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**Re: South Fraser Perimeter Road  
Canada-BC Cooperative Environmental Assessment**

The purpose of this letter is to provide Environment Canada's (EC) comments, in its capacity as an expert Federal Authority pursuant to the *Canadian Environmental Assessment Act*, on supplemental and revised documents submitted by the proponent, the British Columbia Ministry of Transportation (MoT), on the South Fraser Perimeter Road (SFPR) Project. The review comments in this letter pertain to the following documents:

- *Revised draft Cumulative Effects Assessment* (letter from Malcolm Smith to Linda Sullivan, July 6, 2007);
- *Re: South Fraser Perimeter Road Air Quality Update* (letter from Malcolm Smith to Jody Shimkus, July 6, 2007);
- *Particulate matter emissions adjacent to Burns Bog* (memo from Levelton Consultants Ltd., to Malcolm Smith, May 10, 2007);
- *Re: South Fraser Perimeter Road: Zones of Influence* (memo from Robertson Environmental Services Ltd., to Malcolm Smith, March 01, 2007);
- *Re: South Fraser Perimeter Road: Zones of Influence* (memo from Robertson Environmental Services Ltd., to Malcolm Smith, April 25, 2007);
- *Draft Habitat Compensation Plan* (Ministry of Transportation, February 2007);
- *Proposed SFPR Mitigation/Monitoring Strategy for Vegetation and Wildlife* (memo from Steve Clark to Malcolm Smith, April 12, 2007);
- *Wildlife Mitigation Crossing Plan* (Memo from Malcolm Smith to Tom Bell and Kristie Trainor, April 26, 2007); and
- *Draft Stormwater Management Strategy for Fish and Fish Habitat* (memo from Michael Florendo to Malcolm Smith, June 4, 2007).

In addition to the above documents, EC's comments are informed by the opinion of the Burns Bog Scientific Advisory Panel (SAP) on the potential impacts of the SFPR on the bog.

EC has a number of concerns based on its review of the above documents which are summarized in this letter. Detailed comments supporting EC's views and recommendations are presented in the attached Technical Appendix.

EC's key concerns with respect to the entire length of the proposed SFPR Project relate to the assessment of overall *Cumulative Effects* and specific impacts on *Wildlife and Wildlife Habitat*. They are as follows:

- *Cumulative effects:* EC disagrees with the MoT's 'significance evaluation' assessment of a number of effects. In several cases MoT's assigned significance ratings are much lower than ratings EC would assign. EC does not accept MoT's suggestion that there are no residual impacts resulting from the deposition of air pollutants from the SFPR onto Burns Bog, and therefore no potential for cumulative effects on Burns Bog. A detailed discussion of this issue is presented in section 3 of the attached Technical Appendix.
- *Wildlife and wildlife habitat:* EC has identified a number of information deficiencies and differences in scientific interpretation with regard to: (1) the scale and nature of zones of influence impacts; (2) the character and duration of monitoring and mitigation programs, (3) the number, location and design of wildlife crossings; and, (4) the character and scale of cumulative effects. Resolution of these issues is necessary in order to complete the Habitat Compensation Plan for effects on wildlife and wildlife habitat. This matter is further described in section 6 of the Technical Appendix.

While the above comments pertain to the entire roadway alignment, EC has more serious outstanding concerns with the currently proposed SFPR alignment along the northern and southwestern margins of Burns Bog. These concerns relate to the effects of the proposed construction and operation of the roadway on the hydrological and hydrochemical functions which sustain a raised bog water mound, and which support the large, diverse and unique assemblage of plants and animals that depend on the bog. Unmitigated, these effects are expected to harm the bog's ecological functions and hence its long term viability.

- EC believes the introduction of mineral materials via the deposit of air-borne particulates and aerosols onto the bog would promote the development of a wide margin of forest, which in turn would contribute to dewatering of the acrotelm (surface living layer of peat where water levels vary seasonally), posing a high risk to the long term viability of the bog. In the Technical Appendix, EC provides recommendations to study the mineralization impacts of HWY 91 to predict the impacts of depositing these materials on the northern and western margins of the bog.

- EC concurs with the SAP opinion that the lagg (the interface between bog and non-bog water at the bog perimeter) is essential to the hydrological and hydrochemical functions of a raised bog, and that the long term viability of Burns Bog depends on restoration of lagg functions. The proposed roadway alignment along the northern perimeter of the bog, where lagg function is already seriously impaired, is predicted to lower the water table so that the extent and integrity of the bog water mound can neither be maintained nor restored. This would adversely affect natural and unique bog amenities such as plants, wildlife and wildlife habitat.

The MoT has proposed a Berm/Double-Ditch (BDD) engineered solution to mimic natural lagg function and manage the hydrological requirements of the bog. While the SAP concludes that the BDD concept could be beneficial along the northern perimeter of the bog, there has been no proof-of-concept of this design. EC considers the BDD concept to be an incomplete solution to the high risk to bog hydrology that the SFPR poses.

- The southwest margin of Burns Bog, through which the SFPR is currently aligned is biologically complex and regionally unique, in part due to the hydrological function of this last remaining segment of functioning lagg. The proponent has not affirmed that the multiple functions and attributes of a natural lagg, including its unique ecological characteristics, could be maintained through the use of an engineered structure, such as a BDD. In addition, the proponent has not demonstrated that project impacts on wildlife, notably migratory birds and species-at-risk, and their habitats, can be satisfactorily mitigated or compensated. Therefore, EC recommends that the alignment avoid the bog-forest-riparian-agricultural field habitat complex, including Crescent Slough, unless these concerns can be fully addressed.

Related to the concerns noted above, the Province of British Columbia, the Greater Vancouver Regional District (GVRD), the Corporation of Delta, and the Government of Canada (as represented by the Minister of Environment) are parties to a 2004 Conservation Covenant, committing them to protecting the Burns Bog (described as the Ecological Conservancy Area in the Burns Bog Ecological Conservancy Area Management Plan), and its supporting ecological functions as set out in the covenant, in perpetuity. Should the SFPR proceed as currently proposed, EC is concerned that the project will compromise the ability of the GVRD and its partners to meet their commitments under that covenant, including restoring the bog in accordance with the recently approved Burns Bog Ecological Conservancy Area Management Plan.

EC recommends that the aforementioned outstanding concerns regarding the northern and southwestern margin of Burns Bog be addressed as a priority before the environmental assessment is concluded. In addition, we reiterate the need to address the information gaps and points of disagreement with EC (noted earlier and in the Technical Appendix) regarding the

remainder of the SFPR project. Given the EC concerns respecting potential impacts of the project on wildlife, notably migratory birds and species-at-risk, and their habitats, and the integrity of Burns Bog, it is further recommended that the Responsible Authorities request the proponent to consider alternative approaches to those components of the project that would result in the aforementioned environmental impacts.

If you have any questions, please feel free to contact me at (604) 666-2799 or Vivian Au at (604) 666-3055.

Yours sincerely,



 Lisa Walls  
A/Manager, Pollution Prevention and Assessment Section

Cc: Mike Engelsjord, DFO  
Cathy Hainsworth, Transport Canada  
Jody Shimkus, EAO  
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attach. (1)