the Management Plan Schedule.

ARTICLE II - TERM

- 2.01 The duration of this Permit is for a term of **10 years** commencing on **February 1, 2014** (the "Commencement Date") and ending on **January 31, 2024** (the "Expiration Date"), unless cancelled, terminated or renewed in accordance with the terms and conditions of this Permit.

ARTICLE III - FEES

- 3.01 The Permittee must pay to the Province a minimum fee (the "Permit Fee") of **\$500.00 (plus applicable taxes)** prior to Commencement date and on each anniversary of the commencement date during the term of this Permit.
- 3.02 The Province may, by notice to the Permittee not less than 30 days prior to each anniversary of the Commencement Date, increase the Permit Fee to an amount solely determined by the Province at its discretion, and the Permittee must pay the increased amount.
- 3.03 The Permittee must pay interest to the Province on money payable by the Permittee and owing to the Province under this Permit, at the rate of interest prescribed by the *Financial Administration Act* in respect of money owing to the Province, which interest will be calculated from the date that the money becomes payable to the Province.

ARTICLE IV - INDEMNITY

- 4.01 The Permittee will indemnify and save harmless the Province, its servants, employees and agents against all losses, claims, damages, actions, costs and expenses that the Province, its servants, employees and agents may sustain, incur, suffer or be put to at any time arising, directly or indirectly, from any act or omission of the Permittee, its employees, agents, contractors and licensees under this Permit, except for any liability arising from any independent, negligent act of the Province.

ARTICLE V – SECURITY AND INSURANCE

- 5.01 On the Commencement Date, you will deliver to us Security in the amount of **\$0.00** which will:
- (a) guarantee the performance of your obligations under this Permit;
 - (b) be in the form required by us; and
 - (c) remain in effect until we certify, in writing, that you have fully performed your obligations under this Permit.
- 5.02 Despite section 5.01, your obligations under that section are suspended for so long as you maintain in good standing other security acceptable to us to guarantee the performance of your obligations under this Permit and all other Dispositions held by you.
- 5.03 We may use the Security for the payment of any costs and expenses incurred by us to perform any of your obligations under this Permit that are not performed by you and, if such event occurs, you will, within 30 days of that event, deliver further Security to us in an amount equal to the amount drawn down by us.
- 5.04 After we certify, in writing, that you have fully performed your obligations under this Permit, we will return to you the Security maintained under section 5.01, less all amounts drawn down by us under section 5.03.
- 5.05 You acknowledge that we may, from time to time, notify you to
- (a) change the form or amount of the Security; and
 - (b) provide and maintain another form of Security in replacement of or in addition to the Security posted by you under this Permit;
- and you will, within 60 days of receiving such notice, deliver to us written confirmation that the change has been made or the replacement or additional form of Security has been provided by you.
- 5.06 You must
- (a) without limiting your obligations or liabilities under this Permit, at your expense, effect and keep in force during the Term the following insurance with insurers licensed to do business in Canada:
 - (i) **Commercial General Liability** insurance in an amount of not less than two million dollars **\$2,000,000.00 inclusive per occurrence** insuring against liability for personal injury, bodily injury (including death) and property damage, including coverage for all accidents or occurrences on the Permit Area or any improvements. Such policy will include cross liability, liability assumed under contract, provision to provide 30 days advance notice to us of material change or cancellation, and include us as an additional insured; **See Attached Schedule**
 - (b) ensure that all insurance required to be maintained by you under this Permit is primary and does not require the sharing of any loss by any of our insurers;
 - (c) within 10 working days of the Commencement Date of this Permit, provide to us evidence of all required insurance in the form of a completed "Province of British Columbia Certificate of Insurance";
 - (d) if the required insurance policy or policies expire or are cancelled before the end of the Term of this Permit, provide within 10 working days of the cancellation or expiration, evidence of new or renewal policy or policies of all required insurance in the form of a completed "Province of British Columbia Certificate of Insurance";

- (e) notwithstanding subsections (c) or (d) above, if requested by us, provide to us certified copies of the required insurance policies to be maintained by you under this Permit.
- 5.07 We may, acting reasonably, from time to time, require you to
 - (a) change the amount of insurance set out in subsection 5.06(a); and
 - (b) provide and maintain another type or types of insurance in replacement of or in addition to the insurance previously required to be maintained by you under this Permit;
 and you will, within 60 days of receiving such notice, cause the amounts and types to be changed and deliver to us a completed "Province of British Columbia Certificate of Insurance" for all insurance then required to be maintained by you under this Permit.
- 5.08 You shall provide, maintain, and pay for any additional insurance which you are required by law to carry, or which you consider necessary to insure risks not otherwise covered by the insurance specified in this Permit in your sole discretion.
- 5.09 You waive all rights of recourse against us with regard to damage to your own property.

ARTICLE VI - COVENANTS OF THE PERMITTEE

- 6.01 The Permittee must:
 - (a) pay the Permit Fee and other money payable under this Permit when due at the address of the Province first written above or at such place as the Province may specify from time to time;
 - (b) pay when due all taxes, levies, charges and assessments that relate to operations of the Permittee under this Permit;
 - (c) comply with all laws, bylaws, orders, directions, ordinances and regulations of any competent governmental authority in any way affecting the Permit Area, the Park, its use and occupation or the Permittee's operations under this Permit;
 - (d) advise its employees, contractors, licensees, and agents of the laws and regulations respecting provincial parks and recreation areas and the conditions of this Permit respecting conduct in the permit Area;
 - (e) keep the Permit Area in a safe, clean and sanitary condition to the satisfaction of the Province and make safe, clean and sanitary any portion of the Permit Area that the Province may direct by notice in writing to the Permittee;
 - (f) remove from the Permit Area and the Park all garbage, debris and effluent resulting from its use of the Park and Permit Area under this Permit, except as otherwise permitted in the Management Plan Schedule;
 - (g) comply with all orders and directions made, verbally or in writing, by a park officer (as defined in the *Park Act*) relating to the Park, this Permit or the Permit Area;
 - (h) not construct, erect, place, repair, maintain or alter any building, fixture, equipment, structure or improvement in the Permit Area except as may be permitted by this Permit or with the prior written consent of the Province;
 - (i) take all reasonable precautions to prevent and suppress fires in the Permit Area;
 - (j) not interfere with free public access through, across and upon the Permit Area, unless otherwise specified in the Management Plan Schedule;
 - (k) not interfere with or disrupt the activities and operations of other Permittee's or users in the Park;
 - (l) use and occupy the Permit Area only in accordance with the provisions of this Permit;
 - (m) not remove, destroy, damage, disturb or exploit any natural resource (as that term is defined in the *Park Act*) or any archaeological or cultural artefact found in or on the Permit Area except as may be permitted by this Permit, and only then in accordance with the *Park Act* and all other applicable laws;
 - (n) not commit or allow any wilful or voluntary waste, damage or destruction in or upon the Permit Area;

- (o) pay for or repair, as determined by the Province, any damage caused to the property of the Province by the Permittee, its employees, agents, contractors, or licensees;
- (p) upon the expiration, cancellation or termination of this Permit:
 - (i) peaceably quit and deliver up possession of the Permit Area to the Province,
 - (ii) remove all chattels and improvements of the Permittee from the Permit Area within 30 days of the expiration, cancellation or sooner termination of this Permit, unless otherwise advised in writing, by the Province,
 - (iii) deliver to the Province possession of all equipment, furnishings, fixtures, chattels and improvements owned by the Province in a state of good repair and working order, and
 - (iv) restore the Permit Area to the satisfaction of the Province;
 - (v) and to the extent necessary, this covenant will survive the expiration, cancellation or termination of this Permit; and
- (q) comply with all provisions of the schedules to this Permit.

ARTICLE VII - RIGHTS OF THE PROVINCE

- 7.01 The Province retains all rights in respect of the Park and Permit Area which are not expressly granted to the Permittee under this permit, including, without limitation:
- (a) the right at all times for the Province, its authorized representatives, employees, and agents to have unimpeded access over and along all portions of the Permit Area and to inspect any portions of the Permit Area;
 - (b) the right at all times to construct, repair, alter and maintain buildings, equipment, structures and improvements upon the Permit Area; and
 - (c) the right to grant further rights in respect of the Park and Permit Area, provided that such rights do not unreasonably impede, obstruct or compete with the rights of the Permittee under this Permit.

ARTICLE VIII - NOTICE

- 8.01 Any notice required to be given by either party to the other will be deemed to be given if it is in writing and is delivered by hand or prepaid registered mail to the address first written above or any other address that may be specified in writing by a party and a notice will be deemed to be delivered, if mailed, eight days after the time of mailing except, in the case of a postal interruption, actual receipt is required.
- 8.02 Notwithstanding section 8.01, any written notice to be given by the Province to the Permittee under this Permit will be effectively given if it is posted in a conspicuous place on the Permit Area.

ARTICLE IX - RENEWAL

- 9.01 Not later than 140 days prior to the Expiration Date, the Permittee may, by notice in writing delivered to the Province, apply to the Province for a renewal of this Permit.
- 9.02 Provided that the Permittee is not in default under this Permit and subject to the terms of the *Park Act*, the Province may renew this Permit upon the terms and conditions determined by the Province.
- 9.03 The Permittee acknowledges that nothing in this Permit obligates the Province to renew this Permit and the Province's decision in that respect is entirely within its discretion

ARTICLE X - TRANSFER

- 10.01 The Permittee must not assign, transfer, sublicense or grant any of the rights or privileges granted by this Permit without the prior written consent of, and on the terms and conditions determined by, the Province.
- 10.02 If the Permittee is a corporation then a change in the control (as that term is defined in subsection 2(3) of the *Business Corporations Act*) of the Permittee without the prior written consent of the Province is deemed to be a breach of section 10.01.

ARTICLE XI - CANCELLATION

- 11.01 In the event that
- (a) the Permittee defaults in the payment of the Permit Fee or other money payable under this Permit, and the default continues for 7 days after the giving of written notice of the default by the Province to the Permittee;
 - (b) the Permittee fails to perform or observe any of the terms or conditions of this Permit, other than the payment of money, and the failure is not remedied within a period specified by the Province;
 - (c) the Permittee has wilfully misrepresented information:
 - (i) on the application form which led to the granting of this Permit, or
 - (ii) required to be provided under the terms and conditions of this Permit;
 - (d) the Permit Area is damaged or destroyed by any cause whatsoever;
 - (e) the Park is closed by the Province;
 - (f) the Permittee files a petition in bankruptcy, is adjudged bankrupt, is petitioned into bankruptcy, makes an assignment for the benefit of its creditors, becomes insolvent or takes the benefit or protection of any statute for bankrupt or insolvent debtors;
 - (g) any of the Permittee's assets is seized in execution from the Permit Area;
 - (h) the Permittee, its employees, agents, contractors or licensees performs any act which in the opinion of the Province, affects the good standing or reputation of the Park, or adversely affects any other permit holder or park user within the Park;
- the Province may cancel this Permit immediately by written notice to the Permittee.
- 11.02 In the event that the Permittee and the Province mutually agree in writing to terminate this Permit, the parties will be released and discharged from their obligations under this Permit, except as otherwise provided in this Permit.
- 11.03 The obligation of the Permittee
- (a) to pay the Permit Fee and other money payable under this Permit; and
 - (b) to comply with Sections 4.01, 6.01(e), 6.01(o) and 6.01(p);
- will survive the expiration, cancellation or termination of this Permit.
- 11.04 The Permittee will not be entitled to any compensation from the Province, in damages or otherwise, in respect of a cancellation or termination of this Permit.

ARTICLE XII - MISCELLANEOUS

- 12.01 This Permit may be inspected by the public at such times and at such places as the Province may determine.
- 12.02 Time is of the essence in this Permit.
- 12.03 Nothing in this Permit will be considered to have been waived by the Province unless such waiver is in writing.
- 12.04 During the term of this Permit, the Permittee will be an independent contractor and not the agent, employee or partner of the Province.

- 12.05 The Province will not be liable for any loss, damage, cost or expense resulting from the destruction of or damage to the Permittee's property or a disruption of the Permittee's operations under this Permit which result from strikes, flooding or other acts of God, vandalism, or any other interference to the Permittee's operation or property.

ARTICLE XIII- INTERPRETATION

- 13.01 In this Permit, unless the context otherwise requires, the singular includes the plural and the masculine includes the feminine, a corporation and body politic.
- 13.02 The captions and headings contained in the Permit are for convenience only and are not to be construed as defining or in any way limiting the scope or intent of the provisions of this Permit.
- 13.03 In this Permit, a reference to an enactment of the Province of British Columbia or of Canada includes a reference to any subsequent enactment of like effect, and unless the context otherwise requires, all statutes referred to in this Permit are enactments of the Province of British Columbia.
- 13.04 If any part of this Permit is found to be illegal or unenforceable, that part will be considered separate and severable and the remaining parts will be enforceable to the fullest extent permitted by law.
- 13.05 If all or part of the Permit Area is in a recreation area established or continued under the *Park Act*, this Permit is deemed to be a resource use permit as that term is defined in the *Park Act*.
- 13.06 All schedules to this Permit form an integral part of this Permit.
-

IN WITNESS WHEREOF the parties have duly executed this Permit.

SIGNED and DELIVERED on behalf of the **Province** by a duly authorized representative of the Province.



Duly Authorized Representative

Jennie Aikman

Print Name

Regional Director

Print Title

April 29, 2016

Date

MANAGEMENT PLAN SCHEDULE

PERMIT AREA DESCRIPTION

The Permittee is authorized to enter the Permit Area described below and outlined on the attached maps.

Permit Area Overview Map

- Tetrahedron Park
- Area adjacent to the outlet of Chapman Lake
- Area adjacent to the outlet of Edwards Lake

Copyright

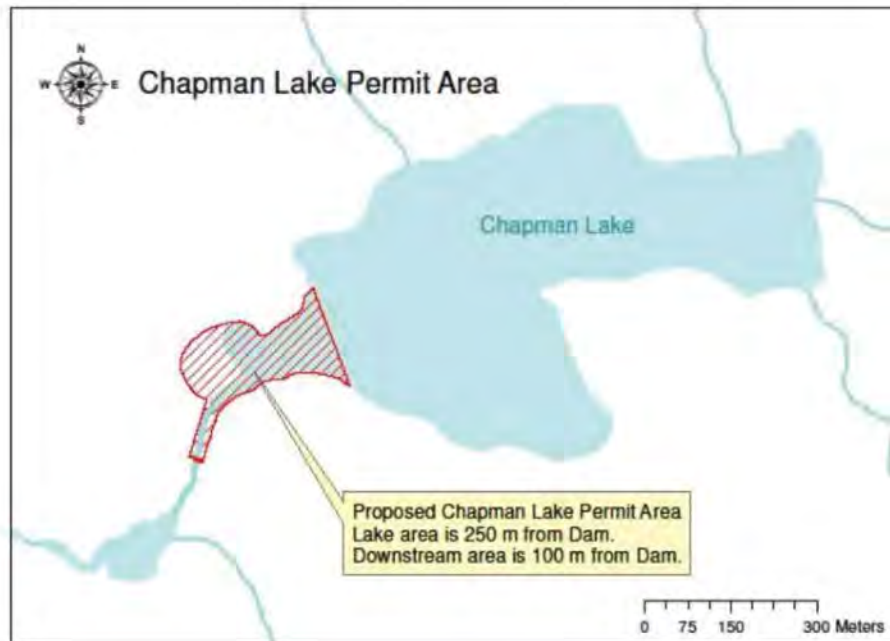
Chapman Lake Permit Area

Copyright

Edwards Lake Permit Area

Copyright

Temporary Chapman Lake Permit Area (valid until 06 September 2016)



FEE(s)**Protected Land:** **Tetrahedron Park****Activities:** Water Impoundments (dams and dykes)**Purpose:** Rights of way and miscellaneous land use without structures - The use of a defined area for a powerline, telephone line, pipeline or other service or utility right of way and other miscellaneous land use without structures - Company or local government. Fee charged for this purpose is for each protected land.**Fee Description:** \$500 or \$60 per hectare whichever is greater**Schedule K Ref:** Part 3, Column 2, Item 4**Fees:**

Item	Number	Rate	Total
Minimum Fee	1	\$500.00	\$500.00
Hectares	1	\$60.00	\$60.00
Sub Total (based on Fee Description above):			\$500.00

Sub Total: **\$500.00****Minimum Fee Required:** **\$500.00**
(plus applicable taxes)

SPECIAL PROVISIONS

1. Purpose

This Permit is issued to the Permittee for the purpose of maintaining water impoundment infrastructure at Chapman and Edwards Lake and helicopter pad at Chapman Lake in Tetrahedron Park.

2. Permittee Designated Representative

The Permittee appoints the following representative to be responsible for liaison between BC Parks and the Permittee:

Name: Bryan Shoji
 Telephone: 604 885 6800
 Fax: 604 885 7909
 Email: Bryan.shoji@scrd.ca

3. BC Parks Representative(s):

Park, Protected Area or Conservancy Name	Area Supervisor	Phone	Email
Tetrahedron Park	Rod Dalziel	604-885-6755	Rod.Dalziel@gov.bc.ca

4. Conditions of Term

This permit shall be deemed valid until such time that it has expired under Article 2.01 and that the associated water licences are valid and in good standing and that activities carried out are permitted under:

- (a) the conditional water licences and;
- (b) this permit.

5. Water Regulations

All activities relating to maintaining water impoundment structures and regulating water levels must be in accordance with the *Water Act*.

6. Flight Access

- (a) The use of a helicopter for access to the structures is acceptable. The Permittee shall notify BC Parks as early as feasibly possible prior to any flights into Tetrahedron Park so that BC Parks may utilize available space or service of the helicopter for park operation purposes.
- (b) Recognizing that wildlife are sensitive to disturbance from helicopters, maintain an appropriate separation distance from animals (500 m line-of-sight is a recommended default) and take immediate action to increase separation distances if animals react to the helicopter.
- (c) If the Permittee chooses to use a helicopter company to access the structure the Permittee will cause any Person/Sub-licensee providing aviation services related to the Permittee's performance of this Permit to carry, and to provide evidence to the Province of their compliance with this requirement, Aviation Liability insurance on all aircraft operated or used in the performance of this Permit insuring against bodily injury, property damage, and passenger liability, in an amount not less than the limits of liability imposed by any *Canadian Aviation Regulation* and in any event not less than a per occurrence combined single limit of:

- (i) \$3,000,000 for aircraft up to 5 passenger seats, or
- (ii) \$3,000,000 plus \$1,000,000 for each additional passenger seat for aircraft up to 10 passenger seats, or
- (iii) \$10,000,000 for aircraft over 10 passenger seats;

and this insurance must:

- (i) include the Province and the Permittee as additional insureds;
- (ii) be endorsed to provide the Province and the Permittee with 30 days advance written notice of cancellation or material change; and
- (iii) include a cross liability clause;

7. Report Requirements

The Permittee shall provide the Province with a report, due upon the anniversary date of the Permit, describing all activities undertaken as a result of this Permit for the previous year. Please submit this report to the following address:

Ministry of Forests, Lands
and Natural Resource Operations
FrontCounter BC – Surrey
200 – 10428 153rd Street
Surrey BC V3R 1E1

Toll Free: 1-877-855-3222

Website: <http://www.frontcounterbc.gov.bc.ca/locations/index.html>

8. Safety Regulations

The Permittee shall be responsible for all WorkSafe BC regulations and staff safety program and plans for all its staff and sub-contractors utilizing the Park to conduct activities authorized by this permit.

9. Renewal

It is understood by BC Parks and the Sunshine Coast Regional District that this permit shall be renewed pending a review of the terms of this Management Plan Schedule and providing the Sunshine Coast Regional District continues to require water management and structures outlined in this permit and the conditional water licences.

10. Temporary Permit Amendment Conditions

(a) Term

- (i) The conditions of the temporary permit amendment will be valid during the period from permit approval until 2 weeks (14 days) following the expiry of the of the **"Section 8 application - 100140509 – Short Term Water Use on Chapman Lake - Approval 2003865"** on 23 August 2016. Therefore the temporary permit amendment will expire on **06 September 2016**.

- (b) All works and monitoring shall be conducted as described in BC Standards and Best Practices for Instream Works (<http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf>) (Appendix A) and should be informed by the 1999 Impact Assessment for the proposed floating pump station at Chapman Lake (Whitehead 1999) (Appendix B) and shall comply with "Section 8 Development Plan – Short Term Water Use" prepared by Sunshine Coast Regional District, dated 19 August 2015 (Appendix C) and "Emergency Water Supply at Chapman Lake" prepared by Opus DaytonKnight Consultants, dated 13 August 2015 (Appendix D) and "Environmental Monitoring Plan – Siphon System at Chapman Lake" prepared by Sunshine Coast Regional District (Appendix E).

- (c) **Temporary additional infrastructure**
 - (i) This will include equipment and materials required to access the additional water drawdown of Chapman Lake as permitted under the "Section 8 application - 100140509 – Short Term Water Use on Chapman Lake - Approval 2003865" which will include pipes, intakes, valves, screens, lock blocks, pumps, small dock, rowboat, ladders, containment unit (fuel, pumps and equipment) as described in the **Section 8 Development Plan (August 14, 2015)**.
 - (ii) Any amendments to this plan must be approved by the Area Supervisor.
- (d) **Temporary accommodation area**
 - (i) The temporary accommodation will be constructed for use by the installation crew and the 24/7 onsite 2 person operator crew.
 - (ii) The temporary accommodation area will include a tent, eating area, food and garbage storage and a portable toilet.
 - (iii) The location of temporary accommodation area must be approved by the Area Supervisor.
 - (iv) Food and garbage associated with accommodation area must be stored in bear-proof containers or otherwise protected from access by wildlife to prevent wildlife attraction. Garbage must be disposed of off-site and removed regularly to prevent odours and wildlife attraction.
 - (v) The Permittee will remove human waste in portable toilet as required.
 - (vi) The temporary accommodation area facilities shall be removed when no longer required for the season to the satisfaction of the Area Supervisor.
- (e) **Environmental Monitor**
 - (i) The Permittee shall retain a qualified Environmental Monitor to monitor Chapman Lake and Chapman Creek.
 - (ii) The Environmental Monitor shall be onsite during construction phase and weekly thereafter until lake water levels have returned to levels where the siphon is no longer required and in use.
 - (iii) The Environmental Monitor must have the authority to order suspension of work if necessary to prevent significant negative environmental effects from occurring.
 - i. The Environmental Monitor will contact the Area Supervisor should there be any deviation from the prescribed works, negative or substantial changes to the environment and/or park resources.
- (f) Equipment that could cause negative environmental impacts during operations, such as siphon intakes, pumps and generators, should be regularly inspected.
- (g) Ensure equipment and machinery are in good operating condition (power washed), free of leaks, excess oil, and grease.
- (h) All pumps and fuel will be contained in spill proof containment unit.
- (i) Equipment refuelling or servicing must be undertaken within the spill proof containment unit.
- (j) Ensure all hydraulic machinery uses environmentally sensitive hydraulic fluids that are non-toxic to aquatic life and that are readily or inherently biodegradable.
- (k) Keep a spill containment kit readily accessible onsite in the event of a release of a deleterious substance to the environment. Train onsite staff in its safe and proper use. Immediately report any spill of a substance that is toxic, polluting, or deleterious to aquatic life of reportable quantities to the Provincial Emergency Program 24-hour phone line at 1-800-663-3456.
- (l) The footprints associated with the areas for staging, installation and accommodation areas should all be minimized.

- (m) Foot and equipment traffic should be confined to designated lowest impact corridors or trails to minimize trampling impacts.
- (n) **Monitoring**
 - (i) As identified in the Whitehead 1999 Impact Assessment monitoring of the impacts of additional drawdown on the following values will be conducted - water quality, fish and amphibians (as indicators of lake ecology), and riparian vegetation in and around Chapman Lake. The monitoring plan will be developed to the satisfaction of BC Parks.
- (o) **Reporting**
 - (i) The Permittee will provide to BC Parks environmental monitoring reports resulting from visits by the Environmental Monitor (as identified in "Environmental Monitoring Plan – Siphon System at Chapman Lake" prepared by Sunshine Coast Regional District) on a weekly basis.
 - (ii) Additional reporting as required under condition (r) of the "Section 8 application - 100140509 – Short Term Water Use on Chapman Lake - Approval 2003865" issued on 23 August 2016 will also be provided to BC Parks on a weekly basis.
 - (iii) The Permittee will provide to BC Parks a copy of the Preliminary Field Reconnaissance for archaeology report.
- (p) **Removal and restoration**
 - (i) Permit area clean-up and equipment removal following the 2015 temporary operations shall be completed to the satisfaction of the Area Supervisor.
 - (ii) Removal of temporary additional infrastructure must be completed by **06 September 2016** to the satisfaction of the Area Supervisor.
 - (iii) Restoration of the temporary permit area must be completed to the satisfaction of the Area Supervisor.

APPENDIX A – Standards and Practices for Instream Works (attached)

APPENDIX B – Impact Assessment Report (attached)

APPENDIX C – Development Plan (attached)

APPENDIX D – Emergency Water Supply at Chapman Lake Report (attached)

APPENDIX E – Environmental Monitoring Plan (attached)

RE: Request for Park Use Permit - SCRD (FOI)

Friday, October 13, 2017

1:00 PM

Subject	RE: Request for Park Use Permit - SCRD (FOI)
From	Aikman, Jennie S ENV:EX
To	Coupar, Meghan FLNR:EX; Beveridge, Megan ENV:EX
Cc	Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX; Dalziel, Rod ENV:EX
Sent	Thursday, March 30, 2017 8:16 AM

Please include Rod Dalziel on the response.

From: Aikman, Jennie S ENV:EX
Sent: Thursday, March 30, 2017 8:15 AM
To: Coupar, Meghan FLNR:EX; Beveridge, Megan ENV:EX
Cc: Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX
Subject: RE: Request for Park Use Permit - SCRD (FOI)

Hi Megan,

If **s.22** contacts you again, you can advise him that requests for park use permits typically go through a Freedom of Information request. In the meantime, I have included Megan Beveridge to confirm our general approach with these types of one-off PUP requests. With the Cypress and Seymour resort permits, we have made them available in hard copy for review at the park office. That being said, government is going to more transparent disclosure of information so in this case we may want to provide a copy.

Thanks.

Jennie

Jennie Aikman
 Regional Director
 South Coast Region, BC Parks
 Ministry of Environment

From: Coupar, Meghan FLNR:EX
Sent: Wednesday, March 29, 2017 1:02 PM
To: Aikman, Jennie S ENV:EX
Cc: Hillyer, Tammy FLNR:EX
Subject: FW: Request for Park Use Permit - SCRD (FOI)
Importance: High

Hi Jennie,

I just left you a telephone message but thought I'd send you a quick email also. Wade advised the he forwarded my email (below) to you for review/follow up. I told the requestor that I would follow up this afternoon with him, is it alright if I provide him with your contact information. He is very persistent and would like a copy of this permit (he's called me 5 times).

Please let me know how to proceed.

Thanks,

Meghan

From: Coupar, Meghan FLNR:EX
Sent: Wednesday, March 29, 2017 12:41 PM
To: Anderson, Wade R ENV:EX
Cc: Dalziel, Rod ENV:EX; Hillyer, Tammy FLNR:EX
Subject: Request for Park Use Permit - SCRD (FOI)
Importance: High

Hi Wade and Rod,

I spoke to a s.22 yesterday, he is requesting a copy of the Sunshine Coast Regional District's (SCRD) Park Use Permit – Authorization #102714.

Below is the information received from s.22 (Mar 28):

- s.22
- Trying to get a copy of the SCRD Park Use Permit. He has tried to obtain a copy directly from SCRD and they are not willing to provide him with a copy.
- s.22 has also tried to contact the Area Supervisor – Rod Dalziel but has not received a call or email back from Rod to date.
***FYI - s.22 first call to me was on Friday March 24th and I see Rod you have been out of the office 5 days so you may not have received any of s.22 requests. I have advised s.22 that you are currently away, so he is aware.**
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I've looked into this permit in EPUPS, it is currently in a **Major Amendment (Draft Permit stage) and is unsigned.**

I have been advised by Carol that this type of request would go to the Area Supervisor or Section Head, this may require an FOI if they require a copy of the Draft Amendment Permit (I think the current permit is ok to release without an FOI to the best of my understanding).

Contact Information:

s.22

Phone: s.13

If you have any questions please let me know.

I told s.22 I would get back to him today, I will advise him that the request is with you Wade and Rod for follow up.

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Sections

Tel: (604) 586-4439 Fax: (604) 586-4434

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FW: Request for Park Use Permit - SCR D (FOI)

Thursday, October 12, 2017

1:58 PM

Subject	FW: Request for Park Use Permit - SCR D (FOI)
From	Beveridge, Megan ENV:EX
To	Dalziel, Rod ENV:EX
Sent	Thursday, March 30, 2017 9:13 AM

Megan Beveridge

Authorizations Policy Analyst

BC Parks | Ministry of Environment

Telephone: 250-387-0838

Megan.Beveridge@gov.bc.ca

www.bcparks.ca



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From: Beveridge, Megan ENV:EX

Sent: Thursday, March 30, 2017 9:13 AM

To: Aikman, Jennie S ENV:EX; Coupar, Meghan FLNR:EX

Cc: Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX

Subject: RE: Request for Park Use Permit - SCR D (FOI)

Hello all,

Responded to Carol yesterday confirming that there is nothing normally confidential or sensitive (harmful to business interests) in an approved park use permit, and they can be routinely released. We release these to anyone who asks for a copy.

Permits that are DRAFT cannot be routinely released, as they represent advice to a decision maker- and until they make their decision the applicant has not been granted rights to the province to conduct the activity, we cannot release it.

Cheers,

Megan

Megan Beveridge

Authorizations Policy Analyst

BC Parks | Ministry of Environment

Telephone: 250-387-0838

Megan.Beveridge@gov.bc.ca

www.bcparks.ca



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From: Aikman, Jennie S ENV:EX
Sent: Thursday, March 30, 2017 8:15 AM
To: Coupar, Meghan FLNR:EX; Beveridge, Megan ENV:EX
Cc: Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX
Subject: RE: Request for Park Use Permit - SCRD (FOI)

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If s.22 contacts you again, you can advise him that requests for park use permits typically go through a Freedom of Information request. In the meantime, I have included Megan Beveridge to confirm our general approach with these types of one-off PUP requests. With the Cypress and Seymour resort permits, we have made them available in hard copy for review at the park office. That being said, government is going to more transparent disclosure of information so in this case we may want to provide a copy.

Thanks.
 Jennie

Jennie Aikman
 Regional Director
 South Coast Region, BC Parks
 Ministry of Environment

From: Coupar, Meghan FLNR:EX
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To: Aikman, Jennie S ENV:EX
Cc: Hillyer, Tammy FLNR:EX
Subject: FW: Request for Park Use Permit - SCRD (FOI)
Importance: High

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Please let me know how to proceed.

Thanks,

Meghan

From: Coupar, Meghan FLNR:EX
Sent: Wednesday, March 29, 2017 12:41 PM
To: Anderson, Wade R ENV:EX
Cc: Dalziel, Rod ENV:EX; Hillyer, Tammy FLNR:EX
Subject: Request for Park Use Permit - SCRD (FOI)
Importance: High

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RE: Request for Park Use Permit - SCRD (FOI)

Friday, October 13, 2017

12:59 PM

Subject	RE: Request for Park Use Permit - SCRD (FOI)
From	Aikman, Jennie S ENV:EX
To	Beveridge, Megan ENV:EX; Coupar, Meghan FLNR:EX; Dalziel, Rod ENV:EX
Cc	Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX
Sent	Thursday, March 30, 2017 9:52 AM

Thank you Megan.

Meghan – please provide a PDF copy of the current active PUP 102714 to **s.22** and cc Rod.

I will notify Janette Loveys of the SCRD that we have received the request and are providing a copy of the permit.

Thanks.

Jennie

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Sent: Thursday, March 30, 2017 9:13 AM

To: Aikman, Jennie S ENV:EX; Coupar, Meghan FLNR:EX

Cc: Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX

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www.bcparks.ca



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Cc: Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX
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Cc: Hillyer, Tammy FLNR:EX
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Sent: Wednesday, March 29, 2017 12:41 PM
To: Anderson, Wade R ENV:EX
Cc: Dalziel, Rod ENV:EX; Hillyer, Tammy FLNR:EX
Subject: Request for Park Use Permit - SCRD (FOI)
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Re: Request for Park Use Permit - SCRD (FOI)

Friday, October 13, 2017

12:59 PM

Subject	Re: Request for Park Use Permit - SCRD (FOI)
From	Anderson, Wade R ENV:EX
To	Aikman, Jennie S ENV:EX
Cc	Beveridge, Megan ENV:EX; Coupar, Meghan FLNR:EX; Dalziel, Rod ENV:EX; Hillyer, Tammy FLNR:EX
Sent	Thursday, March 30, 2017 10:02 AM

Thanks for coordinating Jennie and to both

Megan and Meghan for your help

Sent from my iPhone

On Mar 30, 2017, at 9:52 AM, Aikman, Jennie S ENV:EX <Jennie.Aikman@gov.bc.ca> wrote:

Thank you Megan.

Meghan – please provide a PDF copy of the current active PUP 102714 to **s.22** and cc Rod.

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Sent: Thursday, March 30, 2017 9:13 AM

To: Aikman, Jennie S ENV:EX; Coupar, Meghan FLNR:EX

Cc: Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX

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Megan

Megan Beveridge

Authorizations Policy Analyst

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<image001.jpg>

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Sent: Thursday, March 30, 2017 8:15 AM
To: Coupar, Meghan FLNR:EX; Beveridge, Megan ENV:EX
Cc: Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX
Subject: RE: Request for Park Use Permit - SCRD (FOI)

Hi Megan,

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Thanks.
 Jennie

Jennie Aikman
 Regional Director
 South Coast Region, BC Parks
 Ministry of Environment

From: Coupar, Meghan FLNR:EX
Sent: Wednesday, March 29, 2017 1:02 PM
To: Aikman, Jennie S ENV:EX
Cc: Hillyer, Tammy FLNR:EX
Subject: FW: Request for Park Use Permit - SCRD (FOI)
Importance: High

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Please let me know how to proceed.

Thanks,

Meghan

From: Coupar, Meghan FLNR:EX
Sent: Wednesday, March 29, 2017 12:41 PM
To: Anderson, Wade R ENV:EX
Cc: Dalziel, Rod ENV:EX; Hillyer, Tammy FLNR:EX
Subject: Request for Park Use Permit - SCRD (FOI)
Importance: High

Hi Wade and Rod,

I spoke to a **s.22** yesterday, he is requesting a copy of the Sunshine Coast Regional District's (SCRD) Park Use Permit – Authorization #102714.

Below is the information received from s.22 (Mar 28):

- s.22
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Phone: s.22

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Parks Permit Clerk

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South Coast, Haida Gwaii/South Island Sections

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Toll Free: 1-877-855-3222

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RE: Request for Park Use Permit - SCRD (FOI)

Friday, October 13, 2017

12:58 PM

Subject	RE: Request for Park Use Permit - SCRD (FOI)
From	Coupar, Meghan FLNR:EX
To	Aikman, Jennie S ENV:EX; Dalziel, Rod ENV:EX
Cc	Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX
Sent	Thursday, March 30, 2017 10:26 AM

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Cc: Dalziel, Rod ENV:EX; Hillyer, Tammy FLNR:EX
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RE: Request for Park Use Permit - SCRD (FOI)

Friday, October 13, 2017

11:52 AM

Subject	RE: Request for Park Use Permit - SCRD (FOI)
From	Dalziel, Rod ENV:EX
To	Aikman, Jennie S ENV:EX; Coupar, Meghan FLNR:EX
Cc	Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX
Sent	Thursday, March 30, 2017 10:42 AM

Thanks everyone. I have been tied up conducting interviews this week.

FYI...The individuals name is **s.22**

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉: Rod.Dalziel@gov.bc.ca

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From: Aikman, Jennie S ENV:EX

Sent: Thursday, March 30, 2017 10:33 AM

To: Coupar, Meghan FLNR:EX; Dalziel, Rod ENV:EX

Cc: Hillyer, Tammy FLNR:EX; Anderson, Wade R ENV:EX

Subject: RE: Request for Park Use Permit - SCRD (FOI)

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RE: request for clarity in writing

Friday, October 13, 2017

11:52 AM

Subject	RE: request for clarity in writing
From	Dalziel, Rod ENV:EX
To	s.22
Sent	Thursday, March 30, 2017 10:45 AM
Attachments	 Ltr to G Nohr - SCR...

Hello **s.22**

Sorry for the delayed response.

As we discussed the clarification that went out was because a member of the public went to the SCR D claiming BC Parks was no longer considering their Park Use Permit (PUP) amendment application. This was inaccurate information as there has been no decision made on the SCR D PUP amendment application. It was made clear at the Feb 23rd Tetrahedron Advisory Committee (TAC) meeting that BC Parks is still currently in the process of the reviewing the application and the recently received updated Environmental Assessment.

Attached is the letter you have requested.

I also understand you have requested a copy the current active SCR D PUP and Megan Coupar from Front Counter will be providing to you.

I have been tied up with other issues and unfortunately have not had an opportunity to review the TAC TOR yet.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

📍: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉: Rod.Dalziel@gov.bc.ca

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From **s.22**

Sent: Wednesday, March 8, 2017 8:16 PM

To: Dalziel, Rod ENV:EX

Subject: request for clarity in writing

Hi Rod

Thanks for the call today. I would appreciate it if you could provide the information you related to me in writing as frankly I'm still somewhat confused. If you could provide the TAC a copy of the letter that is apparently being sent to the SCR D I think it would be appreciated by everyone.

In addition would you please advise re my draft revision of the TAC's ToR I have now completed and sent to you last week on behalf of the TAC. Do you want me to circulate the draft to all committee members?

Thanks. Good luck with it all.

s.22

This email is confidential. Please don't distribute its contents, especially if you are not the intended recipient. To do so would be really tacky.



March 6, 2017

File No: PUP #102714/Tetrahedron Park

VIA EMAIL

Garry Nohr, Chair
Board of Directors
Sunshine Coast Regional District
1975 Field Road
Sechelt, BC V0N 3A1

Dear Mr. Nohr:

RE: Park Use Permit (PUP) #102714 Amendment Application

On January 30, Janette Loveys, Chief Administration Officer, submitted an updated permit amendment application on behalf of the Sunshine Coast Regional District (SCRD) for the construction of a trenching system to allow additional draw-down of Chapman Lake for the purpose of maintaining the Sunshine Coast community water supply.

BC Parks staff are in the process of reviewing the permit application to ensure the information provided is complete and addresses BC Parks' June 8, 2016 comments submitted to the SCRD. We anticipate having a response to you regarding the completeness of the updated application by March 17, 2017.

As outlined in the February 16, 2017 letter from Jim Standen, Assistant Deputy Minister, to Ms. Loveys, BC Parks has conducted further legal review and identified a legal risk with issuance of a park use permit as the rights for water under the *Water Sustainability Act* are new rights and therefore not considered grandfathered under Section 30 (3) of the *Park Act* which allows for continuation of rights that pre-existed establishment of a park under Schedule D of the *Park Act*. As a result, BC Parks has determined we will need to pursue either a park boundary modification or a re-designation of the park area before a decision on the permit amendment application can be made.

The Tetrahedron Provincial Park Management Plan (1997) recognizes the role of the park in maintaining and enhancing the supply of water for the local community. The management plan indicates that "[w]here regional water supply improvements are proposed, an impact assessment and comprehensive public consultation process will be developed." The management plan also states that "[a] number of designation options will be prepared and a decision will be sought that will enable BC Parks to authorize the SCRD to enhance and manage the Chapman/Gray Creek watersheds within the park for future population needs. A public consultation process to review any options proposed by government that may affect the existing park status will be

Ministry of Environment
BC Parks and Conservation Officer Service Division
South Coast Region

Mailing Address:
1610 Mount Seymour Road
North Vancouver BC V7G 2R9

Telephone: (604) 924-2200
Facsimile: (604) 924-2244
<http://www.gov.bc.ca/>
<http://www.gov.bc.ca/enr/>

implemented.” Consistent with the management plan, BC Parks will be reviewing options that will enable BC Parks to authorize the SCRD to maintain the community water supply. A park boundary amendment or using a different designation for the park area both require an Act of the Legislature. The process will also involve consultation with the public and First Nations, and BC Parks will work with the SCRD through this process.

We will continue to work with Ms. Loveys on the process, timelines, and to clarify roles and responsibilities as we move forward. We understand the Regional District’s critical need for an expedient resolution in order to secure a sustainable water supply for the community. In the case any potential water shortage emergencies may emerge in the interim, we will work with the SCRD to provide authorization for temporary measures such as deployment of the siphon system.

Sincerely,



Jennie Aikman
Regional Director, South Coast Region

Cc: Janette Loveys, Chief Administration Officer, Sunshine Coast Regional District
Jim Standen, Assistant Deputy Minister, BC Parks and Conservation Officer Service
Ken Morrison, Manager, Planning and Land Administration Section, BC Parks
Remko Rosenboom, Manager, Water Authorizations, Ministry of Forests, Lands and
Natural Resource Operations

From: [Coupar, Meghan FLNR:EX](#)
To: [s.22](#)
Cc: [Dalziel, Rod ENV:EX](#); [Anderson, Wade R ENV:EX](#); [Aikman, Jennie S ENV:EX](#); [Hillyer, Tammy FLNR:EX](#)
Subject: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)
Date: Thursday, March 30, 2017 4:12:00 PM
Attachments: [Sunshine Coast Regional District \(Authorization 102714\) Park Use Permit.pdf](#)
[Appendix A - Standards and Practices for Instream Works.pdf](#)
[Appendix B - Impact Assessment Report.pdf](#)
[Appendix C - Development Plan.pdf](#)
[Appendix D - Emergency Water Supply at Chapman Lake Report.pdf](#)
[Appendix E - Environmental Monitoring Plan.pdf](#)
Importance: High

Authorization: #102714
 Permittee: Sunshine Coast Regional District
 Park: Tetrahedron Park

Dear [s.22](#)

As requested, please find attached a copy of the Sunshine Coast Regional District's Park Use Permit (Authorization Number 102714) for Tetrahedron Park.

If you have any questions or concerns regarding this permit, please contact BC Parks Area Supervisor Rod Dalziel.

Thank you,

Meghan Coupar

Parks Permit Clerk
 FrontCounter BC - South Coast Regional Office
 South Coast, Haida Gwaii/South Island Sections
 Tel: (604) 586-4439 Fax: (604) 586-4434
 Toll Free: 1-877-855-3222

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FEE(s)**Protected Land:** **Tetrahedron Park****Activities:** Water Impoundments (dams and dykes)**Purpose:** Rights of way and miscellaneous land use without structures - The use of a defined area for a powerline, telephone line, pipeline or other service or utility right of way and other miscellaneous land use without structures - Company or local government. Fee charged for this purpose is for each protected land.**Fee Description:** \$500 or \$60 per hectare whichever is greater**Schedule K Ref:** Part 3, Column 2, Item 4**Fees:**

Item	Number	Rate	Total
Minimum Fee	1	\$500.00	\$500.00
Hectares	1	\$60.00	\$60.00
Sub Total (based on Fee Description above):			\$500.00

Sub Total: **\$500.00****Minimum Fee Required:** **\$500.00**
(plus applicable taxes)

SPECIAL PROVISIONS

1. Purpose

This Permit is issued to the Permittee **for the purpose of maintaining water impoundment infrastructure at Chapman and Edwards Lake and helicopter pad at Chapman Lake in Tetrahedron Park.**

2. Permittee Designated Representative

The Permittee appoints the following representative to be responsible for liaison between BC Parks and the Permittee:

Name: Bryan Shoji
 Telephone: 604 885 6800
 Fax: 604 885 7909
 Email: Bryan.shoji@scrd.ca

3. BC Parks Representative(s):

Park, Protected Area or Conservancy Name	Area Supervisor	Phone	Email
Tetrahedron Park	Rod Dalziel	604-885-6755	Rod.Dalziel@gov.bc.ca

4. Conditions of Term

This permit shall be deemed valid until such time that it has expired under Article 2.01 and that the associated water licences are valid and in good standing and that activities carried out are permitted under:

- (a) the conditional water licences and;
- (b) this permit.

5. Water Regulations

All activities relating to maintaining water impoundment structures and regulating water levels must be in accordance with the *Water Act*.

6. Flight Access

- (a) The use of a helicopter for access to the structures is acceptable. The Permittee shall notify BC Parks as early as feasibly possible prior to any flights into Tetrahedron Park so that BC Parks may utilize available space or service of the helicopter for park operation purposes.
- (b) Recognizing that wildlife are sensitive to disturbance from helicopters, maintain an appropriate separation distance from animals (500 m line-of-sight is a recommended default) and take immediate action to increase separation distances if animals react to the helicopter.
- (c) If the Permittee chooses to use a helicopter company to access the structure the Permittee will cause any Person/Sub-licensee providing aviation services related to the Permittee's performance of this Permit to carry, and to provide evidence to the Province of their compliance with this requirement, Aviation Liability insurance on all aircraft operated or used in the performance of this Permit insuring against bodily injury, property damage, and passenger liability, in an amount not less than the limits of liability imposed by any *Canadian Aviation Regulation* and in any event not less than a per occurrence combined single limit of:

- (i) \$3,000,000 for aircraft up to 5 passenger seats, or
- (ii) \$3,000,000 plus \$1,000,000 for each additional passenger seat for aircraft up to 10 passenger seats, or
- (iii) \$10,000,000 for aircraft over 10 passenger seats;

and this insurance must:

- (i) include the Province and the Permittee as additional insureds;
- (ii) be endorsed to provide the Province and the Permittee with 30 days advance written notice of cancellation or material change; and
- (iii) include a cross liability clause;

7. Report Requirements

The Permittee shall provide the Province with a report, due upon the anniversary date of the Permit, describing all activities undertaken as a result of this Permit for the previous year. Please submit this report to the following address:

Ministry of Forests, Lands
and Natural Resource Operations
FrontCounter BC – Surrey
200 – 10428 153rd Street
Surrey BC V3R 1E1

Toll Free: 1-877-855-3222

Website: <http://www.frontcounterbc.gov.bc.ca/locations/index.html>

8. Safety Regulations

The Permittee shall be responsible for all WorkSafe BC regulations and staff safety program and plans for all its staff and sub-contractors utilizing the Park to conduct activities authorized by this permit.

9. Renewal

It is understood by BC Parks and the Sunshine Coast Regional District that this permit shall be renewed pending a review of the terms of this Management Plan Schedule and providing the Sunshine Coast Regional District continues to require water management and structures outlined in this permit and the conditional water licences.

10. Temporary Permit Amendment Conditions

(a) Term

- (i) The conditions of the temporary permit amendment will be valid during the period from permit approval until 2 weeks (14 days) following the expiry of the of the **"Section 8 application - 100140509 – Short Term Water Use on Chapman Lake - Approval 2003865"** on 23 August 2016. Therefore the temporary permit amendment will expire on **06 September 2016**.

- (b) All works and monitoring shall be conducted as described in BC Standards and Best Practices for Instream Works (<http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf>) (Appendix A) and should be informed by the 1999 Impact Assessment for the proposed floating pump station at Chapman Lake (Whitehead 1999) (Appendix B) and shall comply with "Section 8 Development Plan – Short Term Water Use" prepared by Sunshine Coast Regional District, dated 19 August 2015 (Appendix C) and "Emergency Water Supply at Chapman Lake" prepared by Opus DaytonKnight Consultants, dated 13 August 2015 (Appendix D) and "Environmental Monitoring Plan – Siphon System at Chapman Lake" prepared by Sunshine Coast Regional District (Appendix E).

(c) **Temporary additional infrastructure**

- (i) This will include equipment and materials required to access the additional water drawdown of Chapman Lake as permitted under the "Section 8 application - 100140509 – Short Term Water Use on Chapman Lake - Approval 2003865" which will include pipes, intakes, valves, screens, lock blocks, pumps, small dock, rowboat, ladders, containment unit (fuel, pumps and equipment) as described in the **Section 8 Development Plan (August 14, 2015)**.
- (ii) Any amendments to this plan must be approved by the Area Supervisor.

(d) **Temporary accommodation area**

- (i) The temporary accommodation will be constructed for use by the installation crew and the 24/7 onsite 2 person operator crew.
- (ii) The temporary accommodation area will include a tent, eating area, food and garbage storage and a portable toilet.
- (iii) The location of temporary accommodation area must be approved by the Area Supervisor.
- (iv) Food and garbage associated with accommodation area must be stored in bear-proof containers or otherwise protected from access by wildlife to prevent wildlife attraction. Garbage must be disposed of off-site and removed regularly to prevent odours and wildlife attraction.
- (v) The Permittee will remove human waste in portable toilet as required.
- (vi) The temporary accommodation area facilities shall be removed when no longer required for the season to the satisfaction of the Area Supervisor.

(e) **Environmental Monitor**

- (i) The Permittee shall retain a qualified Environmental Monitor to monitor Chapman Lake and Chapman Creek.
- (ii) The Environmental Monitor shall be onsite during construction phase and weekly thereafter until lake water levels have returned to levels where the siphon is no longer required and in use.
- (iii) The Environmental Monitor must have the authority to order suspension of work if necessary to prevent significant negative environmental effects from occurring.
 - i. The Environmental Monitor will contact the Area Supervisor should there be any deviation from the prescribed works, negative or substantial changes to the environment and/or park resources.

- (f) Equipment that could cause negative environmental impacts during operations, such as siphon intakes, pumps and generators, should be regularly inspected.
- (g) Ensure equipment and machinery are in good operating condition (power washed), free of leaks, excess oil, and grease.
- (h) All pumps and fuel will be contained in spill proof containment unit.
- (i) Equipment refuelling or servicing must be undertaken within the spill proof containment unit.
- (j) Ensure all hydraulic machinery uses environmentally sensitive hydraulic fluids that are non-toxic to aquatic life and that are readily or inherently biodegradable.
- (k) Keep a spill containment kit readily accessible onsite in the event of a release of a deleterious substance to the environment. Train onsite staff in its safe and proper use. Immediately report any spill of a substance that is toxic, polluting, or deleterious to aquatic life of reportable quantities to the Provincial Emergency Program 24-hour phone line at 1-800-663-3456.
- (l) The footprints associated with the areas for staging, installation and accommodation areas should all be minimized.

From: s.22
To: Dalziel, Rod ENV:EX
Subject: Fwd: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)
Date: Thursday, March 30, 2017 5:09:08 PM
Attachments: [Sunshine Coast Regional District \(Authorization 102714\) Park Use Permit.pdf](#)
[Appendix A - Standards and Practices for Instream Works.pdf](#)
[Appendix B - Impact Assessment Report.pdf](#)
[Appendix C - Development Plan.pdf](#)
[Appendix D - Emergency Water Supply at Chapman Lake Report.pdf](#)
[Appendix E - Environmental Monitoring Plan.pdf](#)

Hi Rod
 I'd like to share this with the TAC - or you could if you like.
 Do you have any issues with that?
 Thanks

s.2
 ?

----- Forwarded message -----

From: Coupar, Meghan FLNR:EX <Meghan.Coupar@gov.bc.ca>
Date: 30 March 2017 at 16:12
Subject: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)
To: 's.22
Cc: "Dalziel, Rod ENV:EX" <Rod.Dalziel@gov.bc.ca>, "Anderson, Wade R ENV:EX" <Wade.Anderson@gov.bc.ca>, "Aikman, Jennie S ENV:EX" <Jennie.Aikman@gov.bc.ca>, "Hillyer, Tammy FLNR:EX" <Tammy.Hillyer@gov.bc.ca>

Authorization: #102714

Permittee: Sunshine Coast Regional District

Park: Tetrahedron Park

Dear s.22

As requested, please find attached a copy of the Sunshine Coast Regional District's Park Use Permit (Authorization Number 102714) for Tetrahedron Park.

If you have any questions or concerns regarding this permit, please contact BC Parks Area Supervisor Rod Dalziel.

Thank you,

Meghan Coupar

Parks Permit Clerk
FrontCounter BC - South Coast Regional Office
South Coast, Haida Gwaii/South Island Sections

Tel: [\(604\) 586-4439](tel:6045864439) Fax: [\(604\) 586-4434](tel:6045864434)
Toll Free: [1-877-855-3222](tel:18778553222)

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Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Friday, October 13, 2017
11:38 AM

Subject	Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)
From	s.22
To	Dalziel, Rod ENV:EX
Sent	Friday, March 31, 2017 9:22 AM



On Mar 31, 2017, at 09:19, Dalziel, Rod ENV:EX <Rod.Dalziel@gov.bc.ca> wrote:

Hello s.22

That should be fine.

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
📧: Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca

<image001.png>

<image002.jpg>

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From: s.22

Sent: Thursday, March 30, 2017 5:08 PM

To: Dalziel, Rod ENV:EX

Subject: Fwd: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Hi Rod

I'd like to share this with the TAC - or you could if you like.

Do you have any issues with that?

Thanks

s.22

----- Forwarded message -----

From: **Coupar, Meghan FLNR:EX** <Meghan.Coupar@gov.bc.ca>

Date: 30 March 2017 at 16:12

Subject: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

To: **s.22**

Cc: "Dalziel, Rod ENV:EX" <Rod.Dalziel@gov.bc.ca>, "Anderson, Wade R ENV:EX" <Wade.Anderson@gov.bc.ca>, "Aikman, Jennie S ENV:EX" <Jennie.Aikman@gov.bc.ca>, "Hillyer, Tammy FLNR:EX" <Tammy.Hillyer@gov.bc.ca>

Authorization: #102714

Permittee: Sunshine Coast Regional District

Park: Tetrahedron Park

Dear **s.22**

As requested, please find attached a copy of the Sunshine Coast Regional District's Park Use Permit (Authorization Number 102714) for Tetrahedron Park.

If you have any questions or concerns regarding this permit, please contact BC Parks Area Supervisor Rod Dalziel.

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Sections

Tel: (604) 586-4439 Fax: (604) 586-4434

Toll Free: 1-877-855-3222

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Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Friday, October 13, 2017
11:37 AM

Subject	Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)
From	s.22
To	Coupar, Meghan FLNR:EX
Cc	Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy FLNR:EX
Sent	Friday, March 31, 2017 9:46 AM

Thank you Meghan
. Your help with this is greatly appreciated.
Have a wonderful spring weekend!
Best

s.22

On Mar 30, 2017, at 16:12, Coupar, Meghan FLNR:EX <Meghan.Coupar@gov.bc.ca> wrote:

Authorization: #102714
Permittee: Sunshine Coast Regional District
Park: Tetrahedron Park

Dear s.22

As requested, please find attached a copy of the Sunshine Coast Regional District's Park Use Permit (Authorization Number 102714) for Tetrahedron Park.

If you have any questions or concerns regarding this permit, please contact BC Parks Area Supervisor Rod Dalziel.

Thank you,

Meghan Coupar

Parks Permit Clerk
FrontCounter BC - South Coast Regional Office
South Coast, Haida Gwaii/South Island Sections
Tel: (604) 586-4439 Fax: (604) 586-4434
Toll Free: 1-877-855-3222

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<Sunshine Coast Regional District (Authorization 102714) Park Use Permit.pdf>

<Appendix A - Standards and Practices for Instream Works.pdf>

<Appendix B - Impact Assessment Report.pdf>

<Appendix C - Development Plan.pdf>

<Appendix D - Emergency Water Supply at Chapman Lake Report.pdf>

<Appendix E - Environmental Monitoring Plan.pdf>

RE: 2016 Park Use Permit 102714 Annual Report

Friday, October 13, 2017

9:21 AM

Subject	RE: 2016 Park Use Permit 102714 Annual Report
From	Dalziel, Rod ENV:EX
To	'Lynda Fyfe'
Sent	Tuesday, April 4, 2017 4:09 PM

Hello Lynda,

I am unavailable tomorrow. I hope the weather cooperates.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉: Rod.Dalziel@gov.bc.ca

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From: Dalziel, Rod ENV:EX

Sent: Tuesday, March 7, 2017 1:12 PM

To: 'Lynda Fyfe'

Subject: RE: 2016 Park Use Permit 102714 Annual Report

Hello Lynda,

Thanks for the notice. I have put it in my calendar and will let you know if I am available.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉: Rod.Dalziel@gov.bc.ca

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BC Parks

From: Lynda Fyfe [<mailto:Lynda.Fyfe@scrd.ca>]

Sent: Tuesday, March 7, 2017 11:27 AM

To: Dalziel, Rod ENV:EX

Subject: FW: 2016 Park Use Permit 102714 Annual Report

Hi Rod,

I've booked the April snow survey for April 5th at 10am. There is room for you if you are available. The last survey took 3 hours including travel.

Cheers,
Lynda

Lynda Fyfe, RB Tech, RPP
Environmental Technician
Infrastructure Services, Sunshine Coast Regional District
Phone: 604.885.6800 ext 6489
Fax: 604.885.7909
lynda.fyfe@scrd.ca

From: Dalziel, Rod ENV:EX [<mailto:Rod.Dalziel@gov.bc.ca>]
Sent: Wednesday, February 15, 2017 12:32 PM
To: Lynda Fyfe <Lynda.Fyfe@scrd.ca>
Subject: RE: 2016 Park Use Permit 102714 Annual Report

Hello Lynda,

Thanks for the notice. Please keep me updated as if space is available I may wish to attend. How long would the trip take?

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
📧: Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca



BC Parks

From: Lynda Fyfe [<mailto:Lynda.Fyfe@scrd.ca>]
Sent: Wednesday, February 15, 2017 11:23 AM
To: Dalziel, Rod ENV:EX
Subject: RE: 2016 Park Use Permit 102714 Annual Report

Hello Rod,

This is to let you know that the next snow survey in Tetrahedron Park is booked tentatively for Tuesday February 28 at 10 am with two SCRD staff.

Thanks,
Lynda

Lynda Fyfe, Environmental Technician, RB Tech, RPP
Infrastructure Services, Sunshine Coast Regional District
Phone: 604.885.6800 ext 6489
Fax: 604.885.7909
lynda.fyfe@scrd.ca

From: Dalziel, Rod ENV:EX [<mailto:Rod.Dalziel@gov.bc.ca>]
Sent: Wednesday, January 11, 2017 2:29 PM

To: Lynda Fyfe <Lynda.Fyfe@scrd.ca>
Subject: RE: 2016 Park Use Permit 102714 Annual Report

Hello Lynda,

It is a pleasure to meet you over email and look forward to meeting you in person in the future as well. Thanks for the submission of the Annual Report. Thanks for keeping me posted on the proposed snow survey flight. Please keep me posted on a confirmed date because as you may be aware it is a requirement of the PUP and I may be interested in joining if space is available.

SPECIAL PROVISIONS

6. Flight Access

(a) The use of a helicopter for access to the structures is acceptable. The Permittee shall notify BC Parks as early as feasibly possible prior to any flights into Tetrahedron Park so that BC Parks may utilize available space or service of the helicopter for park operation purposes.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor
 BC Parks - South Coast Region - Ministry of Environment
 ☒: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
 ☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
 ✉: Rod.Dalziel@gov.bc.ca
 Visit the BC Parks website @ bcparks.ca



From: Lynda Fyfe [<mailto:Lynda.Fyfe@scrd.ca>]
Sent: Wednesday, January 11, 2017 11:05 AM
To: Dalziel, Rod ENV:EX
Cc: Shane Walkey
Subject: 2016 Park Use Permit 102714 Annual Report

Hi Rod,

My name is Lynda and I'm the new Environmental Technician at the Sunshine Coast Regional District, carrying on from Beth Brooks. I'm looking forward to meeting you – perhaps when we conduct snow survey in Tetrahedron Park. This is planned for the first week of February and I'll be able to pin it down closer to the date.

Please find the 2016 Park Use Permit Annual Report for Tetrahedron Park attached. Feel free to contact me with any questions or comments.

Sincerely,
 Lynda

Lynda Fyfe, Environmental Technician
 Infrastructure Services, Sunshine Coast Regional District
 Phone: 604.885.6800 ext 6489
 Fax: 604.885.7909
lynda.fyfe@scrd.ca



April 4, 2017

File: 2005157

Janette Loveys
Chief Administrative Officer
Sunshine Coast Regional District
1975 Field Road
Sechelt, BC V0N 3A1

Dear Janette,

Re: Clarification Regarding Environmental Flow Needs and Sensitive Stream Protection
Under the Water Sustainability Act

Following our conversation on March 8, 2017, I would like to provide you with some additional information to clarify the difference in the provincial legislative framework with the implementation of the *Water Sustainability Act* regarding environmental flow needs and sensitive stream protection.

Environmental Flow Needs

On February 29, 2016, the *Water Sustainability Act* (WSA) replaced the provincial *Water Act*. The WSA brings a formal requirement that a decision maker must consider and thereby determine the environmental flow needs (EFN) of a stream when making a decision on new surface water license applications and use approvals (see Section 15 in the WSA). EFN in relation to a stream is defined in the WSA as “the volume and timing of water flow required for the proper functioning of the aquatic ecosystem of the stream.” This new legal requirement is further supported by an Environmental Flow Needs Policy which, among other information on this topic, can be found at: www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/water-policies/environmental-flow-needs.

In relation to Chapman Creek, this means that any new surface water authorization application to divert water from the creek requires consideration and determination of the Chapman Creek EFN as part of the surface water authorization adjudication process.

Sensitive Stream Protection

Chapman Creek is one of fifteen sensitive streams that were originally designated under the *Fish Protection Act* and are now maintained under the WSA (See Schedule B of the *Water Sustainability Regulation*). This sensitive stream designation provides additional legislative authority for decision makers to consider impacts on fish populations and fish habitat at risk from damage to the aquatic ecosystem before approving new licenses, amendments to licences or issuing approvals for work in and about a stream.

.../2

According to Section 17 of the WSA, a decision maker may grant an application in relation to a sensitive stream only if they are satisfied that any adverse impact, resulting from granting the application, on the sustainability of any protected fish population of the sensitive stream is likely to be insignificant. Furthermore, Section 18 of the *Water Sustainability Regulation* states that a decision maker considering an application for an authorization in respect of a sensitive stream may require applicants to provide additional information on fish and fish habitat, flow, design of proposed works, proposed mitigation measures to protect fish habitat, etc.

In relation to Chapman Creek, this means that any new surface water authorization application to divert water from the creek requires the decision maker to consider the potential adverse impacts to the sustainability of the Chapman Creek fish populations and ensure the implementation of any mitigation or compensation measures to minimize these potential impacts.

Please let me know if you have any questions or need any further clarification.

Sincerely,



Remko Rosenboom
Manager Water Authorizations

Cc: Dave Crosby, Manager of Utility Services, Sunshine Coast Regional District
Lise Galand, Senior Aquatic Ecologist, Ministry of Forests, Lands and Natural Resource Operations

FW: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Thursday, October 12, 2017
11:09 AM

Subject	FW: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)
From	Coupar, Meghan FLNR:EX
To	Dalziel, Rod ENV:EX
Cc	Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy FLNR:EX; Heck, Carol FLNR:EX
Sent	Thursday, April 6, 2017 11:42 AM

Hi Rod,

Please see below a new request from s.22 that I received today.

s.22 was apparently looking for a copy of the SCRD's Amendment Permit which I believe is with you for Conduct Technical Review (T #349679). To my understanding, as the permit has not been approved, it cannot be released (**Megan B's email:** *"Permits that are DRAFT cannot be routinely released, as they represent advice to a decision maker- and until they make their decision the applicant has not been granted rights to the province to conduct the activity, we cannot release it."*).

Could you please follow up with s.22

Contact Information:

s.22

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Sections

Tel: (604) 586-4439 Fax: (604) 586-4434

Toll Free: 1-877-855-3222

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From s.22

Sent: Thursday, April 6, 2017 11:30 AM

To: Coupar, Meghan FLNR:EX

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Hi Meghan

I was just reviewing these documents and while I appreciate this interesting background it appears the doc I was seeking is not among them. I requested the amendment application to the PUP #102714 submitted by the SCRD on 30 January, 2017.

Would you please be kind enough to forward this me?

Thanks

s.22

On 30 March 2017 at 16:12, Coupar, Meghan FLNR:EX <Meghan.Coupar@gov.bc.ca> wrote:

Authorization: #102714

Permittee: Sunshine Coast Regional District

Park: Tetrahedron Park

Dear s.22

As requested, please find attached a copy of the Sunshine Coast Regional District's Park Use Permit (Authorization Number 102714) for Tetrahedron Park.

If you have any questions or concerns regarding this permit, please contact BC Parks Area Supervisor Rod Dalziel.

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Sections

Tel: (604) 586-4439 Fax: (604) 586-4434

Toll Free: [1-877-855-3222](tel:1-877-855-3222)

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Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Friday, October 13, 2017

9:19 AM

Subject	Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)
From	Coupar, Meghan FLNR:EX
To	s.22
Cc	Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy FLNR:EX; Heck, Carol FLNR:EX
Sent	Wednesday, April 12, 2017 10:06 AM

Hi s.22

I had forwarded your request for a copy of the Amendment Permit on April 06, 2017 to Parks staff to follow up with you on.

Please contact the Area Supervisor directly to discuss.

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Sections

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From s.22

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To: Coupar, Meghan FLNR:EX

Cc: Dalziel, Rod ENV:EX

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Hi Meghan

Still waiting for that doc!

Thank you!

s.2

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Re: Park Use Permit 102714 - Sunshine Coast Regional (Tetrahedron Park)

Monday, October 16, 2017
12:30 PM

Subject	Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahe
From	s.22
To	Coupar, Meghan FLNR:EX
Cc	Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tamm Carol FLNR:EX
Sent	Wednesday, April 12, 2017 10:27 AM

Thanks very much Meghan.

May I call consider this email a further reminder to you I

Cheers!

s.22

On Apr 12, 2017, at 10:06, Coupar, Meghan FLNR:EX <Meghan.Coupar@gov.bc.ca>

Hi s.22

I had forwarded your request for a copy of the Amendment Permit on April 11 to the staff to follow up with you on.

Please contact the Area Supervisor directly to discuss.

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Sent: Wednesday, April 12, 2017 9:53 AM
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Cc: Dalziel, Rod ENV:EX
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 appreciate your input.

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RE: Park Use Permit 102714 - Sunshine Coast Regional (Tetrahedron Park)

Monday, October 16, 2017
12:31 PM

Subject	RE: Park Use Permit 102714 - Sunshine Coast Regional District (Tetra
From	Anderson, Wade R ENV:EX
To	s.22 Coupar, Meghan FLNR:EX
Cc	Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy FLNR:EX; Heck, Carc
Sent	Wednesday, April 12, 2017 11:16 AM

Hello s.22

Park use permits that are at the application or draft phase cannot be routinely public as they represent advice to a statutory decision maker. Until a final decision is made, the applicant has not been granted rights to the province to conduct the activity. Parks cannot release the requested document.

If you have any questions or concerns please contact me directly.

Regards

Wade R. Anderson

Parks and Protected Areas Section Head
South Coast Region
BC Parks
Telephone: (604) 898-3678 (ext 2232)
Mobile: (604) 848-5472
Fax: (604) 898-4171
Email: Wade.Anderson@gov.bc.ca
BC Parks Website: www.gov.bc.ca/bcparks



From: s.22 s.22
Sent: Wednesday, April 12, 2017 10:28 AM
To: Coupar, Meghan FLNR:EX
Cc: Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy FLNR:EX; Heck, Carol FLNR:EX
Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Thanks very much Meghan.

May I call consider this email a further reminder to you

Cheers!

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Sent: Wednesday, April 12, 2017 9:53 AM

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Cc: Dalziel, Rod ENV:EX

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetra

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Permittee: Sunshine Coast Regional Distr

Park: Tetrahedron Park

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Thank you,

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Re: Park Use Permit 102714 - Sunshine Coast Regional (Tetrahedron Park)

Monday, October 16, 2017
12:33 PM

Subject	Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetraher
From	s.22
To	Anderson, Wade R ENV:EX
Cc	Coupar, Meghan FLNR:EX; Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy F FLNR:EX; Nicholas Simons, s.22
Sent	Wednesday, April 12, 2017 11:36 AM

Thank you Mr. Anderson. This is simply an *amendment* to an existing PUP. If you request would you please advise who to direct my FOI?

Needless to say I'm very disappointed in BCP's lack of cooperation on what are ve grounds.

Regards

s.22

?

On Apr 12, 2017, at 11:16, Anderson, Wade R ENV:EX <Wade.Anderson@gov.bc.ca>

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South Coast Region
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Mobile: (604) 848-5472
Fax: (604) 898-4171
Email: Wade.Anderson@gov.bc.ca
BC Parks Website: www.gov.bc.ca/bcparks

<image001.jpg>

From: s.22

Sent: Wednesday, April 12, 2017 10:28 AM

To: Coupar, Meghan FLNR:EX

Cc: Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy F FLNR:EX; Heck, Carol FLNR:EX

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Thanks very much Meghan.

May I call consider this email a further reminder to you

Cheers!

s.
2

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Please contact the Area Supervisor directly to disc

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From: s.22

Sent: Wednesday, April 12, 2017 9:53 AM

To: Coupar, Meghan FLNR:EX

Cc: Dalziel, Rod ENV:EX

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetra

Hi Meghan

Still waiting for that doc!

Thank you!

s.
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Authorization: #102714

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If you have any questions or concerns regarding this permit, please c Area Supervisor Rod Dalziel.

Thank you,

Meghan Coupar

Parks Permit Clerk

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South Coast, Haida Gwaii/South Island Secti

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Re: Park Use Permit 102714 - Sunshine Coast Regional (Tetrahedron Park)

Monday, October 16, 2017
12:34 PM

Subject	Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetraher
From	s.22
To	s.22
Cc	Anderson, Wade R ENV:EX; Coupar, Meghan FLNR:EX; Dalziel, Rod ENV:EX; Aikman, Jennie FLNR:EX; Heck, Carol FLNR:EX; Nicholas Simons s.22
Sent	Wednesday, April 12, 2017 11:40 AM

Go Barry!

s.22

On Apr 12, 2017, at 11:36 AM, s.22 <s.22@...>

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On Apr 12, 2017, at 11:16, Anderson, Wade R ENV:EX <Wade.Anderson@gov.bc.ca>

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Regards

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Parks and Protected Areas Section Head
South Coast Region
BC Parks
Telephone: (604) 898-3678 (ext 2232)
Mobile: (604) 848-5472
Fax: (604) 898-4171
Email: Wade.Anderson@gov.bc.ca
BC Parks Website: www.gov.bc.ca/bcparks

<image001.jpg>

From: s.22 <s.22@...>mailto:s.22

Sent: Wednesday, April 12, 2017 10:28 A

To: Coupar, Meghan FLNR:EX

Cc: Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:E FLNR:EX; Heck, Carol FLNR:EX

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Te

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s.22

RE: Park Use Permit 102714 - Sunshine Coast Regional (Tetrahedron Park)

Monday, October 16, 2017
12:34 PM

Subject	RE: Park Use Permit 102714 - Sunshine Coast Regional District (Tetr
From	Anderson, Wade R ENV:EX
To	s.22
Sent	Wednesday, April 12, 2017 12:11 PM

Please refer to the process described in the attached

<http://www2.gov.bc.ca/gov/content/governments/about-the-bc-government/open-government/open-information/freedom-of-information>

Regards,

Wade R. Anderson

Parks and Protected Areas Section Head
South Coast Region
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Email: Wade.Anderson@gov.bc.ca
BC Parks Website: www.gov.bc.ca/bcparks



BC Parks

From s.22 [r s.22]
Sent: Wednesday, April 12, 2017 11:37 AM
To: Anderson, Wade R ENV:EX
Cc: Coupar, Meghan FLNR:EX; Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Hill FLNR:EX; Heck, Carol FLNR:EX; Nicholas Simons; s.22
Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetra

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<image001.jpg>

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Cc: Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; FLNR:EX; Heck, Carol FLNR:EX
Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahydrocannabinol)

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Re: Park Use Permit 102714 - Sunshine Coast Regional (Tetrahedron Park)

Monday, October 16, 2017
12:45 PM

Subject	Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetra
From	s.22
To	Anderson, Wade R ENV:EX
Cc	Nicholas Simons; Dalziel, Rod ENV:EX
Sent	Wednesday, April 12, 2017 12:39 PM

Thanks.

If I know the system well enough I gather I need to direct my FOI to the ministry re you please advise who that is in MOE.

Thank you for your help here sir.

Regards

s.
??

On Apr 12, 2017, at 12:11, Anderson, Wade R ENV:EX <Wade.Anderson@gov.bc.ca>

Please refer to the process described in the attached

<http://www2.gov.bc.ca/gov/content/governments/about-the-bc-government/open-government/open-information/freedom-of-information>

Regards,

Wade R. Anderson

Parks and Protected Areas Section Head
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Email: Wade.Anderson@gov.bc.ca
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<image001.jpg>

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Sent: Wednesday, April 12, 2017 11:37 AM

To: Anderson, Wade R ENV:EX

Cc: Coupar, Meghan FLNR:EX; Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Hill FLNR:EX; Heck, Carol FLNR:EX; Nicholas Simons s.22

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetra

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BC Parks Website: www.gov.bc.ca/bcparks

<image001.jpg>

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To: Coupar, Meghan FLNR:EX
Cc: Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; Heck, Carol FLNR:EX
Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahydrocannabinol)

Thanks very much Meghan.

May I call consider this email a further reminder to you

Cheers!

s.22
2

On Apr 12, 2017, at 10:06, Coupar, Meghan FLNR:EX <Meghan.Coupar@gov.bc.ca> wrote:

Hi s.22

I had forwarded your request for a copy of the Amendment Permit on April 11, 2017 to staff to follow up with you on.

Please contact the Area Supervisor directly to discuss your request.

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Section

Tel: (604) 586-4439 Fax: (604) 586-4439

Toll Free: 1-877-855-3222

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From: s.22

Sent: Wednesday, April 12, 2017 9:53 AM

To: Coupar, Meghan FLNR:EX

Cc: Dalziel, Rod ENV:EX

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Hi Meghan

Still waiting for that doc!

Thank you!

s.22

Hi Meghan

I was just reviewing these documents and while I appreciate this information and background it appears the doc I was seeking is not among them. I received an amendment application to the PUP #102714 submitted by the SCRD on March 30, 2017.

Would you please be kind enough to forward this to me?

Thanks

s.22

On 30 March 2017 at 16:12, Coupar, Meghan FLNR:EX <Meghan.Coupar@scrd.bc.ca> wrote:

Authorization: #102714

Permittee: Sunshine Coast Regional District

Park: Tetrahedron Park

Dear s.22

As requested, please find attached a copy of the Sunshine Coast Regional District Park Use Permit (Authorization Number 102714) for Tetrahedron Park.

If you have any questions or concerns regarding this permit, please contact
Area Supervisor Rod Dalziel.

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Section

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RE: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Friday, October 13, 2017
11:33 AM

Subject	RE: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)
From	Anderson, Wade R ENV:EX
To	s.22
Sent	Wednesday, April 12, 2017 3:41 PM

Hi s.22

Just for clarification, there is no amendment document draft or otherwise that we can share with you because it does not exist. There has been an application for an amendment to the existing PUP and that is all. If you would like to call me to discuss, please feel free. If you feel that is necessary to find out that there is no document by going the long way around through an FOI request please feel free to do so by following the process in the link I provided, the Ministry specific contacts are all available on that web page.

Regards,

Wade R. Anderson

Parks and Protected Areas Section Head
South Coast Region
BC Parks
Telephone: (604) 898-3678 (ext 2232)
Fax: (604) 898-4171
Email: Wade.Anderson@gov.bc.ca
BC Parks Website: www.gov.bc.ca/bcparks



From: s.22

Sent: Wednesday, April 12, 2017 12:40 PM

To: Anderson, Wade R ENV:EX

Cc: Nicholas Simons; Dalziel, Rod ENV:EX

Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Thanks.

If I know the system well enough I gather I need to direct my FOI to the ministry responsible. Would you please advise who that is in MOE.

Thank you for your help here sir.

Regards

s.2
?

On Apr 12, 2017, at 12:11, Anderson, Wade R ENV:EX <Wade.Anderson@gov.bc.ca> wrote:

Please refer to the process described in the attached link.

<http://www2.gov.bc.ca/gov/content/governments/about-the-bc-government/open-government/open-information/freedom-of-information>

Regards,

Wade R. Anderson

Parks and Protected Areas Section Head
South Coast Region
BC Parks
Telephone: (604) 898-3678 (ext 2232)
Fax: (604) 898-4171
Email: Wade.Anderson@gov.bc.ca
BC Parks Website: www.gov.bc.ca/bcparks

<image001.jpg>

From: s.22 [s.22]
Sent: Wednesday, April 12, 2017 11:37 AM
To: Anderson, Wade R ENV:EX
Cc: Coupar, Meghan FLNR:EX; Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy FLNR:EX; Heck, Carol FLNR:EX; Nicholas Simons; s.22 s.22
Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Thank you Mr. Anderson. This is simply an *amendment* to an existing PUP. If you are refusing this request would you please advise who to direct my FOI?

Needless to say I'm very disappointed in BCP's lack of cooperation on what are very sketchy grounds.

Regards
s.22

On Apr 12, 2017, at 11:16, Anderson, Wade R ENV:EX <Wade.Anderson@gov.bc.ca> wrote:

Hello s.22

Park use permits that are at the application or draft phase cannot be routinely released to the public as they represent advice to a statutory decision maker. Until a final decision is made, the applicant has not been granted rights to the province to conduct the activity, and BC Parks cannot release the requested document.

If you have any questions or concerns please contact me directly.

Regards

Wade R. Anderson

Parks and Protected Areas Section Head
South Coast Region
BC Parks
Telephone: (604) 898-3678 (ext 2232)
Mobile: (604) 848-5472
Fax: (604) 898-4171
Email: Wade.Anderson@gov.bc.ca

BC Parks Website: www.gov.bc.ca/bcparks

<image001.jpg>

From: s.22 [m] s.22
Sent: Wednesday, April 12, 2017 10:28 AM
To: Coupar, Meghan FLNR:EX
Cc: Dalziel, Rod ENV:EX; Anderson, Wade R ENV:EX; Aikman, Jennie S ENV:EX; Hillyer, Tammy FLNR:EX; Heck, Carol FLNR:EX
Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Thanks very much Meghan.

May I call consider this email a further reminder to you Rod?

Cheers!

s.22

On Apr 12, 2017, at 10:06, Coupar, Meghan FLNR:EX <[Meghan.Coupar@gov.bc.ca](mailto: Meghan.Coupar@gov.bc.ca)> wrote:

Hi s.22

I had forwarded your request for a copy of the Amendment Permit on April 06, 2017 to Parks staff to follow up with you on.

Please contact the Area Supervisor directly to discuss.

Thank you,

Meghan Coupar

Parks Permit Clerk
 FrontCounter BC - South Coast Regional Office
 South Coast, Haida Gwaii/South Island Sections
 Tel: (604) 586-4439 Fax: (604) 586-4434
 Toll Free: 1-877-855-3222

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From s.22
Sent: Wednesday, April 12, 2017 9:53 AM

To: Coupar, Meghan FLNR:EX
Cc: Dalziel, Rod ENV:EX
Subject: Re: Park Use Permit 102714 - Sunshine Coast Regional District (Tetrahedron Park)

Hi Meghan
Still waiting for that doc!
Thank you!

s.22

Hi Meghan

I was just reviewing these documents and while I appreciate this interesting background it appears the doc I was seeking is not among them. I requested the amendment application to the PUP #102714 submitted by the SCRD on 30 January, 2017.

Would you please be kind enough to forward this me?
Thanks

s.22

On 30 March 2017 at 16:12, Coupar, Meghan FLNR:EX <Meghan.Coupar@gov.bc.ca> wrote:

Authorization: #102714

Permittee: Sunshine Coast Regional District

Park: Tetrahedron Park

Dear s.22

As requested, please find attached a copy of the Sunshine Coast Regional District's Park Use Permit (Authorization Number 102714) for Tetrahedron Park.

If you have any questions or concerns regarding this permit, please contact BC Parks Area Supervisor Rod Dalziel.

Thank you,

Meghan Coupar

Parks Permit Clerk

FrontCounter BC - South Coast Regional Office

South Coast, Haida Gwaii/South Island Sections

Tel: [\(604\) 586-4439](tel:(604)586-4439) Fax: [\(604\) 586-4434](tel:(604)586-4434)

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FW: SCRD response to comments - BC Parks

Thursday, October 12, 2017
1:55 PM

Subject	FW: SCRD response to comments - BC Parks
From	Aikman, Jennie S ENV:EX
To	Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX
Cc	Anderson, Wade R ENV:EX
Sent	Wednesday, April 26, 2017 3:27 PM
Attachments	 BC Parks re Environme...

Please see the attached response to the comments submitted by BC Parks.

Jennie Aikman
 Regional Director, South Coast Region
 BC Parks | Ministry of Environment
 Office phone: (604) 924-2227
 Cell phone: (778) 875-8494

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From: Dave Crosby [<mailto:Dave.Crosby@scrd.ca>]
Sent: Monday, April 24, 2017 3:23 PM
To: Aikman, Jennie S ENV:EX
Cc: Janette Loveys; 'dewynter, Brett'; Tracey Hincks
Subject: FW: SCRD response to comments - BC Parks

Hi Jennie

Please find attached our responses to comments from BC Parks, FLNRO and First Nations regarding the Environmental Assessment Report for the Chapman Lake Expansion Project. The staff report and responses were received at our April 20, 2017 Infrastructure Services Committee meeting. You will receive the originals by mail.

Dave Crosby
 Manager of Utility Services
 Special Projects
 Sunshine Coast Regional District
 Tel: 604 885 6800 Ext.6494
dave.crosby@scrd.ca

Join us for a [community dialogue](#) in your neighbourhood!

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Sunshine Coast Regional District

1975 Field Road
Sechelt, British Columbia
Canada V0N 3A1

P 604.885.6800
F 604.885.7909
Toll free 1.800.687.5753

info@scrd.ca
www.scrd.ca



April 24, 2017

Jennie Aikman
Regional Director, BC Parks South Coast Region
1610 Mount Seymour Road
North Vancouver BC V7G 2R9

Dear Ms. Aikman,

Re: Chapman Lake Environmental Assessment – SCRD Responses to Comments

On January 30, 2017, the SCRD submitted the Environmental Assessment Report to BC Parks, FLNRO and our First Nations partners, shíshálh and Skwxwú7mesh Nations. The Environmental Assessment Report was presented at the February 16, 2017 Infrastructure Services Committee meeting.

On March 16, 2017, SCRD received comments from shíshálh Nation and on March 24, 2017, the SCRD received comments from BC Parks and FLNRO. To date, no comments have been received from the Skwxwú7mesh Nation.

The SCRD's responses to comments from BC Parks, FLNRO and shíshálh Nation were presented by AECOM and SCRD staff at the April 20, 2017 Infrastructure Services Committee meeting. Please find enclosed, the report outlining the SCRD responses to BC Parks and FLNRO comments on the Environmental Assessment for the Chapman Lake Expansion Project.

Please contact Dave Crosby, Manager, Utility Services (Special Projects) should you have any questions or require additional information related to this submission.

Yours truly,

SUNSHINE COAST REGIONAL DISTRICT

Dave Crosby
Manager, Utility Services (Special Projects)

DC/th

cc: Janette Loveys, SCRD
Brett deWynter, AECOM

Attachment: Chapman Lake Expansion Project – Environmental Assessment Report – SCRD Response to Comments

ELECTORAL AREAS: A - Egmont, Pender Harbour B - Halfmoon Bay D - Roberts Creek E - Elphinstone F - West Howe Sound
MUNICIPALITIES: District of Sechelt / Sechelt Indian Government District / Town of Gibsons

SUNSHINE COAST REGIONAL DISTRICT STAFF REPORT

TO: Infrastructure Services Committee – April 20, 2017

AUTHOR: Janette Loveys, Chief Administrative Officer

SUBJECT: CHAPMAN LAKE EXPANSION PROJECT – ENVIRONMENTAL ASSESSMENT REPORT

RECOMMENDATION(S)

THAT the report titled Chapman Lake Expansion Project - Environmental Assessment Report be received.

BACKGROUND

The SCRD applied for an amendment to its Chapman Lake Park Use Permit (PUP) on April 13, 2016 and Water Licence Amendment on April 18, 2016, to allow the installation of a gravity fed withdrawal system to provide additional water supply from Chapman Lake.

The Board was informed at the June 9, 2016, Special Infrastructure Services Committee meeting that the SCRD received formal notice from BC Parks, by letter received June 6, 2016, requiring further field investigation work in order to fully adjudicate the proposal and issue the Parks Use Permit Amendment.

In addition to the BC Parks requirement, the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) formally requested by email received June 20, 2016, that a new water license application be submitted along with an Environmental Flow Needs (EFN) study as part of the Chapman Lake Water Supply Expansion project.

On January 30, 2017, the SCRD submitted the Environmental Assessment Report to BC Parks, FLNRO and our First Nations partners, shishálh and Skwxwú7mesh Nations. The Environmental Assessment Report was on the February 16, 2017 Infrastructure Services Committee agenda.

On March 16, 2017, SCRD received comments from shishálh Nation. On March 24, 2017, SCRD staff received comments from BC Parks and FLNRO. To date, no comments have been received from the Skwxwú7mesh Nation.

The purpose of this report is to bring forward the respective comments and response to Committee.

DISCUSSION

Attached to this cover report are the respective comments and responses in summary sections related to the Environmental Assessment Report.

At the April 20, 2017 Committee meeting, ACEOM will provide a presentation and respond to any questions of a technical nature.

BC Parks and FLNRO have asked that this summary is provided to them no later than May 4, 2017.

STRATEGIC PLAN AND RELATED POLICIES

This report directly links to the set of values identified in the Strategic Plan.

This project supports the SCRD Strategic Plan priority to Embed Environmental Leadership through responsible management of the region's water supply.

CONCLUSION

The SCRD submitted a PUP amendment application to BC Parks in April 2016. BC Parks has requested that additional project information as well as additional environmental studies and impact assessments be performed and submitted in order to complete their review.

Attached to this cover report are the respective comments and responses in summary sections related to the Environmental Assessment Report.

Reviewed by:			
Manager	X – D. Crosby	Finance	
GM		Legislative	
CAO	X – J. Loveys	Other	

<p>background and rationale for undertaking the Chapman Lake Project, as well as additional description of other water supply and demand management options considered. Demand management and development of other water sources are of interest because they will reduce future dependence on Chapman Lake water and allow greater flexibility to manage drawdown to protect values at Chapman Lake. Section 1 and 2 of the Chapman Lake EA provide additional details regarding the rationale, but description of other supply and demand management options considered and proposed for the future is still lacking. We assume this type of information is available in the Comprehensive Regional Water Plan (CRWP) (Opus Dayton Knight 2013) but request a summary of the long term source development and demand management projects that are being developed, including timelines, be provided in support of the Park Use Permit application. Also, please address if there any plans to scale back or decommission infrastructure at Chapman Lake once other sources are developed.</p>	<p>SCRD</p>	<p>(5000 meters). District of Sechelt to be completed in 2017. Development of areas to test drill) to be completed in 2018. Development of source beyond 2018 dependent on findings of Storage - Investigation for acquiring site for Comprehensive Regional Water Plan (CRWP) Construction is undetermined. The CRWP contemplates scaling back or decommissioning Chapman Lake.</p>	<p>Comments provided below.</p>
		<p>The following four comments (#3-6) relate to the uncertainties that exist regarding the future frequency, extent and duration of drawdown ("drawdown regime"). Uncertainty regarding drawdown regime is in turn related to uncertainties in future hydrology, climate, and downstream environmental flow needs. In a general sense, the following four comments are meant to demonstrate that important uncertainty exists regarding future drawdown regime, and thus conclusions regarding residual impacts are uncertain. Unless a specific request is made, no response is required to these comments, other than to acknowledge that future drawdown regime is uncertain.</p>	<p>Climate change makes it difficult to predict certainty, i.e. comment #5 to FLNRO further range of outcomes from the models used to precipitation from climate change.</p>
		<p>Section 2 and Appendix A provide analyses of historical and current hydrology of the Chapman Creek watershed and how climate change may alter hydrology in the future. Our interpretation is that although existing data and climate models can be used to make predictions, important uncertainties remain regarding future hydrology and climate conditions, as outlined below.</p>	<p>SCRD will continue to collect data from Chapman Creek to augment the data from 2014-2016. As new predicted hydrology of Chapman can be updated</p>
		<p>The characterization of current hydrology in the Chapman Creek watershed and its capacity to meet future water demands is primarily based on analysis of water gauge data collected in the Chapman Creek watershed 1959 to 1988. More recent data analysis is limited to data collected since 2014 when remote monitoring and management of lake levels was implemented associated with the existing Chapman Lake dam. Thus the analysis may not fully reflect more recent changes in the hydrology of the watershed since the late 1980s.</p>	

<p>Chapman Creek watershed will respond to climate change. For example, the analysis in Appendix 'A' uses model predictions for the Metro Vancouver area extrapolated to the Sunshine Coast. To increase the potential accuracy of climate change predictions for the Chapman Creek watershed, Appendix 'A' recommends a more detailed hydrological and hydraulic assessment of water balance in the watershed based on climate projection information, and comparison of local geographic and climate data to Metro Vancouver data to confirm the relevance of Metro Vancouver projections applied to Chapman Creek, although these analyses have not been done. We request confirmation of whether or not the more detailed hydrological analyses as recommended in Appendix 'A' will be done.</p>	<p>B. Ford/SCRD</p>	<p>responses below based on the tools provided by the Pacific Climate Impact Consortium. Staff are supporting detailed hydrological analysis as recommended in order to gain more information for the future have to follow process in order to gain support from Board. Once we go through this process we will be able to BC Parks.</p>
<p>Although there is uncertainty regarding the future hydrology of Chapman Creek, generally the predictions related to climate change are smaller snowpack, longer and drier summers, and dry conditions that will extend further into the fall. In our June 8, 2016 comments we expressed concern about the potential for increased frequency of drought, and the associated increased frequency, extent and duration of drawdown, to cause long-term changes to the water table and recharge rates of Chapman Lake. The Chapman Lake EA does not provide analysis or discussion of this issue, other than to state that the recharge rate is fast, based on the fact that the lake went from almost -3m to full pool over 4.5 days of rainfall in the fall of 2015. However, it is unclear whether rapid recharge would continue with climate change and under repeated and prolonged drought and drawdown conditions. We request further discussion of the risk that the water table could be lowered over the long-term under more frequent drought and more frequent and extended large drawdown, and the associated risk of changes to recharge rates of Chapman Lake.</p>	<p>B. Ford</p>	<p>The Pacific Climate Impact Consortium (www.pacificclimate.org) provides a tool (P) that estimates various parameters that will be a change and output can be tailored to specific periods. The output for the Sunshine Coast Spring (March - May) and Fall (September - November) shows an increase in rainfall and Summer will experience an increase in rainfall and Summer will experience less rain. The predicted increase in rainfall supports the assumption that the lake will recharge fairly quickly. Also the model predicts high recharge across all seasons. This may actually increase to recharge the water table with fewer days which will allow greater infiltration and recharge which will allow greater infiltration and recharge is an estimated increase in rainfall that will replenish the water table at the end of a dry</p>
<p>3.6 (p. 56) G</p> <p>The analysis of fish habitat and environmental flow needs presented in Section 5.3.6 (p. 56) and Appendix G suggests that the current operating procedure of providing a minimum of 0.2 m³/s during low flows is adequate for rearing salmonids, but not consistently adequate for adult salmonids migrating upstream. The requirement to provide adequate flow for migrating adult salmonids in the future may increase future drawdown requirements and presents a source of uncertainty around predicting the future frequency and severity of drawdown of Chapman Lake. We are not requesting further analysis of this issue at this time other than acknowledgement that drawdowns of Chapman Lake could be larger and more frequent than assumed in the Chapman Lake EA. We are also interested in responses to additional questions raised by FLNRO regarding environmental flow needs.</p>		<p>See response to FLNRO's comments.</p>

	<p>Chapman Lake Project (as summarized in the Executive Summary and Table 28) are based on the assumption that drawdown below -3 m would be relatively infrequent and of short duration. However, our interpretation is that important uncertainties remain around the assumption of low frequency and short duration of large drawdowns, especially in the long-term. For example, if increased drawdown is required in the future to provide adequate flows for fish, large drawdowns may be more frequent and longer lasting than predicted, leading to larger than expected residual effects on environmental components in and around Chapman Lake. This in turn suggests that the conclusions of low to moderate residual effects associated with operation of the Chapman Lake project are also uncertain, and residual effects may be larger than predicted. Monitoring during operation will be required to detect impacts and develop mitigation/adaptive management, and a plan for monitoring during operation will need to be developed (see comment #28).</p>		<p>as a drinking water source + an emergency during drought. An environmental monitorir prepared and submitted to the shisháh Na FLNRO for review and comment. They will SCRD Policy Decision.</p>
<p>3.1.2</p>	<p>Section 6.3.1.2 (p. 69) provides assessment of residual effects on soil and vegetation during operation. The assessment considers the following potential impacts: exposure of shoreline and associated increased risk of erosion and sedimentation, and additional hydrological drawdown of wetlands during drought conditions. The Chapman Lake EA concludes that long term effects are not expected "given that these events are relatively infrequent and of short duration". However, large drawdowns and associated impacts may be more frequent and longer in duration than suggested, especially in the longer-term. In addition, it is unknown whether or not multiple years of drought and large and extended drawdowns could lead to a long term lowering of the water table, which could have important impacts on vegetation. Thus it should be acknowledged that impacts are uncertain and may be greater than suggested in the Chapman Lake EA. We also request that wetland water levels and wetland vegetation be monitored during operation to detect potential impacts of drawdown and possible changes in water table.</p>	<p>B. Ford</p>	<p>An environmental monitoring program will t would include the monitoring of water level: to lake levels to determine if drawdown effe wetland areas.</p>

<p>shoreline during large drawdown has not been clearly considered. For example, the analysis of sediment quality in Section 5.2.3 (p. 41) does not appear to include an analysis of sediment depth, which could influence bank stability. Section 6.5.1.2 (p. 77) states that concern has been expressed regarding instability of the deltas around major tributaries that flow into Chapman Lake, but concludes that a major movement of lake sediments is unlikely because the bathymetry of the lake is not steep in these areas. However, the potential for slope failures in other steeper areas of the lake bed does not appear to have been considered. The potential for rapid refilling of the lake during rain events to cause slope failures also does not appear to have been considered. We request additional analysis of the potential for sloughing of sediments during large or extended drawdown throughout all areas of the lake, and suggest involvement of a Geotechnical Engineer in this analysis.</p> <p>5.2.3 (p. 77)</p> <p>5.1.2</p>	<p>water levels however, the draw down and in over several days. The rate of water level considered fast and not expected to affect saturation of a dried shoreline in sections c increase the potential for instability and shc The main source of erosion and sedimenta outflow of the larger creeks cutting into the they cut a channel to the water's edge. Th from wind and wave action along the shore away at the shore creating an over steeper slough into the lake. However, no significa influences on the shoreline of Chapman La during the 2016 survey. Also, any sedime short lived and unlikely to cause any lasting concern will be addressed in the Environm Program.</p>	<p>K. Eskoch</p>
<p>5.2.2</p>	<p>Section 6.5.2.2 (p. 79-80) suggests that Dolly Varden in Chapman Lake will be resilient to potential impacts of operational drawdown on spawning because there are multiple age classes in the lake, i.e. if spawning is restricted in one year due to drought, there will be a cohort of spawners available to spawn the next year. However, drought events (even a 1:25 year drought) can occur more than one year in a row and drought events may become more frequent in the future due to climate change. Thus the potential for drawdown to negatively affect spawning may be greater than assumed in the Chapman Lake EA report. No response is required to this comment other than to acknowledge that risks of impacts to Dolly Varden are likely greater than expected and thus monitoring of Dolly Varden during operation will be required (see next comment).</p>	<p>See response to FLNRO's comment #6. It that there is uncertainty in the assessment this project and the SCRD will be developir monitoring program to collect additional da effect of drawing the lake down below 3 m.</p>
<p>Monitoring of the Dolly Varden population in Chapman Lake is required during operation to detect negative changes that could result from more frequent, longer and deeper drawdowns. It is not clear from the Chapman Lake EA if the data collected to date are sufficient to provide baseline to monitor changes in population over time. A monitoring plan will need to be developed prior to construction, and designed with appropriate methods and measurements that allow for detection of changes in the Dolly Varden population. The monitoring plan will identify if additional information needs to be collected pre and/or during construction. Monitoring will need to continue during operation to detect impacts and develop and implement mitigation as needed.</p>	<p>It would be counter productive to continue i population information in the same manner Whitehead (1999) and AECOM (2016). Re could do more to damage the population th down scenario. Even using live capture tex stressful on the fish as they have to be han of the capture device. Before committing tc might cause more harm than good, there n evaluation of the actual impacts during dra down actually restrict access to spawning e proposed environmental monitoring plan cc adaptive component that would allow for m monitoring program to focus on the asent,</p>	<p>B. Ford</p>

The species discussed are not at risk. While limited, our observations were that these were even above the full lake level and may not be connected to the lake. The monitoring program for monitoring pond levels relates

<p>3.1.4</p>	<p>Fish tissue sample results reported in Section 5.3.1.4 (p. 47-48) show total mercury in fish tissue was above the CCME and BC Tissue Residue Guidelines to Protect Wildlife from Mercury Toxicity in four of the five fish sampled. However, Section 5.3.1.4 states "there was no evidence during the 2016 field study to indicate that the elevated levels of mercury in the Dolly Varden of Chapman Lake was anything but natural." We request more details explaining why the Chapman Lake EA came to this conclusion.</p>	<p>B. Ford</p>	<p>Chapman Lake has been in a park for 30 years with industrial activity in that time period. The mercury currently circulating through the system is from the EA report) reported mercury levels below the rock sample analyzed. Suggest that soil and sediment be included in the environmental monitoring program submitted in early July.</p>
<p>5.1.2</p>	<p>Tissue sampling for mercury was conducted to establish a baseline for comparison to samples collected in the future because of concern that increasing drawdown may lead to elevated levels of methylmercury in the food web. High levels of methylmercury are known to be generated in newly created reservoirs, but evidence also suggests that large drawdown in established reservoirs may also lead to increases in methylmercury formation (see Azimuth 2015, cited in the Chapman Lake EA). Discussion presented in Section 6.5.1.2 (p. 76-77) suggests that methylmercury formation related to drawdown is not a problem at Chapman Lake because it is much smaller, experiences less drawdown, and has less inundation of vegetation than Carpenter Lake, the reservoir studied in Azimuth (2015). However, Carpenter Lake is only one reservoir where elevated mercury levels have been potentially linked to water level fluctuations. References in Azimuth (2015) and elsewhere (e.g. Willacker <i>et al.</i> 2016 http://dx.doi.org/10.1016/j.scitotenv.2016.03.050 document studies that included a range of waterbody sizes and conditions (including smaller reservoirs and a range of drawdown regimes). These studies repeatedly showed relationships between water level fluctuations and increased mercury in fish. The 2016 tissue sample results for Chapman Lake combined with evidence in the literature suggests to us a possible link between elevated mercury levels in fish tissue and the existing drawdown regime in Chapman Lake. In addition, increasing drawdown in the future may exacerbate this problem. We recommend that fish tissue sampling be included in the monitoring program during operation.</p>	<p>B. Ford</p>	<p>The Dolly Varden population is not fished for consumption. But as indicated the environmental monitoring program will include sediment and soil sample mercury content.</p>
	<p>Total mercury in the water column (which includes methylmercury) was well below water quality criteria (as reported in Section 6.5.1.2 and Appendix 'D'). However, mercury accumulates in the sediment and this is primarily where methylmercury formation occurs. The sediments may be the source of higher than criteria levels of mercury observed in fish tissue. Analysis of metals (including mercury) in sediment should be included in future monitoring, including during the summer of construction to provide a baseline pre-operation.</p>	<p>B. Ford</p>	<p>As suggested re Comment 14a.</p>
	<p>The executive summary states that the intake for the pipe will have an invert</p>		<p>The diversion pipe will be full at all times for</p>

<p>2 (p.</p>	<p>pipe the lake may have to be drawn down below the -8m level depending on the type of coffer dam used." Has consideration been given to a possible situation where drought conditions are experienced at this time when lake is already below -8 m? The schedule for construction and choice of coffer dam used must be designed to minimize the duration of deep and maximum (-8 m) drawdown as much as possible.</p>	
<p>0:</p>	<p>Section 5.0: The data collected during the 2016 field assessment and the details of sampling methods and sampling locations will be required to allow for comparison with future field assessments and data (i.e. to monitor environmental change and impacts). Most of this information appears to be included in the Chapman Lake EA and its appendices. Digital versions of spatial data files for sampling locations, occurrence records, Terrestrial Ecosystem Mapping (TEM), etc. will also be needed. Please confirm that SCRD has been or will be provided with digital spatial data (including TEM polygons) and any other raw data/sampling information required for future monitoring.</p>	<p>AECOM will provide SCRD with electronic spreadsheets, GIS, databases and reports</p> <p>B. Ford</p>
<p>1 5.3.4</p>	<p>In Section 5.3.4 (p. 54) fish habitat in south eastern stream was rated low to moderate in part due to no fish captured. Note that on August 24th Joanna Hirner observed a small fish (assumed to be Dolly Varden) in a pool associated with this stream.</p>	<p>Based on the fish sampling the north east is more productive than the south east stream productive than the stream on the north side rating.</p> <p>B. Ford</p>
<p>4.5 (p.</p>	<p>Section 5.4.5 (p. 60-61) presents the results of Terrestrial Ecosystem Mapping (TEM). The red-listed Sitka sedge/peat-mosses Fen community was identified in some polygons that overlap or are adjacent to the permit area and construction temporary use area as shown in Figure 6 (p. 14). Protecting this plant community is a priority that must be reflected in the Construction Environmental Management Plan (EMP) still to be developed as described in Section 7.0. Monitoring for changes in the Sitka sedge/peat mosses Fen community that may result from more frequent and extended large drawdowns is also a priority during the operation phase.</p>	<p>Monitoring of vegetation will be included in monitoring program. This plan will be completed.</p> <p>B. Ford</p>