JIVKO ENGINEERING

5610 50A Ave Yellowknife NT X1A 1G3, Tel: (867) 920-4455, fax: (867) 873-6090, cel: (867) 444-1123, email: jivko@internorth.com

30 March 2001
Project #ARB-00 2001

Nunavut Water
Board
APR 09 2001
Public Registry

Ms. Rita Becker
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, Nunavut
X0E 1J0

Dear Ms. Becker:

Application for Water Licence. Kugaaruk NU, Aliaruhik River Second Crossing. Temporary Bridge Construction.

The purpose of this correspondence is to request Water License from your agency to permit the construction of temporary bridge across Aliaruhik River near the Hamlet of Kugaaruk (Pelly Bay), Nunavut. The Applicant for this work is the *Government of Nunavut (GN), Department of Community Government and Transportation (CG&T).* The Applicant has retained the Consultant *Jivko Engineering* of Yellowknife to submit applications to obtain required approvals before proceeding with the project. *Jivko Engineering* is also the designer and construction manager for the project.

The GN, Department of CG&T with the support of the Hamlet of Kugaaruk is proposing to complete this project in summer 2001. The bridge is part of Access Road Construction Project to abandoned FOL site near Kugaaruk NU, which is scheduled for clean up by the Federal Government in Summer 2001. The proposed bridge consist of compact, portable 24 m long structure installed directly on clean rock fill. After completion of the clean up operation the bridge and the rock fill would be removed and the riverbed would be restored. The GN considered and rejected construction of permanent bridge, due to the little perspective for future use of the bridge at this location and the significantly higher cost. The proposed bridge site was selected jointly by community representatives and CG&T engineering staff. The portable bridge structure could be installed on a permanent basis over a smaller watercourse near Kugaaruk in future.

In addition to your office we have contacted the following government agencies:

DFO, Canada Coast Guard, Navigable Waters Office
DFO, Fish Habitat Office
DIAND, Water Resource Management Board, Lands Division

The contact person from the GN is:

Mr. Dave Crockatt,
Manager Transportation Programs
CG&T, Government of Nunavut
2nd Floor, Enokhok Building
P.O. Box 2376, Cambridge Bay, NT X0B 0C0
Tel: 867 983 4014

INTERNAL	
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CEO	
BRD	

Enclosed for your consideration is the Water Licence Application with 10 attachments. If you have any questions or wish additional information, please contact the undersigned at Tel (867) 920-4455, Fax (867) 873-6090, or email: jivko@TheEdge.ca.

Sincerely,

Jivko I. Jivkov, P.Eng.
Principal
Jivko Engineering

cc Mr. Dave Crockatt, Manager CG&T, Cambridge Bay, NU
Mr. David Parker, Senior Planning Engineer, CG&T, Iqaluit, NU
Mr. Quinn Taggart, SAO, Hamlet of Kugaaruk, NU

Enclosure:
- Water Licence Application Form
- Attachment 1. Geographic Map 1:7,100,000
- Attachment 2. Topographic Map, 1:50,000
- Attachment 3. General Layout Drawing
- Attachment 4. Site Photos
- Attachment 5.a, b, c. Typical Bridges for Arctic Communities
- Attachment 6. Letter, Fish Habitat & HTA Support
- Attachment 7. Letter, Community Council Support
- Attachment 8. Project Summary in English
- Attachment 9. Project Summary in Inuktitut
- Attachment 10. Application Fee, $30.00

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March 29, 2001

EXECUTIVE SUMMARY

Community of Kugaaruk, NU. Proposed Temporary Bridge Construction over Aliaruhik River.

The Nunavut Department of Community Government & Transportation is planning to construct a temporary bridge over the Aliaruhik River. The bridge is part of a trail leading to the existing FOL site near Kugaaruk, NU. The FOL site is scheduled for clean up in summer 2001. After completion of the clean up operation, by the end of September 2001 the access to the FOL site would not be required. At that time, the bridge would be removed from the crossing and the riverbed would be restored to its original condition.

The proposed bridge site is located 22 km south-east of the community, in area of rapids, immediately below the beginning of the river at Barrow Lake. The riverbed at this site is 45 m to 50 m wide at High Water Level. The main channel is approximately 15.0 m wide and 0.5 m deep with occasional boulders protruded above the water level. The site was selected jointly by community representatives and Department of CG&T engineering staff. The project is fully supported by the Community Council and the local HTA.

The proposed structure consists of single lane, 24 m long steel-girder bridge installed over the main channel. The deck is 4.20 m wide, covered with creosote treated timber planks. On both sides of the deck, there is 0.3 m high steel railing. The bridge is designed according to CSA S6-78 for a vehicle designated as MS 200-77. This vehicle has a gross weight of 36,000 kg. Appropriate safety factors are included in the design. A maximum overload vehicle with Gross Weight of 50,000 kg could travel at constant low speed without stoppage on the bridge.

The bridge would approaches would be 2.0 m high and not more than 9.0 m wide at the base of the fill. The part of the approaches located within the High Water Mark of the river would be constructed from clean rock fill. A layer of 0.1 m of surfacing gravel would be placed on top of the rock fill. A geotextile membrane would be installed between the natural riverbed and the imported rock fill. The part of the approaches located within the High Water Mark of the river would be removed and the riverbed restored upon completion of the project.

The bridge material would be purchased on a competitive tender basis and would be delivered on site by the sealift. The bridge construction would start by mid July 2001 and would be completed within a week. Local HTA members would be retained to monitor and confirm the completion of the fish-run prior to commencement of the construction. Local forces under the Engineer's direction will complete the on-site construction work.

There will be no in-stream construction activities associated with the bridge construction. The bridge construction project will not affect the quality, quantity, or flow of the water in the Aliarusik River. Mitigation Program will be implemented and comprehensive Spill Contingency Plan will be in place for the duration of the construction.

Prepared for the GN, *Department of Community Government and Transportation* by:

JIVKO ENGINEERING

Jivko I. Jivkov, P.Eng.
Principal

Nunavut Water Board
APR 02 2001
Public Registry

ATTACHMENT #8

JIVKO ENGINEERING

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ᒫᔾᔨ 29, 2001

ᐊᐅᓚᑦᓯᔨᒃᑯᑦ ᓇᐃᓈᖅᓯᒪᔪᖏᑦ

ᑯᖀᕐᔫᑉ ᓄᓇᖓᑦ, ᓄᓇᕗᑦ, ᐃᑳᕈᑎᐅᑲᐃᓐᓇᕐᓂᐊᕐᑐᒥᒃ ᓴᓇᔪᒪᔪᑦ ᐊᓕᐊᕈᓯᖅ ᑰᖓᑕ ᖁᓛᒍᑦ

ᓄᓇᕗᑦᒥ ᓄᓇᓖᑦ ᒐᕙᒪᓕᕆᔨᒃᑯᖏᑦ ᐃᖏᕐᕋᔪᓕᕆᔨᒃᑯᖏᓐᓄ ᐃᑳᕈᑎᐅᑲᐃᓐᓇᕐᓂᐊᕐᑐᒥᒃ ᓴᓇᔪᒪᒻᒪᑕ ᐊᓕᐊᕈᓯᐅᑉ ᑰᖓᑕ ᖁᓛᒍᑦ. ᐃᑳᕈᑎᒃᓴᖅ ᐱᓕᕆᐊᒧᑦ ᐃᓚᓕᐅᔾᔭᐅᓂᐊᕐᖓᑦ ᐊᑐᕆᐊᓕᐅᕐᓂᐊᕐᑎᓪᓗᒋᑦ ᐅᓇᓕᒃᓴᔭᐃᑦ ᐃᓂᒥᓂᖓᓐᓄᑦ ᕿᒪᒃᑕᐅᓯᒪᔪᒧᑦ ᑯᖀᕐᔫᑉ ᖃᓂᒥᔩᓂ, ᓴᓗᒻᒪᕐᓴᕐᑕᐅᓂᐅᓴᓪᓗᓂ ᑲᓇᑕᐅᑉ ᒐᕙᒪᒃᑯᖏᓐᓄᑦ 2001-ᖑᓕᕐᐸᑦ. ᓴᓗᒻᒪᕐᓴᐃᕇᕐᐸᑕ ᐱᓕᕆᐊᖑᔪᒥᒃ, ᓯᑉᑎᒻᒪ 2001 ᓄᖑᓐᐊᓂ ᐅᓇᓕᒃᓴᑦ ᐃᓂᒥᓂᖓᓄᐊᖓᔪᖅ ᐊᖅᑯᑦ ᐊᑐᕈᓐᓂᕐᓂᐊᕐᖓᑦ. ᑕᐃᑦᓱᒪᓂᐅᓕᕐᐸᑦ, ᐃᑳᕈᑦ ᐲᖅᑕᐅᒐᔭᕐᑐᖅ ᐋᖅᑭᑦᓯᒪᕕᖓᓂᒃ ᐊᒻᒪ ᑰᑉ ᐃᖅᑲᖓ ᐋᖅᑭᑦᓱᕐᑕᐅᓇᔭᕐᑐᓂ ᑕᐃᒫᑦᓴᐃᓐᓇᖅ ᐋᖅᑭᑦᓯᒪᓚᐅᕐᓯᒪᓪᒪᑦ.

ᐃᑳᕈᑎᒃᓴᖅ ᐃᓂᖓ ᐅᖓᓯᓐᓂᖅᑲᕐᑐᖅ 22 ᑭᓚᒦᑕᓂᒃ ᓄᓇᖓᑕ ᓂᕆᐊᓂ ᑲᓇᓐᓇᕐᐸᓯᐊᓄᑦ, ᖃᐳᓕᓂᐅᓂᖓ, ᐊᑎᑦᓯᐊᖓᓂ ᐸᕈ ᑕᓯᖓᑕ. ᑰᑉ ᐃᖅᑲᖓ ᐃᒻᒪᖅ 45-ᒦᑕᓂᒃ 50-ᒦᑕᓄᑦ ᓯᓕᑦᑎᒥᔪᖅ ᐅᓕᓐᖓᑎᓪᓗᒍ. ᐹᖓᓕ ᐃᒻᒪᖅ 15.0-ᒥᑕᑦ ᓴᓂᒧᑦ ᐊᒻᒪ 0.5-ᒦᑕᓂᑦ ᐃᑎᓂᖅᑲᕐᑎᒥᓪᓗᓂ ᐃᒃᑲᕐᕈᖅᑲᐅᕐᑐᓂ ᐃᓚᖓᒍᑦ. ᐃᓂᖓ ᓂᕈᐊᕐᑕᐅᓚᐅᕐᑐᖅ ᑲᑐᔾᔭᐅᓪᓗᓂ ᓄᓇᓕᖓᑦᑕ ᑭᒡᓕᕐᑐᖅᑎᖏᓐᓄᑦ ᐊᒻᒪ ᐱᓕᕆᕝᕕᖓᓐᓄᑦ ᓄᓇᓖᑦ ᒐᕙᒪᓕᕆᔨᒃᑯᖏᓐᓄᑦ ᐃᖏᕐᕋᔪᓕᕆᔨᖏᓐᓄᓪᓗ ᐃᖅᑲᓇᐃᔭᕐᑎᖏᓐᓄᑦ. ᐱᓕᕆᐊᖑᓂᖓ ᐃᑲᔪᕐᑐᖅᑕᐅᑦᓯᐊᕐᑐ ᓄᓇᖓᑕ ᑲᑎᒪᔨᖏᓐᓄᑦ ᐊᒻᒪ ᓄᓇᖓᑕ ᐊᖑᓇᓱᒃᑐᓕᕆᔩᑦ ᑲᑎᒪᔨᖏᓐᓄᑦ.

ᐃᑳᕈᑎᓕᐊᖑᔪᒪᔪᖅ ᖁᑭᑦᑐᓂ ᐊᑕᐅᓯᕐᒧᑦ ᐃᑳᕐᕕᐅᔭᓐᓇᕐᑐᓂ, ᑕᑭᓂᓕᒃ 24 ᒦᑕᓂᒃ, ᓴᕕᕋᔭᐅᓪᓗᓂ ᐊᑕᐅᓯᑯᑖᖑᓂᐊᕐᑐᓂ 4.20 ᒦᑕᒥᒃ ᓯᓕᒃᑎᒥᓪᓗᓂ ᖃᖓ ᕿᔫᓪᓗᓂ. ᐃᓕᓯᒪᓪᓗᑎᒃ ᑭᑉᐹᓇᒃᑎᓯᒪᔪᑦ ᓴᕕᕋᔭᑦ ᓄᓗᐊᓐᖑᐊᖑᔭᑦ ᑐᐊᐸᓕᕐᓱᕐᓯᒪᓪᓗᓂ ᐊᒻᒪ ᐅᔭᖅᑲᑐᐃᓐᓇᕐᓂᑦ ᐊᕙᓗᒥᐅᑕᖅᑲᕐᑐᑎᒃ. ᐃᑳᕈᑦ ᓴᓇᔭᐅᓯᒪᔪᖅ ᒪᓕᒃᑐᑎᒃ CSA S6-78-ᑯᑦ ᒪᓕᒐᖏᓐᓂᒃ ᓄᓇᓯᐅᑎᓄᑦ MS 200-77 ᐊᖏᖅᑕᐅᓯᒪᓪᓗᓂ ᓄᓇᓯᐅᑏᑦ. ᑖᓐᓇ ᓄᓇᓯᐅᑦ 36,000 ᑭᓗᒍᕌᒻᖑᓪᓗᓂ. ᐊᑦᑕᓇᕐᑕᐃᓕᒪᓂᕐᒧᑦ ᐋᖅᑭᑦᑕᐅᓯᒪᒻᒥᔪᑦ ᓴᓇᔭᐅᓂᖓᓄᑦ. ᐅᕐᑯᒪᐃᓐᓂᖅᐹᖑᔪᓐᓇᕐᑐᖅ ᓄᓇᓯᐅᑎᐅᑉ ᐅᕐᑯᒪᐃᓐᓂᖓ 50,000 ᑭᓗᒍᕌᒻ ᓱᒃᑲᐃᓪᓗᓂ ᐃᑳᕈᓐᓇᕐᑐᖅ ᐃᑳᕈᑎᒃᑯᑦ.

ᐃᑳᕈᑦ ᖁᑦᑎᓐᓂᖅᑲᕈᔭᕐᑐᖅ 2.0-ᓂᒃ ᐊᒻᒪ ᓯᓕᓐᓂᖓ 9.0 ᒦᑕᐅᑉ ᐅᖓᑖᓅᕐᓯᒪᒐᔭᓐᖏᑦᑐᖅ ᑐᓐᖓᕕᖓ. ᓯᓈᖓ ᑰᑉ ᑐᓐᖓᕕᐅᓂᐊᕐᑐᖅ ᓴᓇᔭᐅᒐᔭᕐᑐᖅ ᓴᓗᒪᔪᓂᒃ ᐅᔭᖅᑲᓂᒃ ᐊᑐᓇᕐᐳᕐᑕᐅᓗᓂ. ᖃᖓᒍᑦ 0.1-ᒦᑕᒥᑦ ᑐᐊᐸᓕᕐᑐᖅᑕᐅᒐᔭᕐᑐᓂ ᐅᔭᖅᑲᐅᑉ ᖃᖓ. ᐃᑭᐊᒎᕈᑎᖅᑲᔭᕐᑐᖅ ᖃᑉ ᐃᖅᑲᖓ ᐊᒻᒪ ᐅᔭᖅᑲᑦ ᖃᖓᓄᐊᕐᑕᐅᔪᑦ. ᓯᓈᖓᓂ ᐅᔭᖅᑲᑦ ᐲᔭᕐᑕᐅᒐᔭᕐᑐᑦ ᒪᓂᕋᓕᐊᖑᓗᓂ ᐊᒻᒪ ᐅᑎᖅᑎᑕᐅᒐᔭᕐᑐᑎᒃ ᐱᔭᕇᑐᐊᖅᐸᑦ ᐱᓕᕆᐊᖑᓂᖓ.

ᑰᖕᒧᑦ ᓴᓇᔾᔭᑎᐅᓂᐊᕐᑐᑦ ᓂᐅᕕᕐᑕᐅᓂᐊᕐᑐᑦ ᐊᑭᑦᑐᕿᐅᑎᓲᑦ ᓇᓚᐅᑦᑖᕐᑎᑕᐅᓗᑎᒃ ᐊᒻᒪ ᐅᒥᐊᕐᔪᐊᒃᑯᑦ ᐅᓯᔭᐅᒐᔭᕐᑐᑦ ᐃᓂᖓᓄᑦ. ᐃᑳᕈᑦ ᓴᓇᔭᐅᒋᐊᕐᔭᕐᑐᖅ ᔪᓚᐃ 2001 ᐊᒻᒪ ᐱᔭᕇᕐᑕᐅᓗᓂ ᐸᓇᓱᐊᕈᓯᓕᒫᒥᒃ ᐱᒋᐊᕐᕕᖓᓂᒃ. ᓄᓇᓕᓐᓂ ᐊᖑᓇᓱᒃᑐᓕᕆᔩᑦ ᑲᑐᔾᔨᖅᑲᑎᒌᖏᑦ ᖃᐅᔨᓴᕐᑎᐅᒐᔪᑦ ᐊᒻᒪ ᖃᐅᔨᒃᑲᒥᐊᖅᑲᔭᕐᑐᑦ ᐃᖅᓗᐃᑦ ᑎᓱᒦᕐᓯᒪᓕᕐᐸᑕ ᐱᒋᐊᕐᑕᐅᖁᓪᓗᒍ ᓴᓇᔪᐅᓂᖓ. ᓄᓇᓕᓐᓂ ᐱᓕᕆᔩᑦ ᐊᐅᓚᑦᑎᔨᖅᑲᕐᓗᑎᒃ ᐊᐅᓚᑦᑎᔨᒥᒃ ᐱᓕᕆᓂᐊᕐᑐᑦ ᓴᓇᔪᐅᒋᐊᓕᒻᒥᑦ.

ᑰᓪᓚᒃᑖᖓᓂ ᓴᓇᔭᖅᔾᔮᖏᑦᑐᖅ ᐊᑐᓇᐊᓕᐅᕐᑐᖅᑲᓱᐊᕐᑎᓪᓗᒍ. ᐃᑳᕈᑎᓕᐅᕐᓱᐊᕐᑎᓪᓗᒋᑦ ᐊᒃᑐᐃᔾᔮᖏᑦᑐᑦ ᐱᐅᓂᖓᓂᒃ ᐱᐅᓂᖓᓂᒃ ᑰᒃᑎᒥᓂᖓᓂᓪᓗᓐᓃᑦ ᐊᓕᐊᕈᓯᐅᑉ. ᐱᒻᒪᕆᐅᔪᑦ ᐱᓕᕆᐊᒃᓴᑦ ᐊᑐᓕᕐᑎᑕᐅᓂᐊᕐᑐᑦ ᐊᒻᒪ ᐱᔭᕆᑐᔪᓂᒃ ᑯᕕᔪᖅᑲᑳᓪᓚᓐᓂᖅᐸᑦ ᖃᓄᕐᑐᕈᑎᒃᓴᑦ ᐸᕐᓇᐅᑎᑦ ᐃᓂᓪᓚᒃᓯᒪᓂᐊᕐᑐᑦ ᓴᓇᔪᖅᑲᕐᓂᓕᒫᖓᓂ.

ᓄᓇᕗᑦ ᒐᕙᒪᒃᑯᖏᓐᓄᑦ ᐋᖅᑭᒃᓱᕐᑕᐅᓂᑯᑦ, ᓄᓇᓖᑦ ᒐᕙᒪᓕᕆᔨᒃᑯᖏᑦ ᐃᖏᕐᕋᔪᓕᕆᔨᒃᑯᖏᓐᓄ ᐆᒧᖓ:

JIVKO ENGINEERING
ᔨᕝᑯ ᐊᐅᓚᑦᑎᔨᖏᑦ

ᔨᕝᑯ, ᐃ. ᔨᕝᑳᕝ, ᐊᐅᓚᑦᑎᔨ
ᐊᖏᔪᖅᑳᖅ

Jivko I. Jivkov, P.Eng.
Principal

ᐃᓚᓕᐅᑎᓯᒪᔪᖅ #9