October 8, 2004

RE: Draft Peer Review Report on the Deh Cho Bridge Design (EA03-008)

Distribution;

At the Pre Hearing Conference (PHC) for the Mackenzie River Bridge Project (EA03-008), all participants agreed to a process that would address concerns raised over the parties' access to a Draft Peer Review Report (the "Report" below) prepared for the Government of the Northwest Territories (GNWT) as a part of an ongoing due diligence review of the Mackenzie River Bridge design. This process was necessary because of the GNWT and Deh Cho Bridge Corporation's position that they did not wish to place the Report on the public record, as indicated in IR response 2.1.1 until such time as the design process was completed and the Report was finalized. The issues raised by the Peer Review Team in the Report are still being worked on by the developer and the GNWT. The recommendations put forth in the Report are meant to assist in developing a consensus among the developer's design team, the GNWT and the Peer Review team on a final bridge design that is determined to be sound in all material respects.

The process agreed to by all participants in the PHC was to give the Environmental Assessment Officer the opportunity to view the Report in confidence and make a determination as to the relevance of the report or any part of it to the EA underway. Parties agreed that the EAO would provide a written statement to all parties in the EA disclosing any issues of relevance to the EA contained in the Report.

The EAO met with the developer and the GNWT- Department of Transportation on the morning of October 6, 2004 to view the Report. It is the EAO's view that portions of the Report are relevant material because they address issues that have been raised in the course of the EA to date. The other portions of the Report deal strictly with engineering issues.

Below, we provide details on points that were determined by the EAO to be relevant to matters raised in the EA.

1) Scour Protection for Piers and Scour Protection Monitoring: The concerns were the potential for local scour around piers which could undermine footings and that the long term performance of scour protection is unknown. The discussion said that scour protection is necessary to protect piers. Size and extent of rock riprap was considered somewhat light. The consequence of failure of scour protection is

sever and monitoring of conditions and performance is required. The recommendations called to increase size and extent of rock riprap scour protection around piers over that proposed and to require a detailed installation and monitoring program to track conditions and performance of scour protection.

The DCBC response to these issues is:
Point 1 discusses the extent of scour protection and scour protection monitoring. The concern is the potential for local scour around piers, which could undermine footings. The proponent and the peer review team agree that a rock apron will be used for scour protection and that a detailed installation and ongoing monitoring program is required to ensure that the scour protection is performing as intended. The developer has proposed an apron extending 11 metres from the edges of the piers, composed of a 600 mm thick layer of 300 mm rock. The peer review report has recommended increasing this to a 900 mm thick layer of 450 mm rock for the first 6 metres.

2) Pier Foundations and Geotechnical Information: The concerns were that a sand layer, under artesian pressure occurs under at least two piers and that there is incomplete geotechnical information for two pier locations. The discussion pointed to a potential for base heave of the excavation during construction and a potential for variable geotechnical conditions and impact on proposed construction methodology. The report recommended that the construction methodology be documented. Method of inspecting footings underwater and confirming bearing capacity need to be documented. The report further recommended that additional investigations be done at piers 1N and 3N.

The DCBC response to these issues is:
The proponent and peer review team note the existence of a sand layer under two south piers and the potential for sand at 1N and 3N. Where sand is present, there is a potential for base heave, should the foundations be dewatered and excavated without taking proper precautions. There is agreement that conditions at piers 1N and 3N must be confirmed and that the construction methodology and method of confirming bearing capacity must be documented to account for the conditions at each pier. The proponent plans to confirm conditions at piers 1N and 3N (as well as all other pier locations) at the time of construction prior to dewatering or excavation, while the peer review team recommends additional investigations at pier 1N and 3N be done in advance.

3) Construction Schedule: The concern is that the schedule presented is considered very aggressive for instream works and superstructure erection. The discussion says that there is no identified contingency in proposed schedule for delays in on site work and that there exists a potential for delays in project completion, increased costs, having to do weather sensitive tasks in unsuitable conditions. The report recommended that the proponent should identify risks, costs of delays and identify who would be responsible. It also recommended that a contingency plan be in place if problems arise.

The DCBC response to this issue is:
We generally agree with this. However, as presented, the fact that the peer report recommends these things might suggest that we had overlooked them. We have been considering and working on these questions. The design and construction plan has been developed to minimize both the risks and the consequences.

4) Safety: The issues raised were the height of the proposed bridge rail and deck conditions. The discussion stated that many bridge authorities are requiring higher railings to address potential liability issues and that the relatively steep gradient on the bridge deck could cause safety concerns for vehicles when frost and ice conditions exist. The report recommended that the GNWT require the railing height be increased to 1400mm and that the proponent should document the procedures to be used to ensure the safe condition of the bridge deck, and that procedures should include electronic message boards.

The DCBC response to these issues is:
I agree with your characterization of Item 19 (height of the proposed bridge rail). On item 20 (deck conditions), we have never had an issue – the peer review team is recommending that we do what we have already committed to doing. I would ask you to note that the developer has also proposed this recommendation.

I trust that this information will be of assistance to all parties. The developer should be prepared to answer any questions related to this material that may arise in the course of the upcoming public hearing. If you have any questions, please do not hesitate to contact the EAO at (867) 766-7062.

Yours truly,

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