



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Canada

## Partners

### Letter of Agreement: Lower Fraser River Gravel Removal Plan

Land and Water BC Inc. and Fisheries and Oceans Canada are committed to work together to take immediate action on the progressive reduction of the flood hazard risk to communities along the Fraser River between Seabird Island and the Vedder River confluence over the next five years and beyond.

Land and Water BC Inc. and Fisheries and Oceans Canada have engaged the assistance of the Fraser Basin Council to develop a long-term plan (Attachment A) for reducing the flood hazard risk in the lower Fraser River.

Land and Water BC Inc. and Fisheries and Oceans Canada will incorporate collaborative management, adaptive management and sustainability principles into decisions regarding gravel removal and river management.

Land and Water BC Inc. and Fisheries and Oceans Canada will apply these principles as follows:

1. The need for gravel removal:
  - by recognizing that gravel removal from the Fraser River is one of the methods used to manage flood levels, control erosion, and maintain navigable channels;
  - by recognizing that there has been significant accumulation of gravel in the past five years, with limited gravel removals occurring;
  - by recognizing that decisions on gravel removals must respect the regulatory and consultation requirements of federal and provincial government decision-makers;
2. Process and timelines for annual removals:
  - by agreeing to a common timeline and process for annual decision-making on gravel removals (Attachment B), that will include sites selected on an annual basis;
3. Information requirements:
  - by agreeing to information requirements and working to incorporate updated information (e.g. 2-D hydraulic modeling) in a timely manner into annual decision-making for candidate sites.
4. Annual removal quantities:
  - by Authorizing an estimated removal quantity of approximately 500,000 cubic meters / year over the next two years, and 420,000 cubic meters / year over the following three years, based on the best available science, with provision for additional sites as a contingency to meet agreed upon annual removals.

This letter of agreement signifies a renewed spirit of collaboration between Land and Water BC Inc. and Fisheries and Oceans Canada to implement the principles and goals above.

The Honourable George Abbott  
Minister Responsible for  
Land and Water BC Inc.

The Honourable Geoff Regan  
Minister  
Fisheries and Oceans Canada

**Attachment A****LOWER FRASER RIVER  
GRAVEL REMOVAL PLAN  
2004-2008****1.0 PREAMBLE**

This five-year gravel removal plan for the lower Fraser River was developed through the collaborative efforts of Land and Water BC Inc. representing the Province of B.C., Fisheries and Oceans Canada and the Fraser Basin Council.

The plan is intended to describe objectives associated with gravel removal in the lower Fraser River as well as the decision-making process that will be followed by all parties involved in the authorization and implementation of gravel removal proposals. In doing so, the plan will clarify uncertainty encountered in recent years associated with the authorization process -- e.g., information required to process gravel removal proposals and deadlines.

**2.0 OBJECTIVES**

- Recognition that gravel removal from the Fraser River is one of the methods to be used to provide hydraulic benefits including managing flood levels, controlling erosion, and maintaining navigable channels.
- Recognition that the need for gravel removal must be balanced with the regulatory and consultation requirements of federal and provincial government decision-makers.
- Establishment of common timelines and process for annual decision-making on gravel removals (Attachment B) that will include sites selected from a long term plan and which demonstrate a hydraulic benefit.

**3. ROLES AND RESPONSIBILITIES**

This section describes the role of the parties involved in gravel removal. Those interested in receiving gravel removal Authorizations are required to meet mine plan information requirements and adhere to the schedule outlined in (Attachment B).

**British Columbia**

Land & Water BC Inc. (LWBC) is committed to addressing the increasing risks associated with continued accumulation of gravel in the lower reaches of the Fraser River and to the develop a long term comprehensive flood hazard management strategy that is cost effective and environmentally sustainable.

LWBC believes that that unless this mounting accumulation of gravel is reduced, the risks to human safety and property will continue to grow.

LWBC is committed to working with the Council, the federal government, First Nations, local government and other parties to develop a long term solution.

**Canada**

Fisheries and Oceans Canada (DFO) is committed to working collaboratively with provincial and municipal governments, First Nations and stakeholders to facilitate the orderly and planned removal of gravel for flood prevention, erosion control and navigation safety. DFO's primary role is to ensure that the gravel removal plan meets the regulatory requirements under the *Fisheries Act* and *Canadian Environmental Assessment Act*, and will furthermore:

- ensure that requirements for fish and fish habitat protection are clearly articulated and reviews completed in a timely way.
- address First Nations concerns that arise as a result of authorizations issued to address habitat problems.

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### Fraser Basin Council

The Fraser Basin Council will play the role of coordinating and facilitating the development and ongoing implementation of the plan, working with the parties. This will include, for example, facilitating studies in relation to River 2D hydraulic modelling for the parties and other interested organizations.

### 4. AUTHORIZATION PROCESS

It is recognized by the parties that there has been accumulation of gravel over the past five years, with limited gravel removals occurring. Consistent with the objectives outlined in Section 2, it is agreed that gravel removal Authorizations under the *Fisheries Act* over the period 2004 to 2008 for hydraulic benefit(s) will be guided by the following removal objectives (per calendar year):

Year *	Cubic Meters	Removal Year **
2004	500,000	to be removed in 2005
2005	500,000	to be removed in 2006
2006	420,000	to be removed in 2007
2007	420,000	to be removed in 2008
2008	420,000	to be removed in 2009

\* This is the year the Authorization is approved.

\*\*Authorizations processed each year result in gravel removal the following year.

### 5. DURATION

This plan will be in effect until March 15, 2009. The plan will be reviewed on an annual basis and with the agreement of both parties may be renewed at the end of its five year term.

### Attachment B: Annual Process and Timelines: Winter Window

	Milestones	Key Regulatory Responsibilities	
		DFO	LWBC
May	Specific annual primary and contingency sites selected from candidate sites.	DFO & LWBC agree to priority list of candidate sites that demonstrate hydraulic benefit	
June	Pre-removal biological monitoring 1	See information requirements	
June	Pre- consultation	Pre-consultation with First Nations	Pre-consultation with First Nations
August	Consultation		Formal consultation package to First Nations for review
Sept	Pre-removal biological monitoring 2		
Sept 15	Initial site design complete (site surveys, initial mining plan)	See information requirements	
Oct 1	Final sites selected		LWBC <i>Land Act</i> approval
		CEAA listing, formal DFO consultation package to First	

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		Nations	
Oct 10	Site designs finalized (habitat mapping, habitat enhancement features)	See information requirements	
Nov 1		Final DFO <i>Fisheries Act</i> approval	
Dec 15	Pre-removal biological monitoring & other pre-removal site information 3 complete as conditions of authorization	See information requirements	
Jan 1	Fisheries window begins, gravel removal begins		
Mar 7	Work in the river is completeSite reclamation and post-assessment		
Mar 15	Winter work window ends		

**\*Refer to “Key Steps to Authorization Process” and “Information Requirements”**

- Where possible, LWBC and DFO will seek opportunities for joint consultation with First Nations.
- Similar timelines will be developed for work that occurs in the Summer Window.

**Key Steps to Authorization Process**

- May - Specific Annual Primary and Contingency Sites Selected: These are sites agreed to by the parties from a prioritized list of sites that demonstrate a hydraulic benefit. This selection should occur in May in preparation for the following winter fisheries work window.
- June - Pre-removal Biological Monitoring (fish sampling): The gravel reach provides rearing habitat for at least 28 fish species. The edges of gravel bars represent perhaps the most important rearing habitat and high densities are commonly found during summer months. Periodic samplings taken from selected sites and reference sites will assist in minimizing long term impacts and may also be used for the purposes of adaptive management with respect to future removal proposals. Samples are taken three times a year (June, Sept., and Dec.); this is the first sampling episode.
- June - Pre-consultation with First Nations: Wherever practical, the parties will jointly conduct consultations with First Nations in preparation for authorization under the *Fisheries Act*. In addition to its fiduciary responsibility to consult, DFO has an additional responsibility under CEAA to assess potential impacts to traditional use, in this case, traditional fishing sites, by First Nations.
- August - LWBC formal consultation package: LWBC will conduct formal consultations with First Nations for the candidate removal sites.

September – Pre-removal Biological Monitoring (fish and invertebrate sampling):  
This is the second sampling episode.

- September - LWBC Tendering/Direct Award and *Land Act* Approval: LWBC will have completed its tendering process for operators of gravel removals from crown-owned lands and will have issued required permits under the *Land Act* and the *Water Act*. Initial site design (site topographical or bathymetric surveys, mining plan) will be completed for referral to DFO on or before October 1.
- October 1 – LWBC *Land Act* Approval and Final Sites Selected: LWBC *Land Act* and *Water Act* documents will be referred to DFO. At this point, the final sites for the following winter work window will have been selected for review and assessment. Information requirements for each site will be complete.
- October 10 - CEAA Listing & Formal DFO Consultation Package to First Nations: Upon review of the information submitted, DFO will submit the projects proposals for posting on the CEAA public registry. DFO will also commence CEAA proceedings, such as Federal Co-ordination requirements, and will consult First

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Nations potentially affected by specific proposals. At this point, all information requirements (site designs, habitat mapping, habitat enhancement features) in relation to the projects must be complete and in hand.

- November 1 - DFO *Fisheries Act* Decision: DFO will have completed its CEAA and *Fisheries Act* review and assessments. This is the decision point to authorize (or reject) based on all of the foregoing information submitted and reviewed pursuant to the *Fisheries Act* and the *Canadian Environmental Assessment Act*.
- December 15 - Pre-removal Biological Monitoring (fish and invertebrate sampling): This is the third sampling episode
- January 1- Fisheries Window Begins: The winter work window opens January 1 for authorized gravel removals. It is anticipated works will commence at that time in order to allow for orderly and safe operations, and for post project activities to occur, such as site reclamation requirements, and post-extraction surveys.
- March 7 – In-river work complete: It is anticipated that removal operations will be finishing up to allow for post project activities to begin, such as site reclamation and post-extraction surveys, in anticipation of closure of the winter work window.
- March 15 – Winter Work Window Ends: The winter work window will close March 15, at about the time of rising water and downstream juvenile migrations. There will be no further in-river works beyond this point. In accordance with conditions of the Authorizations, post project monitoring and summary reports will be required.

### Information Requirements

## Fisheries and Oceans Canada

### Lower Fraser Area

*The information requirements on this form relate specifically to Gravel Removal operations in the Gravel Reach of the Fraser River, Hope to Mission.*

*The information Proponents provide on this form is the minimum necessary for Fisheries and Oceans Canada to evaluate compliance with the Federal Fisheries Act.*

*This information may also be required for Fisheries and Oceans Canada to conduct an environmental review and assessment (screening) under the Canadian Environmental Assessment Act.*

*The following information should be prepared by qualified professionals and must be attached for review of your project.*

1. **Proponent:** \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 Postal Code: \_\_\_\_\_ Contact: \_\_\_\_\_  
 Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 E-mail: \_\_\_\_\_
2. **Proposed Works:** Provide a description of the proposed works including the mine excavation and access to the mine site such as haul roads, culverts or bridges, barge landings and moorages, etc. A detailed plan should include site specific information on pre-excavation site surveys (an up-to-date topographic survey of the removal area and the surrounding area - the survey area and survey point density will vary based on site conditions, removal design and existing habitat features), excavation designs (removal design with habitat mitigation features included in the design – this may alter the removal volume), and excavation methodology.
3. **Location of Works:** Provide a description of the location of the works. Descriptive location references as

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well as positional information such as latitude and longitude or UTM coordinates are appropriate. In addition, indicate your tenure to the land and tenure to access routes. Include appropriate maps (refer to maps and drawings below).

4. **Timing of Works:** Please provide a schedule for the start and finish dates for each of the following. It is expected these dates will fit within the fisheries timing window, and will ensure that the last steps, project decommissioning, equipment removal and post-project surveys, are completed well in advance of the spring freshet.
  1. Proposed gravel extraction works;
  2. Post extraction site remediation or reclamation;
  3. Decommissioning (i.e. access roads, culverts, bridges), equipment removal and post-project site survey.
5. **Fish Habitat Assessment, Mitigation Plan and Monitoring Program:** Impacts on fish and other aquatic habitats are carefully considered in the approval process. A detailed site inventory and habitat assessment is required and should include information on all potentially affected fish species and their habitats. The assessment must detail steps taken to mitigate potential impacts to fish habitat. The assessment is to be completed by a registered professional with appropriate expertise in biological sciences.

A monitoring program, conducted by consultants acceptable to DFO, is also required to monitor impacts to fish habitat from the gravel removal operation. Conditions relating to the Habitat Assessment, Mitigation Plan and Monitoring Program are as follows;

- **Topographic and Bathymetric Surveys:** These will be used to assess the volume of gravel removed and the morphological impacts of the removal. The survey area should extend beyond the removal area to cover the area of potential morphological impact, for example, 500 metres downstream and 200 metres upstream of the removal area. Bathymetric and topographic survey points shall be chosen, at the discretion of the surveyor, to provide a sufficiently dense set of survey points to produce a detailed contour drawing of the bar area and stream bed with 1 metre contours. The accuracy of the topographic survey points shall be  $\pm 0.04$  metres horizontally and vertically. The surveyor shall tie the survey into survey hubs, which will remain in place for the duration of a monitoring period of 5-years. All elevations shall be local geodetic elevations. The surveyor shall provide 1:500 scale contour drawings of the monitoring area, showing survey point locations. Survey information shall be collected during winter low-flow and distributed prior to sediment removal; following sediment removal (in the removal area) and prior to March 15; and following the first of either a freshet with a peak daily flow of over 8,766 cubic metres per second (major freshet) or after three freshets following gravel removal.
- **Surface Sediment Sampling:** Grain Size distribution of surface sediment shall be characterized using the Wolman or photographic method, within the removal area and at one reference area;
  - before removal
  - after gravel removal, following spring freshet, and
  - following the first of either a major freshet or after three freshets. A major freshet shall be considered to be a freshet with a peak flow exceeding 8,766 cubic metres per second (the average freshet peak flow).
- **Juvenile Fish Sampling:** Juvenile fish sampling should be conducted during two sampling episodes (when the flow is at 5,000 cubic metres per second and again at 2,500 cubic metres per second) at the proposed removal site and at reference sites. Each sampling episode should be conducted during the first inundation of the removal site and reference sites when juvenile fish are rearing along bar edges (Jun-Aug). The sampling should consist of a minimum of 5 beach seines in each habitat type represented.
- **Benthic Invertebrate Sampling:** Pre-extraction benthic invertebrate sampling involving two sampling episodes is required within the removal boundary and within three designated reference areas. The episodes should be at least a month apart, in the fall (Sep – Dec) and again in early winter (Jan – Feb).

Following gravel removal three sampling episodes are also required, within the removal area and at three designated reference areas.

For each episode, 5 replicate samples collected by Surber net at each site are required. Attempt to sample the identical habitat type at each site and in each sampling episode.

Inventory and assessment of benthic invertebrates shall be conducted soon after water has covered the site; in the fall or winter after freshet; and after the first of either a major freshet or after three freshets following gravel removal. The post freshet sampling shall be conducted during the same month as one of the pre-removal sampling episodes.

- **Habitat Mapping:** Four episodes of habitat mapping shall be carried out at the proposed removal site and surrounding area (on-site and photos from a fixed wing aircraft).
  - after gravel removal,
  - after the peak of the freshet when the discharge is approximately 5,000 m<sup>3</sup>/s,
  - when the discharge is approximately 2,500 m<sup>3</sup>/s, and
  - repeated at the same flows following the first of either a major freshet or after three freshets following gravel removal.
  - Alternatively, habitat mapping may be carried out using River 2-D modeling with high resolution survey information.
- **Gravel Removal Supervision:** Monitors, acceptable to DFO, will also be required to monitor and supervise compliance of the works during the operational stages, including for example, construction of access roads, culverts or bridges, the gravel extraction operation, and reclamation and decommissioning of the roads and the work site. These monitors will be empowered to take immediate corrective measures where required and to immediately report to DFO on issues of non-compliance with the Authorization and the *Fisheries Act*.

Proponents are to submit a monitoring program with their applications, including information relating to professional experience and qualifications of the monitors they will be using.

6. **Channel Hydraulic and Morphological Assessment:** A detailed assessment of changes to channel hydraulics, including flow pattern changes, and the benefits to flood protection, erosion or navigation from the proposed works and the potential impacts on channel morphology is required. The assessment will include areas upstream and downstream of the proposed removal site, which are likely to experience flow and water level changes. This assessment is to be completed by a registered professional with the appropriate expertise in river engineering or fluvial morphology. The River 2-D modeling recently conducted at Queens Bar and Spring Bar, and the modeling currently under way in the Harrison Bar to Power Line Island Reach are examples of this type of assessment. Sites outside of the area modeled will require this level of assessment.
7. **Habitat Compensation Plans:** Habitat compensation may not be required where it is determined that features that fully mitigate habitat impacts shall be constructed as part of the gravel removal. The productive capacity of the habitat at the removal site shall be monitored following gravel removal and compared to the pre-removal capacity and reference site conditions. (Note; to date, DFO has not required compensation for gravel removals where, following one to three freshets, there has been recruitment, replenishment and re-stabilization of the bar's productivity). In the event that riparian vegetation is removed, replanting of vegetation native to the removal area shall be required to compensate for the loss of riparian vegetation, at a rate of 2:1 (e.g. 2 square metres replanted for each square metre of removal).
8. **Maps and Drawings:** The maps and drawings that accompany the application are necessary for the review of project proposal. The maps must include suitable cross-sections, topography at standard contour intervals, and any other information needed to develop an estimated removal quantity. All pipelines, power lines, railways, roads, bridges, dikes, rock groins and other types of infrastructure should be identified. Generally, three maps or drawings will be required with each application:
  - **Location Map:** The location map is a broad overview map that depicts the general application area in relation to major geographic and cadastral features. The location map will be used by the Department and the public that may have questions about the application, its general location and general proximity to an area in which they may be interested. It is usually produced at a scale of approximately 1:50,000.
  - **Site Plan:** The site plan is the medium scale map that shows the application area and its dimensions, in relation to detailed, larger scale features such as smaller roads or creeks. The site plan is usually at a scale of 1:10,000 to 1:20,000, but will vary depending on the size of the application area.
  - **Detailed Plan:** The detailed plan is the largest scale map and shows the details of the project and

proposed related works. The detailed plan or plans might be an integral part of a report, assessment or survey which accompanies the application. It is the visual description of the work plan. The detailed plan will show any placement or removal of rock/gravel with pre- and post- work elevations. The detailed plan(s) will also show proposed habitat restoration features and the location of natural and social features, such as vegetation, wetland, side channels and archaeological and recreational sites. The detailed plan should have a comprehensive legend to explain the different symbols used to describe the various values and interests of and in the area as well as the works proposed. Scale should be 1:2,000.

9. **First Nations Requirements:** Although it is understood that whenever possible, LWBC and DFO will conduct joint consultations with First Nations, proponents are encouraged to attempt to carry out their own consultations wherever possible. In those situations where proponents are able to carry out their own consultations with First Nations, DFO asks that the following information be provided.
  - Identification of any potential adverse effects that the project may have on the current use of lands and resources for traditional purposes by aboriginal persons. Traditional uses and activities, and potential effects would usually be identified through direct consultation with First Nations.
  - Details of specific measures that will be employed to avoid and mitigate potential adverse effects that the project might have on the current use of lands and resources for traditional purposes by aboriginal persons.
  - Details of consultations that the proponent has undertaken and carried out with First Nations with respect to this matter. This includes plans for ongoing (i.e. post-environmental assessment) consultations with First Nations.

## Summary

**Fisheries Act Assessment:** This application guide has been provided to assist all parties involved in the review and referral process for gravel removals on the Fraser River, between Hope and Mission. It is intended to clarify the information requirements of the application process and to ensure that adequate, accurate and complete information is submitted and reviewed in a timely and open manner. This will result in a comprehensive description of all projects, their benefits, their impacts and the steps being taken to mitigate and minimize those impacts.

It is understood that completion of these information requirements does not constitute approval or Authorization under the Federal *Fisheries Act*.

**Canadian Environmental Assessment Act (CEAA):** It is also understood that the proposed works are likely to require screening under CEAA. Please note that Section 55 of CEAA requires that a public registry be established and that the public can have convenient access to this registry. Consequently, any information provided by you related to the Environmental Assessment for this project will be part of the CEAA Public Registry and will be made available to a member of the public, if requested. In addition, as part of the CEAA public notification, the Department of Fisheries and Oceans is required to post the particulars of your project on the CEAA public registry for a minimum of fifteen days prior to completing its review and assessment of your project.

Should you provide a record that contains confidential or sensitive information, such information must be clearly identified and a rationale provided in writing regarding its possible protection. Your rationale should demonstrate the likelihood of probable prejudice on the basis of facts and not just refer to the various injuries cited in the Act

**First Nations Consultations:** In addition, it is understood that the Department of Fisheries and Oceans has a fiduciary responsibility to consult with First Nations prior to issuing an Authorization for the proposed works.

**Species At Risk Act (SARA):** Please note that new requirements pursuant to SARA may modify the foregoing environmental assessment requirements.