CUMBERLAND RESOURCES LTD.
MEADOWBANK GOLD PROJECT, NUNAVUT

NUNAVUT WATER BOARD

WATER LICENSE APPLICATION FOR THE TEHEK LAKE ACCESS ROAD

OCTOBER, 2006

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ᑲᒻᐳᓚᓐᑯᑦ ᐅᔭᖄᕐᓴᖅᓯᐅᕝᑎᒃ ᑲᓄHᐊᕿᒃ ᐱᓕᕆᖃᑕᖅᑐᑦ ᐊᐳᖅᑎᓐᓇᖅᑐᒥ, ᐅᖓᓯᒃᑎᒋᔪᖅ 70 km. ᖃᒪᓂ'ᑐᐊᕿᑦ, ᐱᒋᐊᖅᕝᑎᒃ 1995ᒥ. ᓄᓇ ᐱᓕᕆᕕᒋᔭᖓᑦ ᐃᓄᐃᑦ ᓇᒥᓂᖓᑦ ᓇᓴᐅᑎᓕᒃ (IOL BL 14). ᑭᓯᐊᓂ ᓄᓇ ᖃᖓ ᓇᒥᓂᕆᔭᐅᔪᖅ ᐃᓄᓂᑦ, ᑕᐃᒪ ᓇᒥᓂᕆᔭᐅᒪᑦ ᐃᓄᓂᑦ ᓚᐃᓴᖃᕆᐊᖃᖅᑐᖅ ᐊᑐᕐᒪᐃᓂᖓᓄᑦ, ᐃᓄᐃᑦ ᑲᑐᔾᖃᑎᒋᑯᓂᑦ ᑭᕙᓕᕿ, ᐊᒪᓗ ᓄᓇᕗᒥ ᐃᒪᓕᕆᔾᑦ ᑲᑎᒪᔨᖏᓂᑦ. ᑕᒪᓇ ᐅᔭᖄᑕᕆᐊᕐᓂᖅ ᐊᐳᖅᑎᓐᓇᖅᑐᒥ ᐱᕙᓕᐊᑦᓯᐊᖅᑐᖅ ᑭᓇᐅᔭᓂᒃᑯ ᐊᑐᖅᓯᒪᓕᖅᕝᑎᒃ 41 ᒥᓕᐊᓐᓂᒃ, ᐱᒋᐊᖅᕝᑎᒃ 1995ᒥᑦ.

ᑕᒪᓇ ᐅᔭᖄᑕᕆᐊᓂᖅ ᐊᐳᖅᑎᓐᓇᖅᑐᒥ ᖃᓄᖅ ᑭᓇᐅᔭᖅᑐᕐᓂᐊᕐᓂᖓ ᖃᐅᔨᓴᕐᐅᓚᐅᖅᒪᑦ ᖃᐅᔨᓴᓂᓚᐅᖅᑐᑦ 2005 ᐱᒋᐊᓕᓴᖅᑎᑐᒍ. ᖃᐅᔨᓴᓂᒃᓯᒪᓕᕐᒪᑕ ᑕᒪᓇ ᐃᖏᕋᓂᖓ ᐸᕐᓇᐅᑕᐅᓚᓂᓚᐅᕿᔪᖅ ᑎᓯᐱᕆ 2005ᒥ. ᐊᐳᖅᑎᓐᓇᖅᑐᒥ ᐅᔭᕋᑕᕆᐊᓕᖅᐸᑕ ᐱᖓᓱᑦ ᐅᔭᕋᑕᕆᐊᕐᕕᐅᓂᐊᖅᑐᑦ ᓄᓇᐃᑦ ᐊᑦᓯᓕᖅᐸᓕᐊᔪᑦ. ᐅᑭᐅᓂᒃ 8.1ᓂᒃ ᐅᔭᖄᑕᕆᐊᕋᔭᖅᑐᑦ. ᓄᓇᐅᑉ ᐃᓗᐊᓂ ᑲᓄHᐊᖅ ᐊᖏᑎᒋᔪᖅ ᐅᕐᑯᒪᐃᑎᒋᔪᖅ 2,890,000 ozs. ᑭᓇᐅᔭᑦ ᐊᑐᕋᔭᖅᑐᑦ 235,000,000 ᐊᒥᓕᑳᓐ ᑭᓇᔭᖏᑦ ᐅᒃᑐᑎᒋᓗᒋᑦ. ᑕᒪᓇᓗ ᐅᔭᕋᑕᕆᐊᕕᒃᓴᖅ ᒪᓇ ᐱᓕᕆᐊᕆᔭᐅᒪᑐᖅ ᑕᑯᓇᖓᑦ ᓄᓇᕗᒥ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᑲᑎᒪᔨᖏᓂᑦ. ᑕᑯᐊ ᓄᓇᕗᒥ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᑲᑎᒪᔨᖏᑦ ᑕᒪᑯᓂᖓ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᐱᓕᕆᐊᖃᑕ ᐊᒪᓗ ᓚᐃᓴᓂᒃ ᐊᖏᖅᐸᒃᕝᑎᑦ ᐅᔭᖄᑕᕆᐊᕈᐊᖅᑐᓂᒃ ᓄᓇᕗᒥ. ᓄᓇᕗᑦ ᐊᖏᕈᑎᖓᓂ ᑎᑎᖄᓯᒪᒪᑦ ᑕᒪᑯᐊ ᐅᔭᖄᑕᕆᐊᕈᐊᖅᑐᑦ ᑲᒪᒋᔭᐅᔪᓇᖅᒪᑕ ᓇᓴᐅᑎᓕᒥᒃ 5.

ᑕᒪᓇ ᐅᔭᖄᑕᕆᐊᕕᒃᓴᖅ ᐸᕐᓇᒎᑕᐅᑎᑐᒍ ᑲᒻᐳᓚᓐᑯᓂᑦ, ᐊᑉᑯᑎᒃᓴᖅ ᐸᕐᓇᒎᑕᐅᒥᔪᖅ ᖃᒪᓂ'ᑐᐊᕿᑦ ᐊᐳᖅᑎᓐᓇᖅᑐᒧᑦ ᐅᖓᓯᒃᑎᒋᓇᔭᖅᕝᓂ 115 kms. ᑖᓇᓗ ᐊᑉᑯᑦ ᐅᑭᐅᓗᒃᑕᖅ ᐅᑕᓚᐅᑕᖄᔭᖅᕝᓂ. ᑖᓇ ᐊᑉᑯᑦ ᐊᑐᓗᐊᕐᓂᐊᖅᑐᖅ ᑕᒪᑯᐊ ᐅᖅᓱᐊᓗᐃᓗ, ᐱᕐᑯᑎᓗ ᐊᖏᔪᑦ ᐊᐳᖅᑎᓐᓇᖅᑐᒧᑦ ᐊᓪᔭᓚᐅᑕᓂᐊᕐᒪᑕ. ᐅᔭᖄᑕᕆᐊᕕᒃᓴᒃᑯ ᓴᓇᔭᐅᕙᓕᐊᓕᖅᐸᑦ ᐊᑐᓚᐅᓗᐊᕐᓗᓂ, ᐱᕐᑯᑎᓗ ᐊᖏᔪᑦ ᐊᔭᓚᐅᑕᓂᐊᕐᒪᑕ ᐅᔭᖄᑕᕆᐊᓗᐊᕕᓕᖅᐸᑕ.

ᑕᒪᓇ ᐊᑉᑯᑎᒃᓴᐅᑉ ᐃᓂᒋᓂᐊᖅᑕᖓ ᓄᓇᐅᑉ ᖃᖓ ᖃᐅᔨᓴᖅᑕᐅᓚᐅᖅᑐᖅ. ᑕᒪᑯᐊ ᖃᐅᔨᓴᓚᐅᑉᕝᑎᒃ ᓄᓇᐃᑦ, ᑕᓯᑦ, ᑯᓚᐃᒃ, ᐱᕈᒃᓯᒪᔪᑦ, ᐊᓯᖏᓗ. ᑕᒪᑯᐊ ᖃᐅᔨᓴᓚᐅᓯᒪᔪᑦ ᑎᑎᖄᓯᒪᔪᑦ ᑐᓂᔭᐅᓯᒪᔪᒥ, ᑭᖑᓕᕿ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᑕᑯᓇᓂ. ᑕᑯᐊ ᑐᓂᔭᐅᓯᒪᔪᑦ ᓄᓇᕗᒥ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᑲᑎᒪᔨᖏᓄᑦ. ᑖᓇ ᐊᑉᑯᑎᒃᓴᖅ ᐸᕐᓇᒐᐅᓯᒪᔪᖅ ᑕᒪᓇ ᐊᕙᑎ ᓄᓇᓗ, ᐃᒪᕐᓗ ᐊᓯᐅᕐᑯᓇᒍ. ᐊᑉᑯᑦ ᓴᓇᔭᐅᓕᖅᐸᑦ ᑐᐊᐸᖅᑐᒥᑦ ᓯᐅᕋᓂᒃ ᓄᓇᐅᑉ ᖃᖓᓂᑦ ᓴᓇᔭᐅᓂᐊᖅᑐᖅ.

ᑖᓇ ᐊᑉᑯᑦ ᐊᑐᓚᐅᑕᓕᖅᐸᑦ ᑕᒪᑯᐊ ᓄᓇᑯᕈᑎᕐᔪᐃᑦ ᐊᑐᓚᐅᕙᒃᑐᑦ ᐃᓚᖏᑦ ᑲᓕᓕᑦ ᐊᑐᓚᐅᑕᕐᓂᐊᖅᑐᑦ. ᑕᒪᑯᐊᓗ ᐱᕐᑯᑎᑦ ᓯᕐᓗᐊᕿᑦ ᖃᒪᓂ'ᑐᐊᕿ ᐊᓪᔭᓚᐅᑕᓂᐊᕐᑐᑦ, ᐊᐳᖅᑎᓐᓇᖅᑐᒧᑦ. ᐊᑉᑯᑦ ᐊᑐᓚᐅᓗᐊᕐᓂᐊᖅᑐᖅ 10 ᑕᑦᕿᓄᑦ ᐅᑭᐅᑕᒪᑦ, ᐅᕙᓗᓂᑦ 300 ᐅᑉᓗᑦ ᐅᑭᐅᒥ. ᑭᓯᐊᓂ ᐊᐳᑦ ᐊᐅᒃᐸᓕᐊᓕᖃᖓᑦ ᐅᐱᕐᖓᓴᒥ ᐊᑐᓚᐅᑕᐃᓕᑕᓂᐊᖅᑐᖅ ᑕᒪᓇ ᑭᓂᐸᓂᖅ ᐊᓯᕈᐊᓚᓇᖅᑐᑦᑐᒪᑦ. ᐅᑭᐅᑕᒪᑦ ᐅᕐᑯᒪᐃᑎᒋᔪᓂᒃ 70,000 tonnes ᐱᕐᑯᑎᔪᐊᕐᓂᒃᑯ, ᐅᖅᓱᐊᓗᒃᓂᒃᑯ ᐊᔭᖅᑐᐃᓇᔭᖅᑐᑦ ᐊᑉᑯᑎᒃᑯᑦ. ᑕᒪᑯᐊ ᓄᓇᑯᕈᑎᕐᔪᐃᑦ ᐊᔭᖅᑐᐃᓂᐊᖅᑐᑦ ᐊᐳᖅᑎᓐᓇᖅᑐᒧᑦ ᓯᕗᓕᖅᑎᖃᖅᑐᑎᒃᑯ ᐃᑲᔪᖅᑎᖃᖅᑐᑎᒃᑯ ᐱᖃᑎᖃᖅᑕᓂᐊᖅᑐᑦ, ᐊᒪᓗ ᑕᒪᕆᑯᑎᖃᕐᑐᑎᒃ, ᐅᖃᓗᑎᖃᖅᑐᑎᒃᑯ ᐃᖏᕋᑦᓯᐊᕐᑯᑉᑐᒋᑦ. ᓄᓇᑯᕈᑎᕐᔪᐃᓗ ᐃᓗᐊᓂ ᐱᕐᑎᖃᓂᐊᖅᑐᑦ ᐃᑲᔪᕈᑎᓂᒃ, ᓯᓚ ᓇᒪᒍᓂᕐᓂᖅᐸᑦ ᐱᖅᓯᕐᓂᖅᐸᓗᓂᑦ ᐅᑭᐅᒥ. ᐊᑉᑯᓗ ᓯᓇᓂ ᐃᓪᓗᔪᐊᓇᖃᓂᐊᖅᑐᖅ ᐊᒥᓲᓂᒃ, ᑕᒪᑯᐊ ᐸᐱᕈᒃᓱᖅᑎᑦ ᐊᔪᓕᕐᓂᕈᒥᒃ ᐊᑐᓪᓴᐃᓂᒃ. ᑕᑯᐊ ᐃᓗᔪᐊᓇᑦ ᐅᖓᓯᑎᒋᓂᐊᖅᑐᑦ 10 kms. ᑕᒃᐸᐅᖓ ᐊᐳᖅᑐᓐᓇᖅᑐᒧᑦ ᑎᑭᓗᑎᒃ.

ᐊᑉᑯᑦ ᐊᑐᓚᐅᔪᓂᕐᓂᐊᖅᑐᖅ ᐅᔭᖄᑕᕆᐊᓚᓂᒃᐸᑕ, ᑭᓯᐊᓂ ᐊᑐᓚᐅᑕᕈᐊᓂᕐᐸᑦ ᐊᓚᒥᑦ ᐊᑐᖅᑕᕈᐊᖄᔭᖅᑐᒥᒃ ᐅᕙᓗᓂᑦ ᑲᕙᒪᑯᓂᑦ, ᐊᑐᖅᑕᕈᐊᖅᑐᒥᒃᑯ ᐊᑉᑯᒥᒃ ᑲᒪᒋᔭᕆᐊᖃᖅᑕᖓ ᓇᒥᓂᖅ. ᐊᑉᑯᑦ ᐊᑐᓚᐅᓚᖏᓕᕐᒪᑦ ᒪᓂᒃᓯᓕᕆᐊᕐᓂᐊᖅᑐᖅ ᖃᖓ, ᐊᒪᓗ ᐃᑲᕿᕙᓗ, ᓱᑉᓗᓕᓗ ᐊᓯᕙᓚᐅᓗᑎᒃ.

Executive Summary

Cumberland Resources Ltd. has been conducting exploration activities at the Meadowbank Gold Project, located 70 km north of Baker Lake, since 1995. The project is located on Inuit owned surface lands (IOL BL-14) and as such access is subject to licensing and permit approval by the Kivalliq Inuit Association and the Nunavut Water Board. The project has seen steady advancement in resource growth with over $41 million invested since 1995.

A feasibility study assessing production from the Meadowbank site was completed in early 2005, and the economics of the mining plan were updated in December, 2005. The mine plan includes open pit mining from three separate open pits over an 8.1 year mine life. The project is host to an open pit mineral reserve of 2,890,000 ounces gold, with capital costs of US$235 million projected for the project. The project is currently undergoing an environmental review by the Nunavut Impact Review Board under the processes established by part 5 of the Nunavut Land Claims Agreement.

As part of the proposed project development, an all-weather access road is proposed to extend from the Hamlet of Baker Lake to the Meadowbank project site, a distance of 115 kilometres. This all-weather road will be used to provide access to the site during construction of the mine and milling facilities, as well as, provide a transportation route from Baker Lake for the supplies (fuel, etc.) required at the site during production.

Baseline environmental and geotechnical analysis of the proposed route was conducted prior to the submission of the Final Environmental Impact Statement. The right of way for the road was selected to minimize possible effects on the environment. The road will be constructed above grade, using quarried material from non-acid generating country rock.

The road is designed for use by conventional tractor trailers which will transport supplies from a storage depot in Baker Lake to the site. It is anticipated that the road will be used for 10 months or 300 days per year, avoiding use during spring run-off when wet conditions could affect the quality of the road bed, allowing the transportation of approximately 70,000 tonnes of freight (including fuel) each year. The haulage equipment will generally operate in convoys and will be supported by state-of-the-art Global Positioning System (GPS) technology and radio controls. The vehicles will be equipped with safety provisions and equipment so that major blizzards can be safely waited out at any point along the road, in addition to established refuge stations installed approximately every 10 km along the access road.

The road will be decommissioned after mining has been completed, unless the road operation and maintenance responsibility is transferred to another interested private party or government agency. Decommissioning of the road will be accomplished by loosening compacted surfaces, flattening side slopes and removing all culverts and bridges from drainage paths.

Introduction

The Meadowbank Gold Project, owned and operated by Cumberland Resources Ltd., is located approximately 70 kilometres north of the Hamlet of Baker Lake, Nunavut (Figure 1). Cumberland is currently permitting the proposed development of the Meadowbank Gold Project. The project has undergone an environmental review by the Nunavut Impact Review Board under the processes established by part 5 of the Nunavut Land Claims Agreement. The public hearings for the FEIS were completed between March 27 and March 31, 2006 in Baker Lake, Chesterfield Inlet and Rankin Inlet. Cumberland received a letter and screening report from the NIRB on August 30, 2006 recommending to the Minister of INAC that the Meadowbank Project should proceed to the licensing phase.

A feasibility study was completed for the Meadowbank project in early 2005, and the economics of the mining plan were updated in December, 2005. The mine plan includes open pit mining from three separate open pits at the site over an 8.1 year mine life. The project is host to an open pit mineral reserve of 2,890,000 ounces gold, with capital costs of US$235 million projected for the project. As part of the project proposal, an all-weather access road (the Tehek Lake Access Rd.) will be constructed to extend from the Hamlet of Baker Lake to the Meadowbank project site, a distance of approximately 115 kilometres. It should be noted that the road alignment presented in this application may have to be modified slightly based on constructability in certain areas and access to suitable quarried material. The final alignment of the road will be determined following field investigations along the route prior to the start of construction; however, the land area required for the right of way will remain the same.

The all weather road will be used to provide access to the site during construction of the mine and milling facilities, as well as, providing a transportation route from Baker Lake to the site for supplies (dry goods, fuel, etc.) required until the end of production (est. 2018). During the feasibility level economic assessment of the project, three alternate transportation options were considered: a seasonal ice road following lakes and rivers, a seasonal winter road utilizing both land and lake ice and an all weather gravel road with culverts and bridges. The all-weather road has a significant positive impact on the economics and environmental aspects of the proposed development of the Meadowbank Project. Year-round road access reduces the amount of infrastructure required at the site by significantly reducing the volumes of fuel and other consumable supplies that must be stored at the mine in order to support operations.

Baseline environmental and geotechnical analysis of the proposed route was conducted prior to the submission of the Final Environmental Impact Statement. The right of way for the road was selected to minimize possible effects on the environment. The road will be constructed above grade, using quarried material from non-acid generating country rock, with a minimum number of bridge crossings.

This Water License application is being made to the Nunavut Water Board to allow for the construction of the road between the Hamlet of Baker Lake and the Meadowbank site. Portions of the proposed road lie within lands administered by three different land owners, some of which are also regulators, including the Kivalliq Inuit Association (KIA), Indian and Northern Affairs Canada (INAC) and the Hamlet of Baker Lake (Government of Nunavut).

CUMBERLAND RESOURCES LTD.

MEADOWBANK PROJECT LOCATION

Figure 1

Applications for right of way agreements and the required quarry permits have been submitted to the above bodies and are pending at this time.

Tehek Lake Access Road

In order to facilitate the movement of equipment and supplies from Baker Lake to Meadowbank during construction and subsequent production at the site, a 115 km long all-weather access road will be constructed. The route from Baker Lake to the Meadowbank site traverses lands administered by the Hamlet of Baker Lake, INAC (Crown lands) and the KIA (Inuit Owned Lands). The land tenure along the route is broken down as follows: 6.92 km within the municipal boundaries of Baker Lake, 61.34 km on Crown Land and 43.08 km on Inuit Owned Lands (25.38 km within IOL BL-14 and 19.24 km in IOL BL-18). The reader is referred to figure 2 below for a 1:250,000 scale map showing the proposed alignment of the road and details of the land tenure.

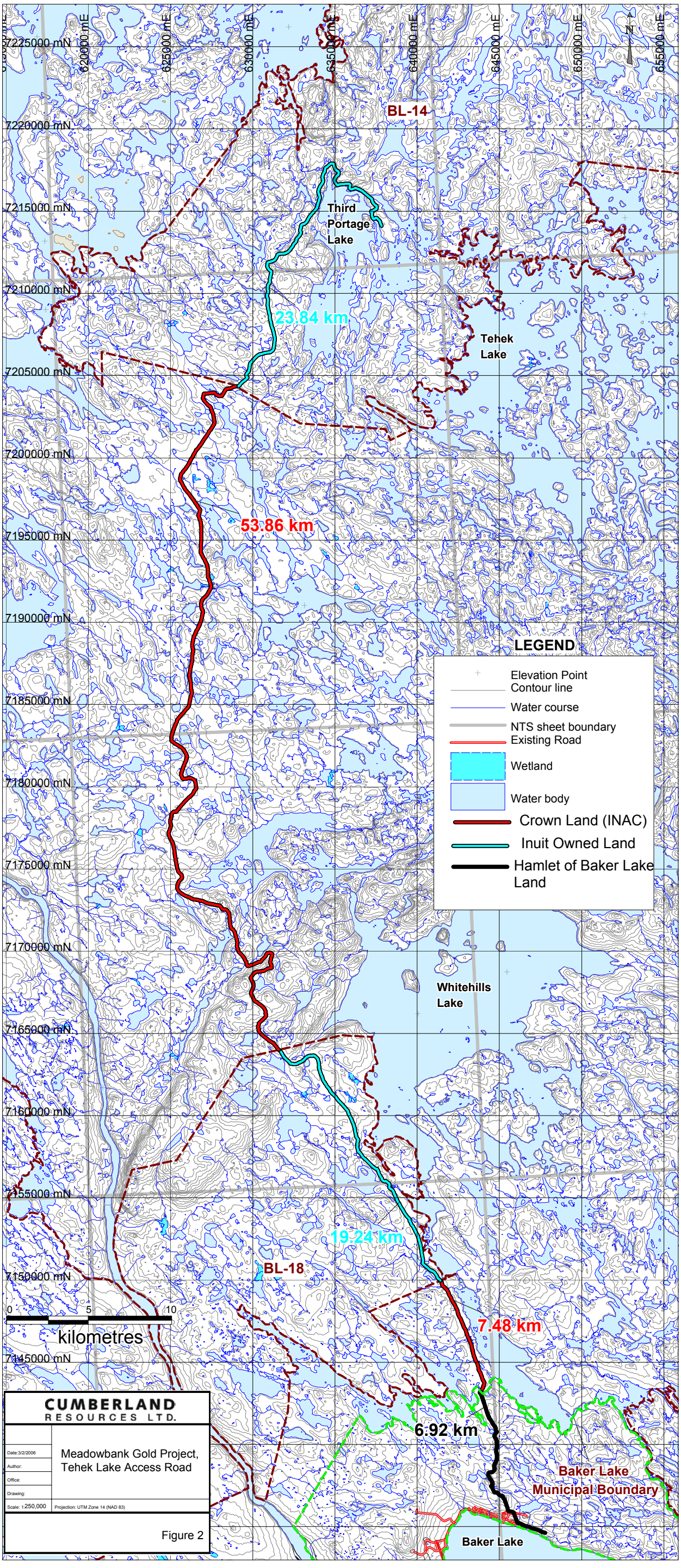
In selecting the preferred route for the road, care was taken to select a route which would have a minimal impact on the environment by avoiding environmentally sensitive areas and by keeping the number of required stream crossings to a minimum. The current planned route for the road will require 23 stream crossings to be constructed. Ten of these proposed crossing sites are planned as bridge crossings due to either the physical size of the channel to be crossed or because the stream is ranked as having a high fish habitat value. The remainder of the proposed crossings will be accomplished using culverts of various dimensions and configurations specific to the requirements for each individual drainage channel.

It is anticipated that the road construction will require the development of a total of eleven quarries along the route to provide the necessary aggregate for construction. Four of these quarry sites will be located on Inuit Owned Lands (two in BL-14 and two in BL-18), six quarry sites will be located on Crown Lands and one quarry will be developed within lands administered by the Hamlet of Baker Lake. Each quarry will have a planned footprint of approximately 150m X 150m and yield a combined 1,012,000 m^3 of material, which represents the total estimated amount of material required to construct the full length of the road.

The reader is referred to figure 3 below for a 1:250,000 scale map showing the alignment of the road from Baker Lake to the Meadowbank site, the locations of the 23 proposed stream crossings along the route and the locations of the 11 proposed quarries. A series of 1:50,000 scale maps are also provided (in pocket) which show more detailed locations for the proposed stream crossings and the footprints of the proposed quarry sites. The figures are numbered as follows: Figure 4 – Crown Land; south sheet (including the municipality of Baker Lake), Figure 5 - IOL BL-18, Figure 6 – Crown land; north sheet, and Figure 7 - IOL BL-14.

Construction

The proposed all-weather Tehek Lake Access Road, connecting Baker Lake and the Meadowbank site, is 115 kilometres long and will be constructed using conventional road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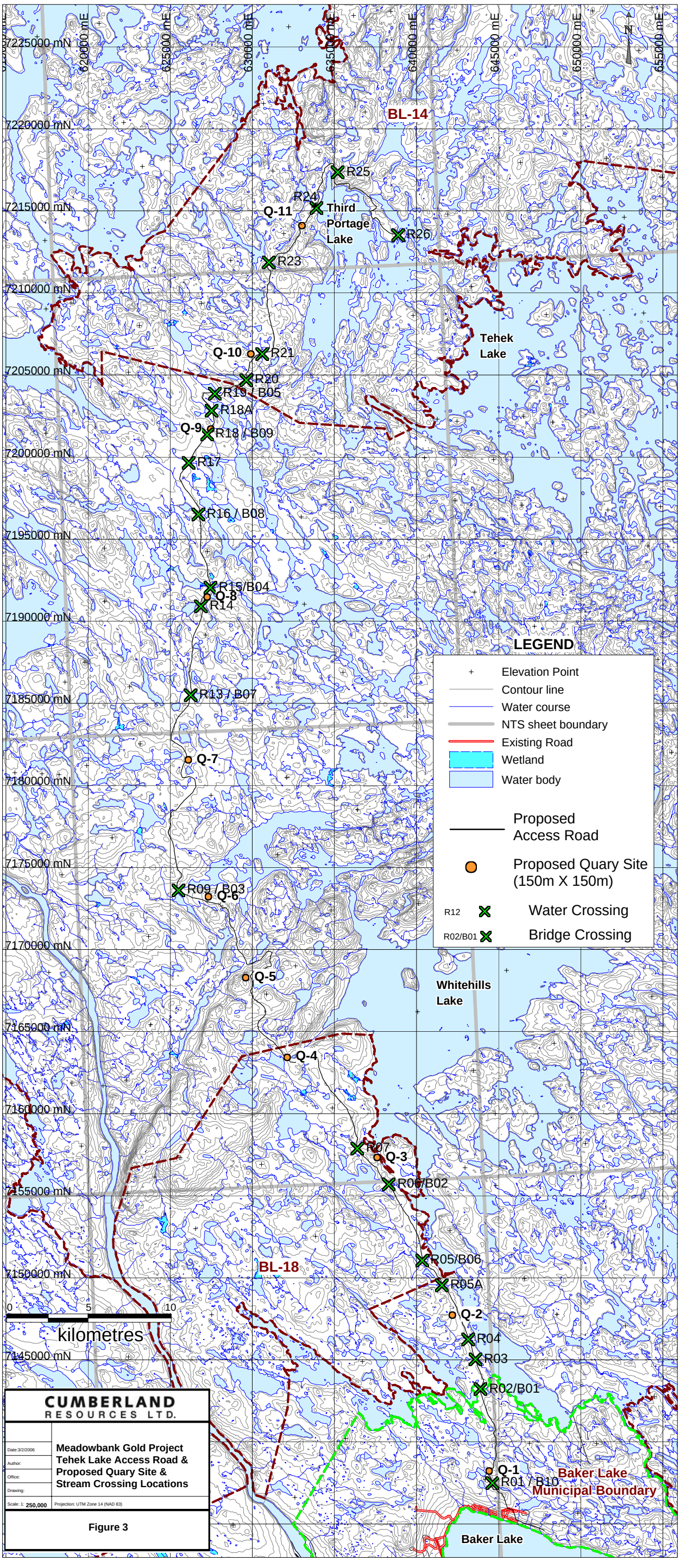
BL-14
Third Portage Lake
23.84 km
Tehek Lake
53.86 km
Whitehills Lake
19.24 km
BL-18
7.48 km
6.92 km
Baker Lake
Municipal Boundary
Baker Lake
LEGEND
Elevation Point
Contour line
Water course
NTS sheet boundary
Existing Road
Wetland
Water body
Crown Land (INAC)
Inuit Owned Land
Hamlet of Baker Lake Land
0
5
10
kilometres
CUMBERLAND RESOURCES LTD.
Date: 3/2/2006
Author:
Office:
Drawing:
Scale: 1:250,000
Projection: UTM Zone 14 (NAD 83)
Meadowbank Gold Project, Tehek Lake Access Road
Figure 2


620000 mE
625000 mE
630000 mE
635000 mE
640000 mE
645000 mE
650000 mE
655000 mE
N
7225000 mN
7220000 mN
7215000 mN
7210000 mN
7205000 mN
7200000 mN
7195000 mN
7190000 mN
7185000 mN
7180000 mN
7175000 mN
7170000 mN
7165000 mN
7160000 mN
7155000 mN
7150000 mN
7145000 mN
BL-14
BL-18
R25
R24
Q-11
Third Portage Lake
R26
R23
Q-10
R21
R20
R19 / B05
R18A
Q-9
R18 / B09
R17
R16 / B08
R15/B04
Q-8
R14
R13 / B07
Q-7
R09 / B03
Q-6
Q-5
Q-4
R07
Q-3
R06/B02
R05/B06
R05A
Q-2
R04
R03
R02/B01
Q-1
R01 / B10
Tehek Lake
Whitehills Lake
Baker Lake
Baker Lake Municipal Boundary
LEGEND
Elevation Point
Contour line
Water course
NTS sheet boundary
Existing Road
Wetland
Water body
Proposed Access Road
Proposed Quary Site (150m X 150m)
R12
Water Crossing
R02/B01
Bridge Crossing
0
5
10
kilometres
CUMBERLAND RESOURCES LTD.
Date:3/2/2006
Author:
Office:
Drawing:
Meadowbank Gold Project
Tehek Lake Access Road &
Proposed Quary Site &
Stream Crossing Locations
Scale: 1: 250,000
Projection: UTM Zone 14 (NAD 83)
Figure 3

building techniques used in permafrost conditions. It is currently anticipated that construction of the road will begin in late fall 2006, provided that all of the necessary licenses and permits are obtained in time. Work on the road will begin from the Baker Lake end and progress toward the site. Road construction should be completed by the spring of 2007 to allow for the beginning of mine site construction during the summer of that year. All of the proposed stream crossings have shallow water depths (<0.8m) and should be frozen to the bottom during culvert or bridge installation. This will significantly reduce or eliminate potential problems related to sedimentation in the watercourse and erosion of the stream bed. Constructing the road during the winter months should greatly reduce potential negative impacts of the proposed construction on the environment.

The road will be constructed above current grade using mostly quarried non-acid generating country rock; however, any suitable gravel deposits found along the route will also be utilized during construction. To preserve the underlying permafrost, there will be virtually no removal or disturbance of the natural ground surface, except in localized instances. Wherever possible, permanent freezing of the natural subgrade will be promoted by placing fills when the ground is frozen to surface. Construction during the winter season should aid in the preservation of permafrost under the road bed. Areas of potential ground ice, high moisture content or thaw susceptible soils, will be padded over with free-draining granular material to a depth of at least 1.5 metres to insulate the frozen ground from thaw. Appropriate controls on material selection will be applied to ensure that geochemical impacts on water quality are controlled and limited to acceptable levels.

Due to the lack of significant quantities of marine gravels or glacio-fluvial gravels that are suitable for road construction along the route, most of the material for the road bed will have to be quarried. At present a total of eleven preferred quarry sites have been selected along the proposed route to provide the crushed material for road construction: four quarries are located on Inuit Owned Lands, six are located on Crown Land and one is located within the Baker Lake municipal boundary.

The road bed will be constructed to an average height of 0.8 metres above the terrain, with a travel surface 8m wide. Drainage ditches will be constructed on either side of the road to direct run-off. There are currently 23 proposed stream crossings along the route for the access road. The stream crossings will consist of either culverts or bridges, depending on the potential of these streams for fish habitat. Thirteen of the proposed stream crossings are characterized as having no potential for fish habitat and will be crossed using culverts, while ten of the proposed stream crossings are characterized as having potential fish habitat and will be crossed using prefabricated bridges.

Multiple full-rounded corrugated steel culverts of either 0.7m or 1.2m diameter will be used in a variety of configurations depending on the estimated peak water flow for each proposed culvert crossing. A minimum of two culverts, placed in an “offset staked” configuration, will be utilized at each crossing to enable water flow before complete ice break up in the channel. A minimum cover thickness of 0.3m will be maintained and the distance between the two staked rounded culverts, from edge to edge, should be at least the half the diameter of the larger culvert.

Due to the low relief of the terrain, seasonal nature of the water flow at most crossings and the season for the proposed construction (winter), most culvert installations should take place under dry conditions. Culverts will be installed by determining the low points in the

roadway profile and preparing the base to accept the pipe. Base preparation requires grading the bed to remove cobbles and creating a depression for the application of a bedding sand cushion. Following the compaction of the bed, the culvert is placed at the designed alignment (approximating the natural alignment of the channel) and grade and the pipe is then back filled by hand to the spring line of the pipe with fine granular material. Compaction of the backfilled material is achieved with vibratory plate tampers and the material is placed in shallow lifts between compaction activities. Once backfill to the spring line has been completed, the remaining backfill will be placed by machine and compacted with large mechanized compactors. Well graded granular material is used for the backfill adjacent to the pipe. The culvert will be sufficiently buried to withstand the loads to be applied and may be super-elevated at the culvert location to achieve the required bury. It is anticipated that the interior of the culverts will have a natural substrate bottom.

Bridge installations will be accomplished using steel bridges of a prefabricated design with span lengths of either 12m or 30m depending on the width of the wetted channel. Two different abutment designs will be employed for the bridges, depending on the span length. These abutments will be constructed on each side of the channel so that they do not encroach on the watercourse, thereby reducing the environmental impacts of the construction. For the 30m bridges, the abutments will utilize a bin wall design. The framing for the bin wall will be constructed from bolted together sheets of corrugated steel and filled with rock. The abutments for the 12m spans will be constructed using a pre-cast concrete pad foundation with a structural steel support for the bridge. This configuration is filled in with rock from the road bed.

The bridge deck, for both designs, will be launched from one side or installed with the use of a mobile crane. To allow for the passage of fish, it is proposed that the maximum channel velocities through the bridge opening should not exceed 0.7 m/s. Where the calculated maximum velocities exceed this value, baffles or large substrate materials would be placed within the crossing to dissipate energy, diversify flow conditions and provide potential resting areas for migrating fish. Hydraulic analyses were completed at each proposed bridge crossing site to determine the capacity, flow depth and water velocity at each crossing. The width between the abutments for the various bridges has been designed to accommodate the peak flow expected during the spring freshet based on the size of the drainage area for each crossing.

A detailed description of each of the individual channel crossings along the road from Baker Lake to the Meadowbank site is provided below, along with the detailed design planned for each crossing. The reader is also directed to Appendix I of this document for an engineering design report on the road. This document, entitled “Design Recommendations for the Proposed Tehek Lake Access Road”, completed by Golder Associates Ltd., provides additional details of the proposed construction.

Sediment and Erosion Control Plan:

Construction of the bridges and installation of the culverts for the proposed Tehek Lake Access Road crossings are scheduled to be completed during the winter months, so no surface flow is expected in any of the crossings. The fact that the construction will be completed during frozen conditions should significantly mitigate any potential adverse

effects on the water quality in the crossings. However, in order to help reduce the impacts of the work, activities within the channel areas will be kept to an absolute minimum.

The following sediment and erosion control protocols have been developed to maximize the protection of the existing watercourses during the construction phase. During construction, the size of disturbed areas will be kept to a minimum by excavating as little as possible, particularly on steep slopes. Any required stockpiles of materials will be located away from the watercourses and will be stabilized against erosion as soon as possible by temporarily covering with geotextile or by placement of a perimeter sediment control structure. Any denuded soils or slopes within or near the channels will be stabilized as soon as possible with a permanent covering of clean shot rock underlain by geotextile to prevent the loss of fines. Upon completion of the construction, all accumulated sediment and debris will be removed for proper disposal in completed borrow pits. In order to ensure that these protocols are being followed by the construction crews, regular site inspections will be conducted to determine compliance.

Monitoring of the crossings will be conducted at the onset of spring break up and at regular intervals during the open water season to ensure that these sediment and erosion control measures are functioning properly. Turbidity and silt curtains will be available to be deployed in the event that TSS exceeds allowable limits.

Proposed Channel Crossings:

The proposed all-weather road from Baker Lake to the Meadowbank site covers portions of three separate watersheds in the Baker Lake area: the Prince River drainage system, the Quoich River drainage system and the Back River drainage system. Both the Prince River and Quoich River systems flow south and east, ultimately emptying into Hudson Bay, while the Back River drainage system flows north into the Arctic Ocean. The majority of the road (~95km) lies within the boundaries of the Prince River drainage system, which includes the large Whitehills and Amarulik Lake basins that drain into Baker Lake. Two crossings of small ephemeral streams (crossings R24 and R25) occur near the proposed mine site. These streams drain into Third Portage Lake which flows into Tehek Lake before entering the Quoich River on route to Chesterfield Inlet. One small crossing (crossing R23) drains north into the Back River system which flows to the Arctic Ocean.

A description of each individual channel crossing along the proposed 115 kilometre route from Baker Lake to the Meadowbank site is provided below. Summaries are provided of the habitat and steam features for each crossing, and observations on fish presence, species composition and habitat utilization, along with a description of the proposed construction methods for the crossing. Engineering design cross sections and plan views are also provided for each crossing.

A 1:250,000 scale map is provided in figure 3 which shows the entire proposed route for the road and the locations of the stream crossings. A series of maps (figures 4 through 7 – in pocket) are also provided, at 1:50,000 scale, which provide additional detail of the proposed road route, the location of the stream crossings (with bridges identified) and the locations of the required quarries. The nomenclature used for the individual crossing designations correspond to the numbering system utilized in the FEIS document entitled “Meadowbank

Gold Project, Habitat and Fisheries Assessment: All-Weather Road" submitted as part of the FEIS for the project.

Crossing R01 / B10:

Crossing R01, planned as a bridge crossing (B10), is located approximately 3.6 km along the proposed road (Figure 4) to the west of the sewage outflow adjacent to the Hamlet dump. This watercourse connects three isolated lakes north of Baker Lake to a series of smaller downstream lakes and ponds that ultimately discharge into the lower Prince River System and Baker Lake.

The proposed crossing is situated at a boulder dominated chute approximately 300 metres downstream of the lakes. Above the crossing site, the stream is a relatively straight riffle (40%) and run (60%) cobble and boulder substrate sequence. Downstream, the watercourse is characterized as a braided channel with a defined central channel with mixed portions of riffle (20%), run (30%), glides (40%) and pools (10%) of variable substrate. Grass and exposed sediment predominate in glides, cobble, and small boulders in riffles and small deposits of gravel and coarse-grained sediment in some of the pools of the central channel. Side channels consist of flooded grassy glides and standing pools in a sedge dominated wetland. When the site was visited in July, the channel was 0.916 m wide and 0.206 m deep, with a measured flow velocity of 0.7 m/s and a discharge rate of 0.13 m^3/s.

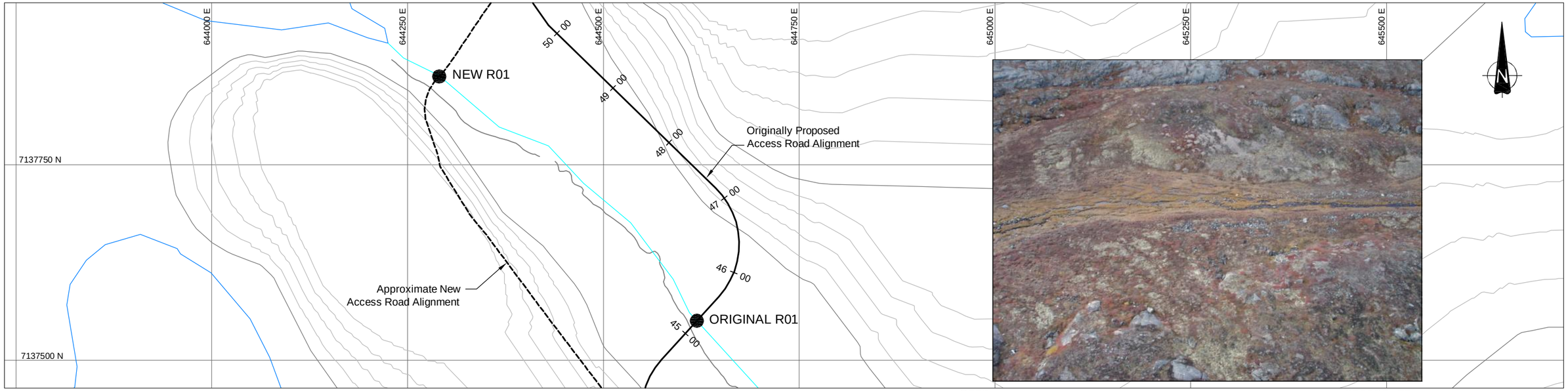
The crossing site was visited during July, 2005. Several juvenile and adult Arctic Grayling were observed in protected clear water pools, and darting downstream through the central channel. Due to the difficulty in migrating between the upstream and downstream lakes within the stream due to shallow depth, fish habitat utilization was determined to be poor. During a visit to the same site in August, the discharge was very low and no fish were observed.

The bridge for crossing R01 (B10) is planned with a 12 metre span. Abutments for the bridge will be constructed using a pre-cast concrete foundation and structural steel design. The bridge has a planned width between the abutments of 7.9m for the base of the stream and 9.0m for the top of water. An engineering design cross section and plan for crossing R01 is provided in Figure 8 below. It is estimated that crossing R01 receives the drainage from 244 hectares. Construction of this bridge should take place in the winter under frozen conditions and due to the proposed span length of the bridge and the frozen conditions at the time of construction, minimal impacts on the environment are expected.

Crossing R02 / B01:

Crossing R02, planned as a bridge crossing (B01), is situated 10.2 km north along the proposed route from Baker Lake (Figure 4). This is the largest stream crossing, with respect to discharge, along the proposed road and is the main connecting channel between several large lakes south and west of Whitehills Lake that discharge to the Prince River.

The stream channel is well confined by a small rocky and well-vegetated hill to the south, but is unconfined to the north. At the proposed crossing location the stream channel is straight and consisted of riffle (30%) and run (70%) sequences flowing over large boulders. Substrate consisted primarily of boulders (70%) with some cobble (25%) and scattered gravel patches (5%). On June 29, 2005 the channel had a bankfull and wetted width of 60



PLAN

0 50 100 150 200 250

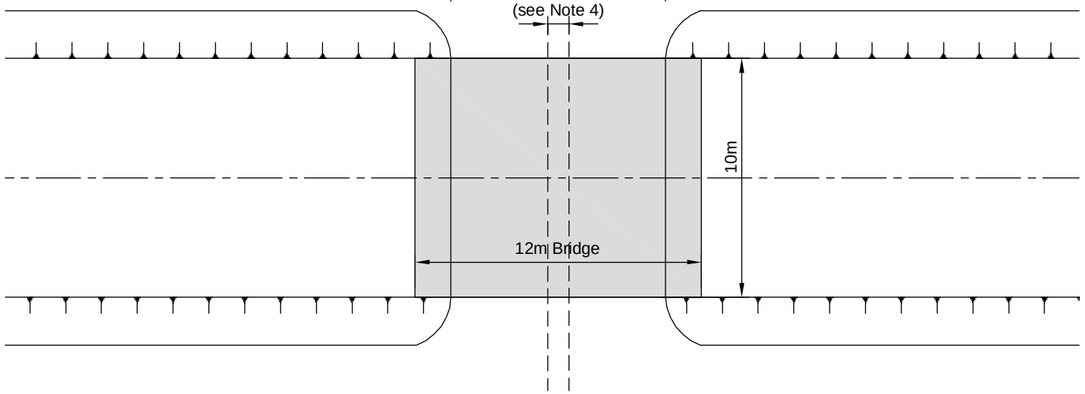
Scale in Meters

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Road alignment and crossing location revised based on field observations.
4. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).

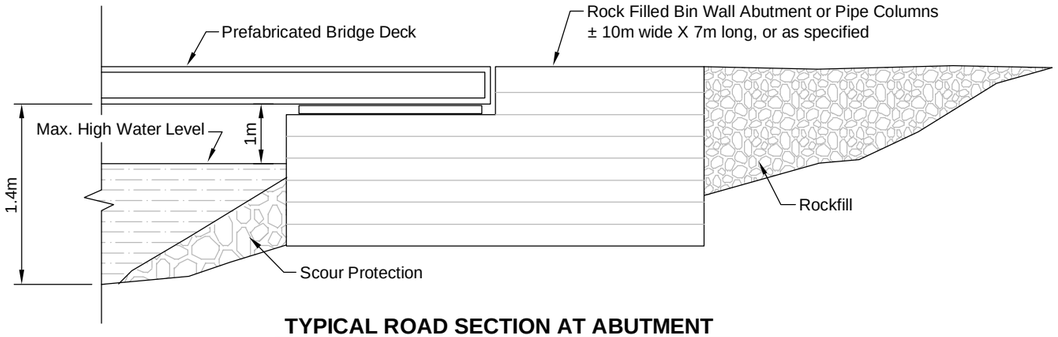
REFERENCE

1. Cumberland Resources Ltd. NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in September 2006



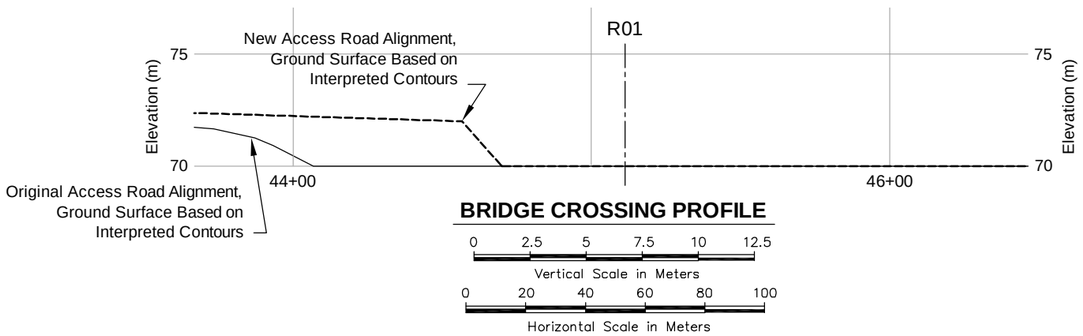
PROPOSED BRIDGE R01 PLAN (12m SPAN)

NTS



TYPICAL ROAD SECTION AT ABUTMENT

NTS



BRIDGE CROSSING PROFILE

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R01 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034-02	
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

FIGURE 8

REVISION DATE: 06/09/27 01:58PM By: NVeloso CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-034\Drafting\cad\061413034-02.dwg

m and 51 m respectively with an average depth of 0.51 m. Discharge at the crossing was estimated at 4.86 m^3/s, with a flow velocity of 0.19 m/s. Stream depth and discharge diminished steadily through the spring and summer, as water levels diminished by 16 cm between July 3 and August 21, 2005. Discharge was reduced to approximately 1.55 m^3/s by August.

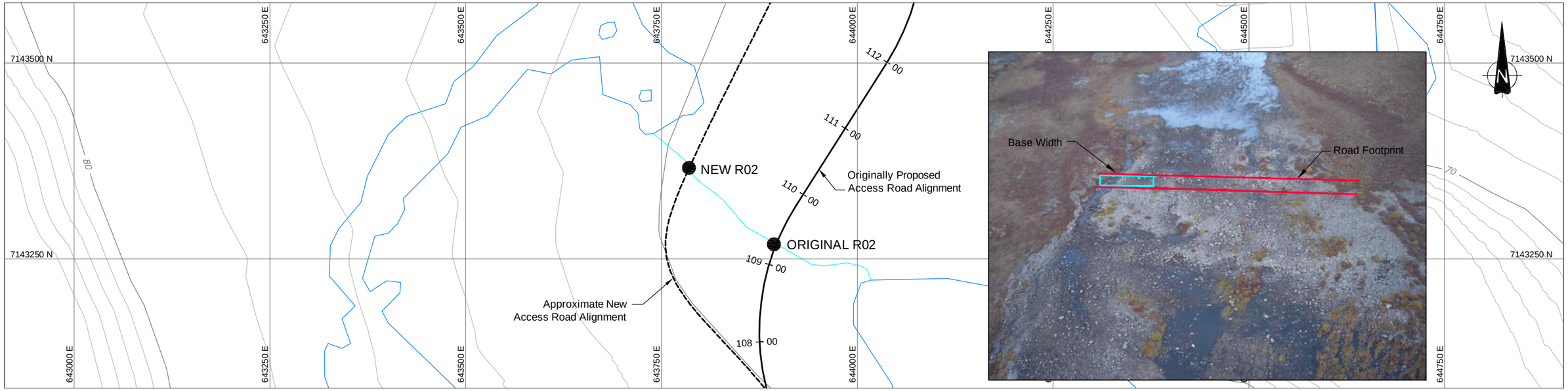
Given the large size of the stream and the important connection corridor between two lake systems, two 1.22 m diameter hoop nets and a larval drift trap were set in the stream channel at the crossing location to determine fish utilization. The two hoop nets were set up, side by side and blocked approximately 60% of the stream, in the centre of the channel were maximum flow was found. These nets were visited nearly every day between June 29 and July 20 and between August 6 and August 21 to check the hoop nets and larval traps. A total of 143 fish (99 Arctic Grayling, 43 Round Whitefish and 1 Lake Cisco) were captured during the spring/summer survey, while only 32 fish (30 Arctic Grayling and 2 Round Whitefish) were captured during the summer/fall survey. A significant decrease in the magnitude of migration and stream utilization by fish occurred through the summer. Fish passage became increasingly difficult because of shallow water in the stream just upstream of the proposed crossing location. It is likely that the stream will be frozen to the bottom during the late fall/winter construction period.

Crossing R02 / B01 is planned as a 30 metre bridge crossing. Abutments for the bridge will be constructed using a bin wall design. The bridge has a planned width between the abutments of 17.5 m for the base of the stream and 26.8 m for the top of water. An engineering design cross section and plan for crossing R02 is provided in Figure 9 below. It has been estimated that crossing R02 receives the drainage from an area of approximately 20,576 hectares. The construction of this bridge should take place in the late fall under frozen conditions and due to the proposed span length of the bridge and the frozen conditions at the time of construction, minimal impacts on the environment are expected.

Crossing R03:

Crossing R03 is situated 12 km along the road from Baker Lake and is planned as a culvert crossing (Figure 4). When the crossing was visited on June 30, the watercourse consisted of a 15 m wide wetted grassy area with a few standing pools of water with a substrate consisting of grass and exposed tundra. The channel was approximately 0.06 m deep with a flow velocity of 0.05 m/s and a discharge rate of 0.05 m^3/s. The watercourse drains a small isolated lake that eventually discharges to a lake that is a part of the upper Prince River system. The proposed crossing was re-visited on August 16 at which time the channel was completely dry. This crossing location contains negligible fish habitat and has no potential for fish presence.

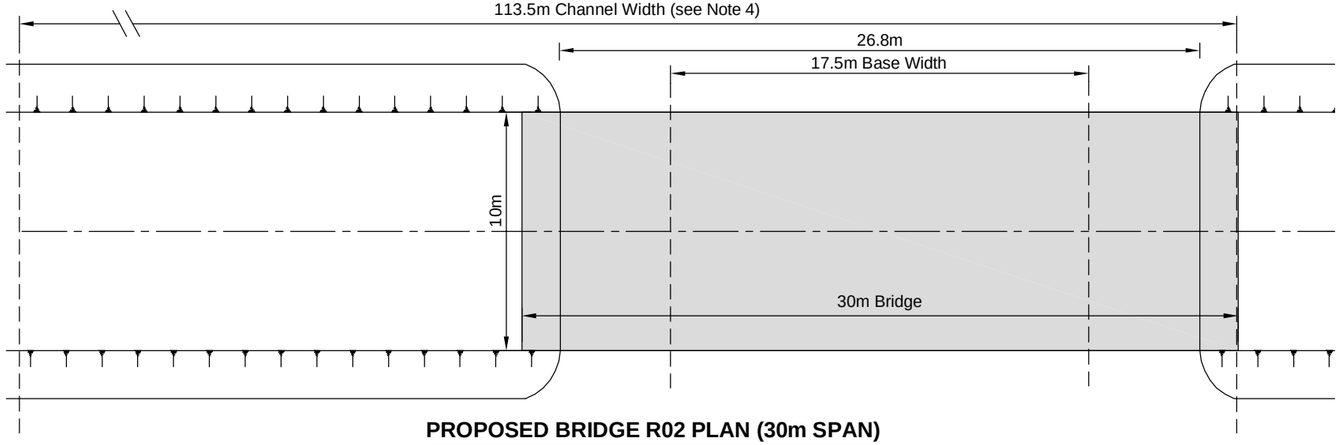
Two 0.7m diameter corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring freshette. An engineering design cross section and plan for crossing R03 is provided in Figure 10 below. It is anticipated that the crossing will have to accommodate drainage from a 16 hectare area. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts on the environment.



PLAN

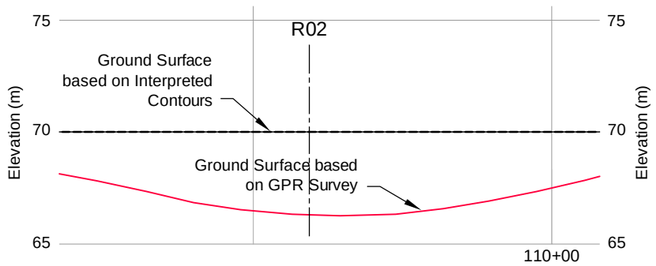
0 50 100 150 200 250

Scale in Meters



PROPOSED BRIDGE R02 PLAN (30m SPAN)

NTS



BRIDGE CROSSING PROFILE

0 2.5 5 7.5 10 12.5

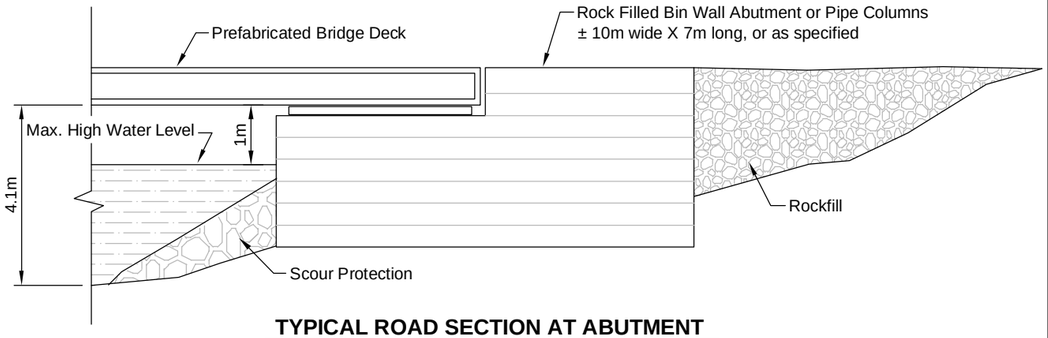
Vertical Scale in Meters

0 20 40 60 80 100

Horizontal Scale in Meters

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Road alignment and crossing location revised based on field observations.
4. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).



TYPICAL ROAD SECTION AT ABUTMENT

NTS

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

REFERENCE

1. Cumberland Resources Ltd. NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in September 2006

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

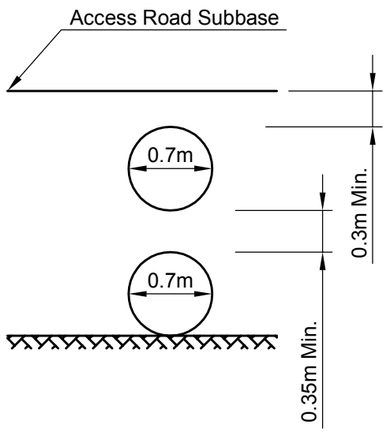
TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R02 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.		061413034-02
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

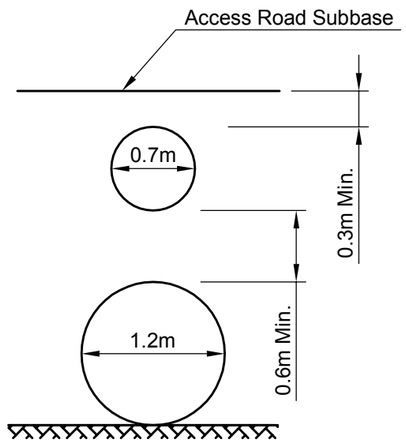
FIGURE 9

REVISION DATE: 06/09/27 01:58PM By: NVeloso CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-034\Drafting\cad\061413034-02.dwg



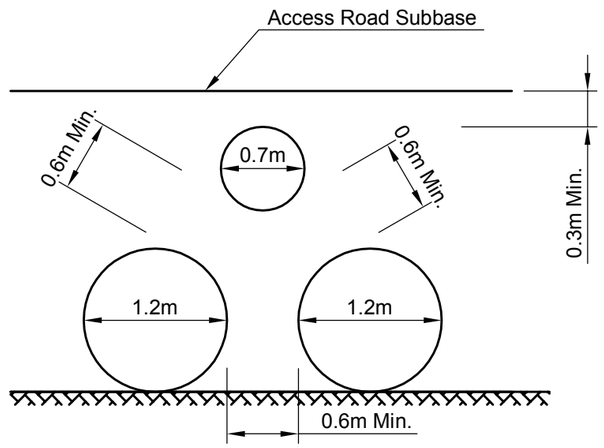
A **SECTION A**

Single culvert at bottom
Same culvert dimensions
Apply to river crossing R03 and R25



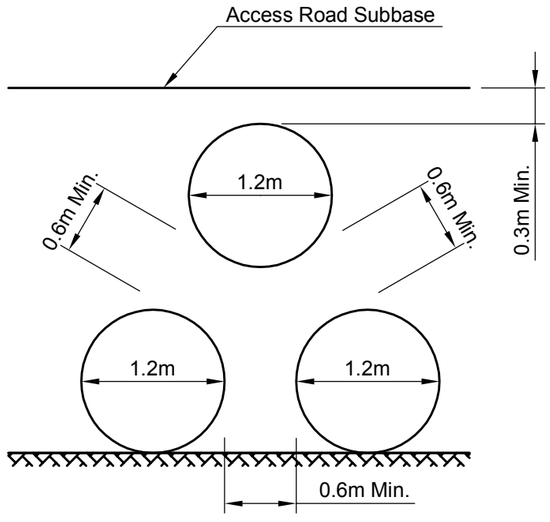
B **SECTION B**

Single culvert at bottom
Different culvert diameter
Apply to river crossing R04,
R05A, R07, R17, R20 and R23



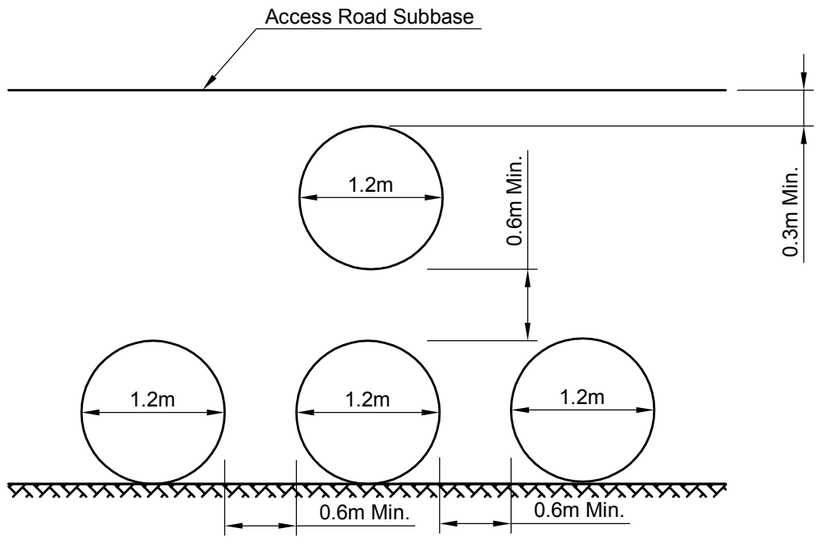
D **SECTION D**

Multiple culvert at bottom
Different culvert dimension
Apply to river crossing R24



C-1 **SECTION C-1**

Multiple culvert at bottom
Same culvert dimensions
Apply to river crossing R21



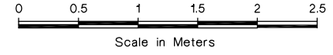
C-2 **SECTION C-2**

Multiple culvert at bottom
Same culvert dimensions
Apply to river crossing R14, R26 and
R18A

NOTES

1. Culvert to be installed in accordance with the Handbook of Steel Drainage and Highway Construction Products (Corrugated Steel Pipe Institute, 2002) and Manufacturer`s recommendations.

2. Culvert backfill material to be determined.



PROJECT
CUMBERLAND RESOURCES LTD.

TITLE
TEHEK LAKE ACCESS ROAD CONCEPTUAL CULVERT CROSSING

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034ASK01	
DESIGN	KD	21SEP06	SCALE	As SHOWN	REV. –
CADD	DB	21SEP06			
CHECK	DRW	21SEP06			
REVIEW					

FIGURE 10

Crossing R04:
Crossing R04 is situated 13.3 km along the proposed route and is planned as a culvert crossing (figure 4). The crossing was characterized as a diffuse braided channel (5 m wide), with low discharge (0.04 m^3/s), in a grassy wetland connecting a network of small lakes and ponds which ultimately connect to the Prince River. Connectivity and passage by fish between upstream and downstream lakes is poor and the substrate is primarily composed of grass and exposed fine-grained sediment which is of limited suitability as fish habitat. There is no potential for fish presence at this crossing.

Two corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower culvert will be 1.20 m in diameter with a smaller 0.7 m diameter culvert placed on top. An engineering design cross section and plan for crossing R04 is provided in Figure 10. It is estimated that this culvert installation will receive drainage from a 192 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R05A:
Crossing R05A is located 16.9 km along the proposed roadway from Baker Lake and is planned as a culvert crossing (figure 4). The channel is a disconnected braided channel approximately 0.4 m wide and 0.142 m deep that has low discharge (estimated at 0.015 m^3/sec). The channel flows through a grassy wetland connecting two small ponds, ultimately discharging to the Prince River system. Substrate in the disconnected central channel is composed of pockets of exposed cobble (10%), sediment (30%) and grass (60%). Side channels and side standing pools were predominantly grass substrate and it is likely that the majority of this water would be absorbed by the local vegetation and tundra. There is no fish habitat at this crossing and no potential for fish presence.

Two corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower culvert will be 1.20 m in diameter with a smaller 0.7 m diameter culvert placed on top. An engineering design cross section and plan for crossing R05A is provided in Figure 10. It is estimated that this culvert installation will receive drainage from a 124 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R05 / B06:
Crossing R05 is located 2 km north of crossing 05A at approximately kilometre 19 along the proposed roadway (figure 5) and is proposed as a bridge crossing (B06). The channel is well defined, connecting two small lakes that discharge to the Prince River. The channel is 12 m across, 0.77 m deep with variable water levels throughout the spring and summer. Total estimated discharge during the June 29, 2005 visit was approximately 2.35 m^3/sec. Water level increased by 11 cm from July 6 to July 12 and then decreased by 20 cm through August. Discharge was reduced to 2.1 m^3/sec by August 21. The channel has defined vegetated banks with a stream bed composed of boulders (35%), cobble (55%) and gravel (10%) substrate. Unique to this channel was the abundance of fine sediment

immediately below the cobble and gravel substrate, providing evidence of the parent material and the possibility that this channel is relatively young.

Given the size and discharge of the stream, connectivity between two lakes and proximity to the Prince River system, a hoop net was set in the stream channel at the approximate crossing location to determine magnitude and timing of fish utilization. A hoop net was set to capture fish moving upstream for a monitored interval and then redirected to monitor downstream fish and sampled the 85% of the stream width. The hoop net was visited nearly every day from June 30 to July 17, 2005 and was reset on August 8 to August 21, 2005. No larval drift trap was set as substrate composition evaluation did not warrant egg and fry collection.

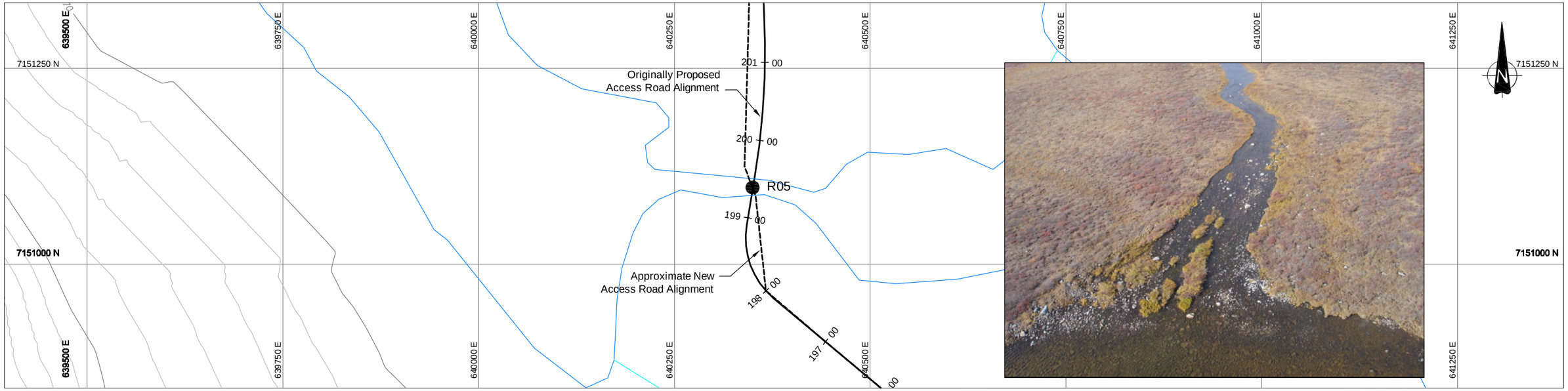
A total of 49 fish were captured in the spring survey between June 29 and July 20, 2005 comprised primarily of Arctic grayling (39 fish), round whitefish (5 fish), lake cisco (1 fish), and lake trout (4 fish). A total of 11 fish were captured in the summer/ fall survey (August 8 to 21) comprised primarily of Arctic grayling (10 fish) and lake trout (1 fish). No minnows were collected during minnow trap sets from July 12 to 17 and August 14 to 21. Migration by Arctic grayling was highest on July 1, and declined through the course of the summer, with small numbers of fish moving in the stream in fall.

These data highlight the significance of this channel as a spring migratory corridor for Arctic grayling. It is not known if grayling spawn within this reach of the channel. The channel is also opportunistically used throughout the open water season by lake trout and round whitefish. Similar to crossing R02 (Bridge 01), these data indicate that the magnitude of fish utilization decreased through the open-water season, presumably due to lower water levels and difficulty with access into the stream. Fish were present in the stream throughout the open water season, thus the stream was ranked as having high habitat value. Although it appears that the stream would be frozen to the bottom in winter, so the stream probably has little value as potential spawning habitat.

Crossing R05 (B06) is planned as a 30 metre span bridge. Abutments for the bridge will be constructed using a bin wall design. The bridge has a planned width between the abutments of 23.3 m for the base of the stream and 26.8 m for the top of water. An engineering design cross section and plan for crossing R05 is provided in Figure 11 below. It is estimated that the channel R05 receives the drainage from an area of approximately 5,075 hectares. Due to the proposed span length of the bridge and the frozen conditions expected at the time of construction, minimal impacts on the environment are expected.

Crossing R06 / B02:

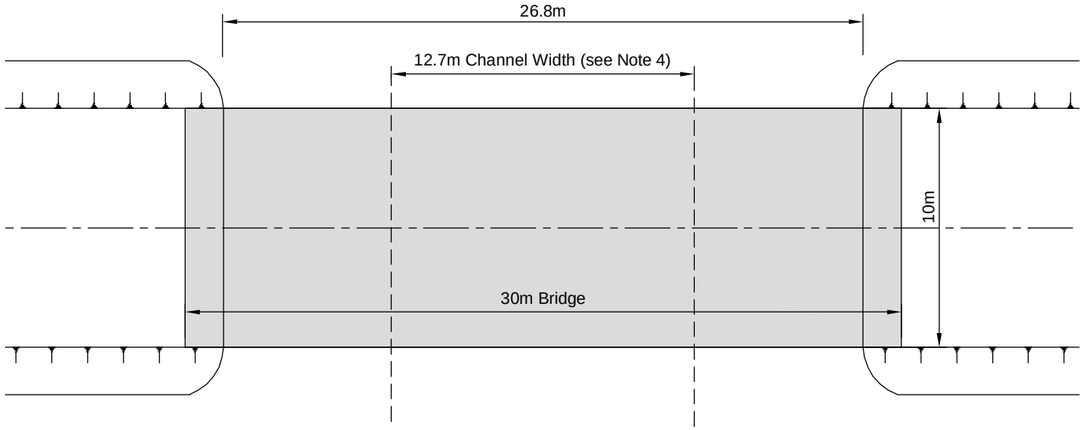
Crossing R06 is located at approximately km 24 along the proposed all-weather road (figure 5) and is planned as a 30m long bridge crossing (B02). The watercourse is 84 m wide and a receiving lake in a small basin to the Prince River directly south of Whitehills Lake. The channel alternates between wide and shallow riffle areas with deep wide pools upstream and alternating shallow riffle-run downstream. The substrate composition in the riffle area is boulders (35%) and cobbles (65%), and in the upstream pools 50% boulders and 50% cobbles. The upstream portion is well protected by small hills to the north and south and has well armoured banks, whereas the downstream portion is less protected and diffuse, in a flat grass hummocky wetland. In late June the channel was 0.62 m deep with an estimated rate of discharge of 2.60 m^3/sec. Discharge significantly decreased over the course of the open water season, as water levels diminished by 20 cm by August 19, 2005.



PLAN

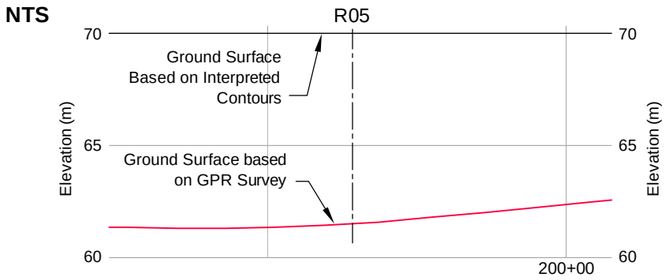
0 50 100 150 200 250

Scale in Meters



PROPOSED BRIDGE R05 PLAN (30m SPAN)

NTS



BRIDGE CROSSING PROFILE

0 2.5 5 7.5 10 12.5

Vertical Scale in Meters

0 20 40 60 80 100

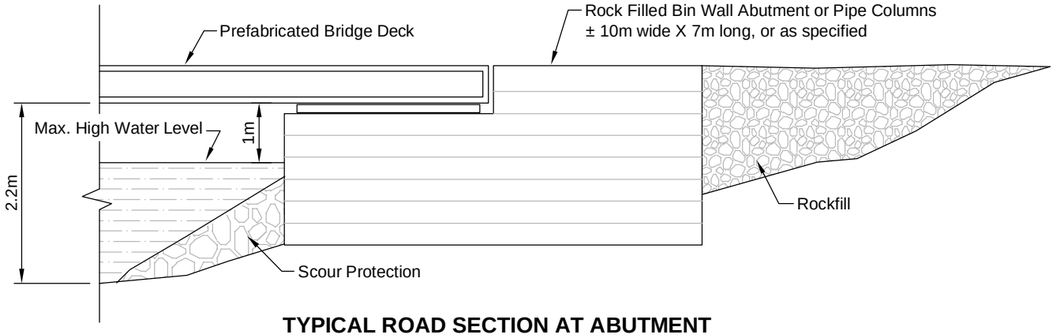
Horizontal Scale in Meters

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Road alignment and crossing location revised based on field observations.
4. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).

REFERENCE

1. Cumberland Resources Ltd. NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in September 2006



TYPICAL ROAD SECTION AT ABUTMENT

NTS

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R05 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034-02	
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

FIGURE 11

Fish passage and connectivity of the watercourse was very good during early spring, and hoop net and a larval drift traps were set in the approximate location of the proposed crossing. The hoop net blocked 50% of the channel and was orientated initially to capture upstream moving fish and then redirected to maximize collection of downstream moving fish from July 2 to July 17. A larval drift trap and minnow trap were also set and visited nearly every day between June 30 and July 17, 2005. A total of 91 fish were captured in the spring survey from June 29 to July 20 (90 Arctic grayling and 1 round whitefish). Upstream movement by Arctic grayling occurred early in July. All further movements were of fish moving downstream, possibly evacuating the channel before they became trapped within in it. The downstream peak was on July 12.

During the summer/fall survey in August, a reconnaissance and ground truthing of the crossing determined that the water level had decreased sufficiently that a boulder barrier had formed at the inflow (upstream) and outflow portions of the channel, eliminating passage by fish, therefore no hoop nets were installed during the summer/fall survey.

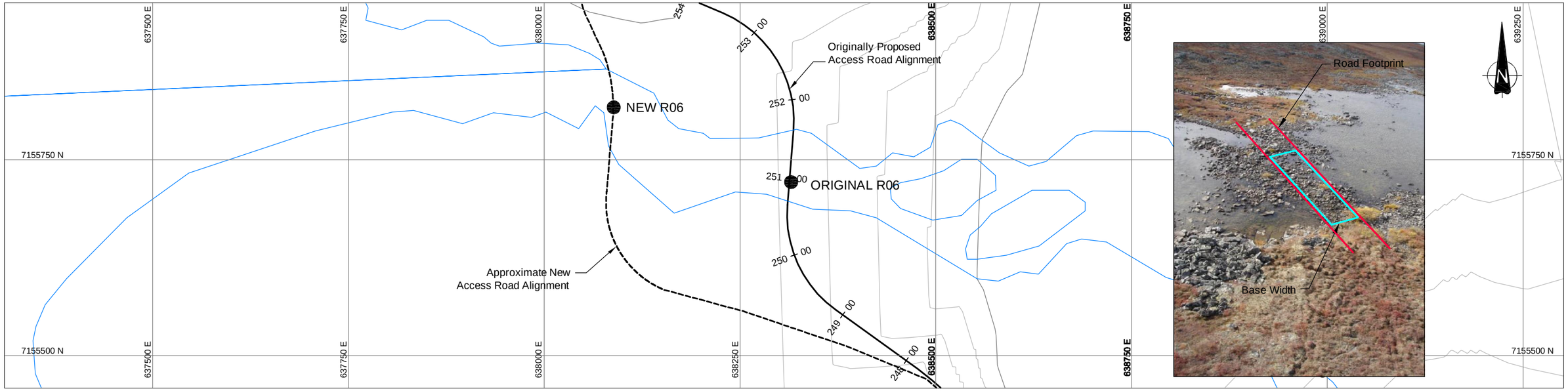
Three juvenile lake trout were collected in minnow traps. Larval drift traps set in the spring/summer monitoring period collected a total of 10 eggs and 11 fry, with the majority of the activity occurring on July 14 and July17, 2005. Taxonomic identification revealed that the fry were all Arctic grayling. It is likely that Arctic grayling use this stream reach for spawning. Larval drift traps also captured a variety of stream dwelling invertebrates including Chironomidae, Plecoptera, Ephemeroptera, Coleoptera, Culicidae, and Oligochaeta. Other groups included Hydracarina (mites), arthropods of the order Copepoda, and various snails (class: Gastropoda).

Fish were present in the stream for the duration of the spring/summer monitoring programs with no potential for fish passage after late-July. The crossing offers good spawning habitat for Arctic grayling based on the larval drift trap collection results. Overall, the importance of this watercourse as a fish-bearing stream is high.

Crossing R06 (B02) is planned as a 30 metre span bridge. Abutments for the bridge will be constructed using a bin wall design. The bridge has a planned width between the abutments of 23.0 m for the base of the stream and 26.8 m for the top of water. An engineering design cross section and plan for crossing R06 is provided in Figure 12 below. It is estimated that the channel R06 receives the drainage from an area of approximately 5,723 hectares. Due to the expected frozen conditions at the time of construction, minimal impacts on the environment are expected.

Crossing R07:

Crossing R07 is located approximately 27 km along the proposed road (figure 5) and is planned as a culvert crossing. The crossing connects a series of small fishless ponds immediately west of the southern basin of Whitehills Lake and facilitates local runoff to Whitehills Lake. The watercourse is characterized as a winding diffuse wetland stream with periodic riffle / runs with alternating standing pools. The area is a vegetated wetland with dwarf birch and willow shrubs predominating upstream, and grassy hummocks and saturated grassy wetland downstream. The substrate is predominantly grass and exposed fine sediment. An all-terrain vehicle trail used by Baker Lake residents is located in the area of the crossing. Given the lack of access by fish and poor habitat conditions, the fish habitat value at this crossing is negligible.



PLAN

0 50 100 150 200 250

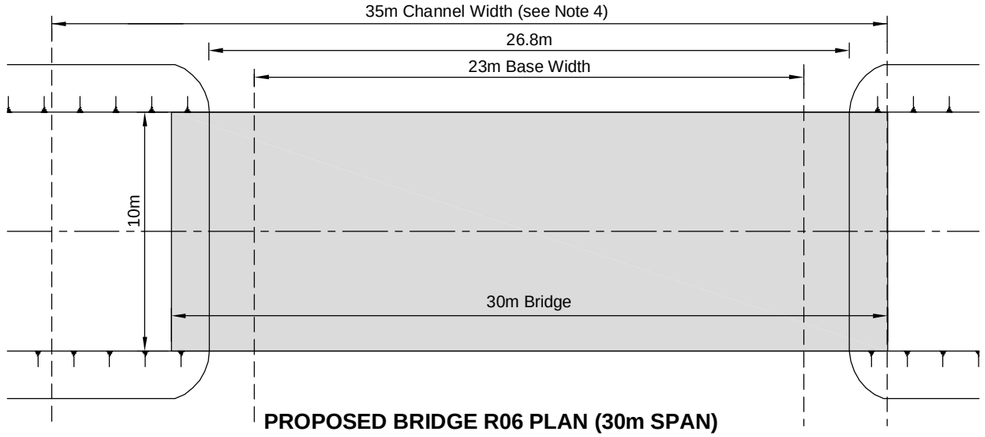
Scale in Meters

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Road alignment and crossing location revised based on field observations.
4. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).

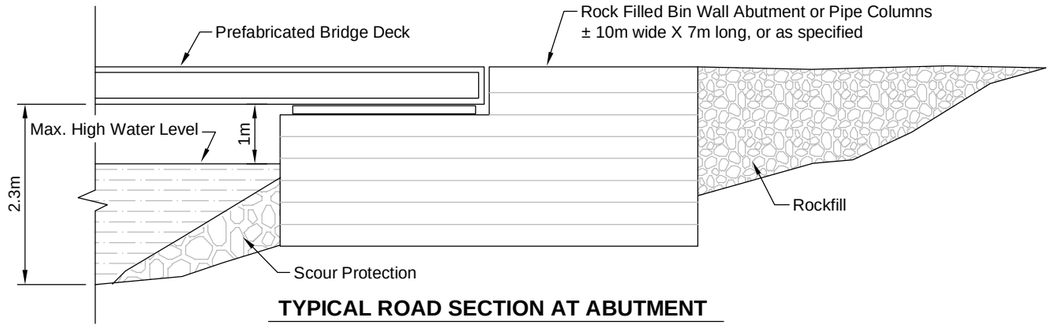
REFERENCE

1. Cumberland Resources Ltd. NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in September 2006



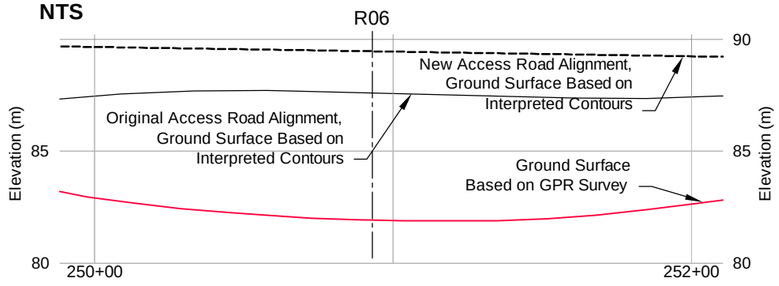
PROPOSED BRIDGE R06 PLAN (30m SPAN)

NTS



TYPICAL ROAD SECTION AT ABUTMENT

NTS



BRIDGE CROSSING PROFILE

0 2.5 5 7.5 10 12.5

Vertical Scale in Meters

0 20 40 60 80 100

Horizontal Scale in Meters

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R06 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034-02	
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

FIGURE 12

REVISION DATE: 06/09/27 01:58PM By: NVeloso CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-034\Drafting\cad\061413034-02.dwg

Two corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower culvert will be 1.20 m in diameter with a smaller 0.7 m diameter culvert placed on top. An engineering design cross section and plan for crossing R07 is provided in Figure 10. It is estimated that this culvert installation will receive drainage from a 130 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R09 / B03:

Crossing R09 is located 54 km along the proposed roadway, north of Half Way Hills (figure 6). A 12 metre long bridge (B03) is proposed to span this watercourse that connects two isolated lakes with the northern basin of Whitehills Lake. Due to spring runoff, when the crossing was first visited on June 4, 2005 water levels appeared much higher than levels measured in the late June and July monitoring. This narrow (3 m), 0.4 m deep stream is dominated by riffle (40%) and run (60%) habitat with sharp vertically defined banks and shallow, riffles. A chute and small rapid emerged downstream at the outflow. Stream size and discharge (0.39 m^3/s) was low relative to other bridge crossings. Substrate was composed primarily of boulder (30%) and cobble (50%) with gravel patches (20%) with coarser substrate noted in the riffle sections. The channel had good, sustained flow through the summer and had excellent connectivity to upstream and downstream lakes.

A hoop net was set and covered 100 % of the watercourse. Initially, the orientation of the hoop net was set to collect upstream moving fish and redirected to catch downstream moving fish on July 4. A total of 119 fish were captured in the spring survey (June 29 to July 20) comprised primarily of Arctic grayling (103 fish), lake trout (3), round whitefish (1), lake cisco (1) and two Arctic char. Fish movement and activity decreased significantly during August relative to movements in July. The majority of movement in early July was upstream, followed by downstream movement in mid-July. Fourteen fish were captured in the summer survey (August 8 to August 21), comprised of five Arctic grayling, eight lake trout, and one Arctic char. Movements by other species besides grayling were small and opportunistic.

No juveniles were collected in the minnow traps. A larval drift trap set during the spring/summer monitoring period captured 57 eggs and 7 fry, confirming that this channel is used by Arctic grayling as spawning habitat (eggs only). Four representative larvae and fry were selected for taxonomic identification. Ninespine stickleback larvae and Arctic char young-of-the-year were identified and had likely drifted out of the upstream lake. Drift traps also captured a variety of stream dwelling invertebrates, including Chironomidae, Plecoptera, Ephemeroptera, Coleoptera, Culicidae, Oligochaeta, Hydracarina (mites) and a few copepod zooplankters.

Results of habitat utilization and species abundance are evidence of the importance of this channel for spring migration by Arctic grayling, and opportunistic utilization of the stream in the summer and fall by lake trout, round whitefish, lake cisco, and Arctic char. Arctic char may spawn in the upstream lake, given that a larval fish was identified in the drift trap in spring. This channel is ranked as high value habitat.

The bridge for crossing R09 (B03) is planned with a 12 metre span. Abutments for the bridge will be constructed using a pre-cast concrete foundation and structural steel design.

The bridge has a planned width between the abutments of 3.9 m for the base of the stream and 9.0 m for the top of water. An engineering design cross section and plan for crossing R09 is provided in Figure 13 below. It is estimated that crossing R09 receives the drainage from an area of 1,973 hectares during the spring freshette. Construction of this bridge should take place in the late fall under frozen conditions and due to the proposed span length of the bridge and the frozen conditions at the time of construction, minimal impacts on the environment are expected.

Crossing R13 / B07:

Crossing R13 is located approximately 68 km along the proposed all-weather road (figure 6). A 12 metre long bridge (B07) is planned for this crossing. Stream width at this site was narrow (3 m), but deep (0.7 m) with a 0.5 m^3/s discharge rate. The channel connects a narrow upstream lake to a network of lakes and ponds that ultimately discharge into the western basin of Amarulik Lake. The channel passes through a wetland, with variable substrate predominated by grass upstream and exposed boulders and cobbles downstream. Various small ponds and pools are located in the upstream portion.

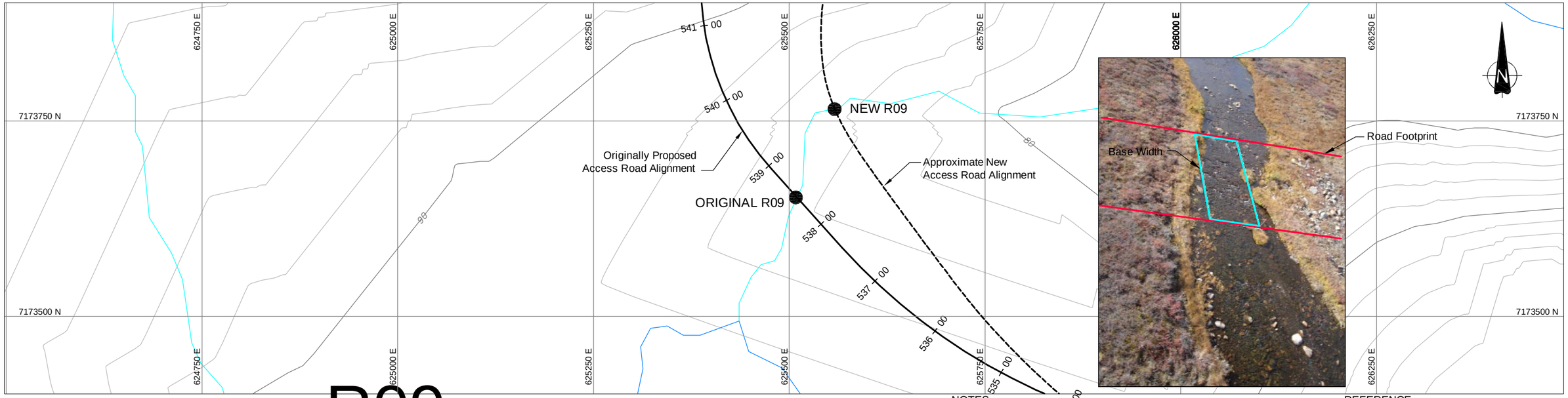
During the July 3, 2005 visit a small fish was observed in channel downstream of the pools. Minnow traps were set and confirmed the presence of ninespine stickleback in standing pools upstream and downstream. Based on the poor substrate composition and negligible connectivity, habitat utilization is limited to small numbers of ninespine stickleback. The fish-bearing capacity of this stream is low.

The bridge for crossing R13 (B07) is planned with a 12 metre span. Abutments for the bridge will be constructed using a pre-cast concrete foundation and structural steel design. The bridge has a planned width between the abutments of 7.2 m for the base of the stream and 9.0 m for the top of water. An engineering design cross section and plan for crossing R13 is provided in Figure 14 below. It is estimated that crossing R13 receives the drainage from an area 540 hectares in size. Construction of this bridge should take place in the late fall under frozen conditions and due to the proposed span length of the bridge and the frozen conditions at the time of construction, minimal impacts on the environment are expected.

Crossing R14:

Crossing R14, proposed as a culvert crossing, is located 73.8 kilometres along the proposed roadway (figure 6), 1 km south of proposed crossing R15 (bridge 04). The crossing's watercourse is downstream of a network of small, probably fishless, ponds that discharge down-gradient to the southeast of bridge 04 into Amarulik Lake. The watercourse is distinguished by its confined narrow upstream channel which transitions to a shallow wide braided channel along a shallow boulder and cobble field. A boulder field mid-stream, near the proposed crossing, forces flow below surface. The below surface and between boulder flow emerges downstream. Narrow shallow braided channels form small downstream pools near the confluence of a small isolated lake southeast of the proposed crossing. Estimated total discharge in July was 0.01 m^3/sec.

Subsurface flow and boulder barriers in the approximate location of proposed crossing 10 make the stream impassable by fish, providing no connectivity for fish to downstream and upstream lakes. No fish were observed in this stream during July 4, 2005 or August 8, 2005 visit. There is negligible fish habitat and no potential for fish presence at proposed crossing R14.

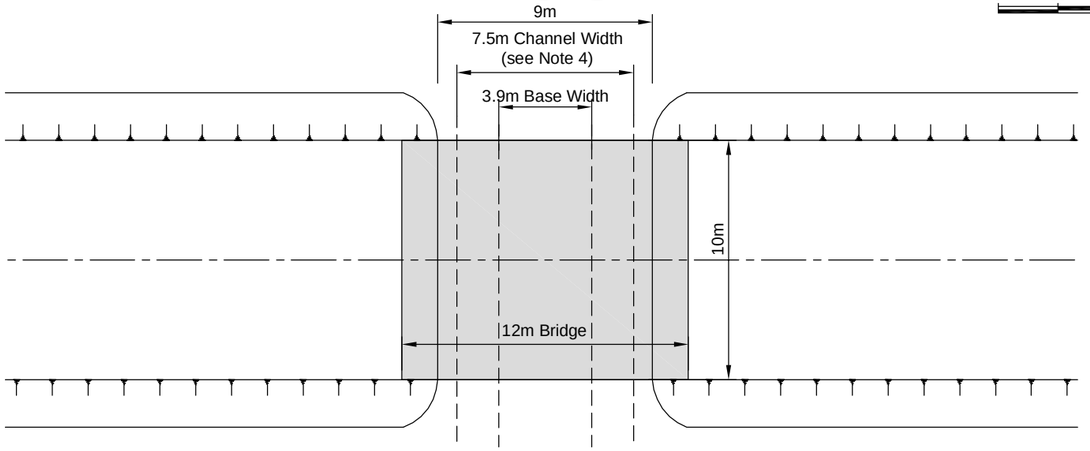


PLAN

0 50 100 150 200 250

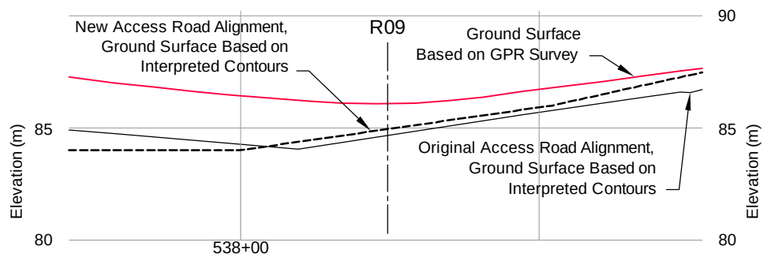
Scale in Meters

R09



PROPOSED BRIDGE R09 PLAN (12m SPAN)

NTS



BRIDGE CROSSING PROFILE

0 2.5 5 7.5 10 12.5 — Vertical Scale in Meters

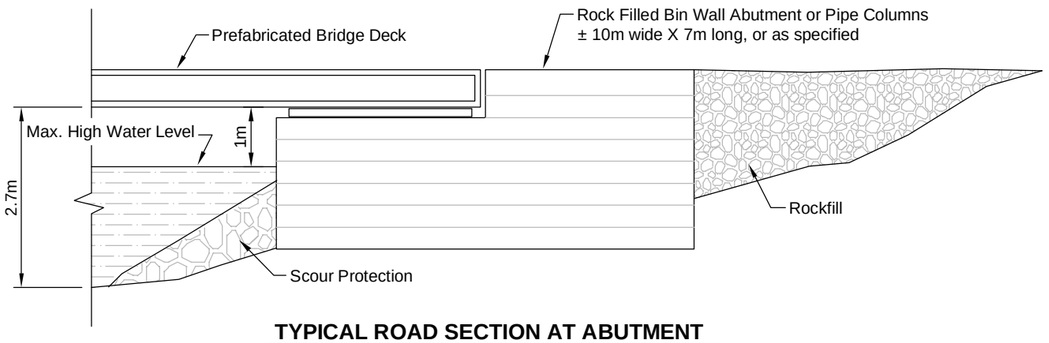
0 20 40 60 80 100 — Horizontal Scale in Meters

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Road alignment and crossing location revised based on field observations.
4. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).

REFERENCE

1. Cumberland Resources Ltd. NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in September 2006



TYPICAL ROAD SECTION AT ABUTMENT

NTS

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

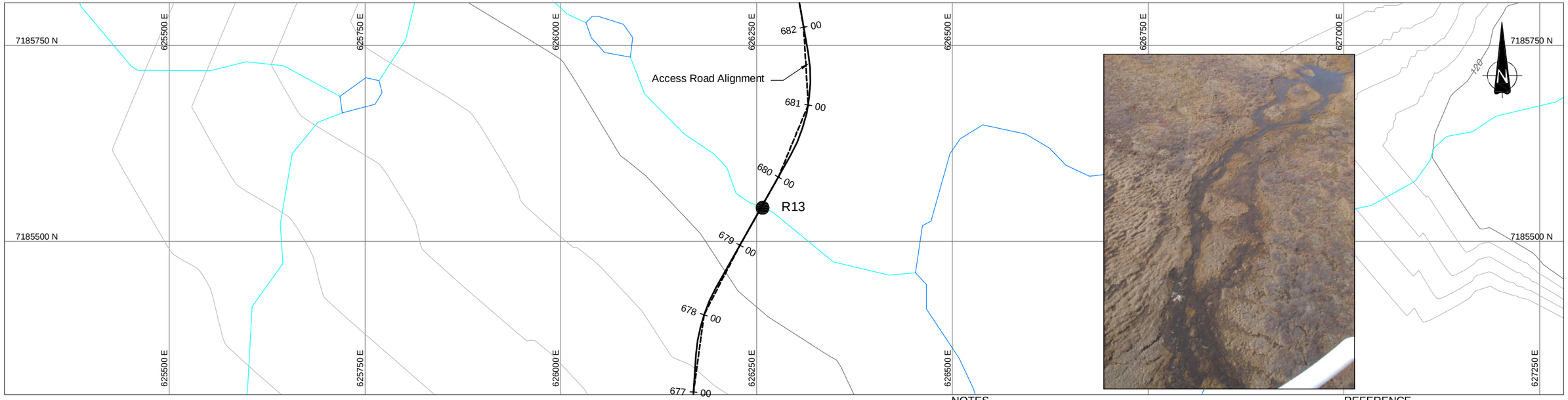
TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R09 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034-02	
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

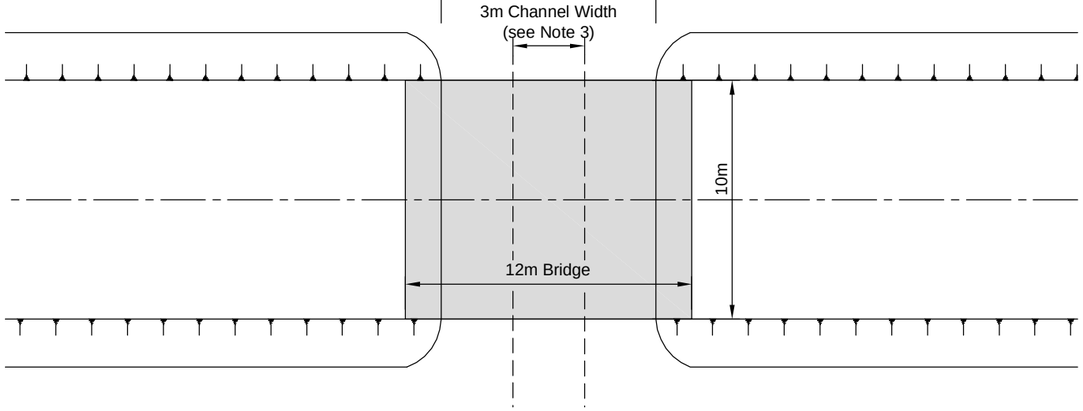
FIGURE 13

REVISION DATE: 06/09/27 01:58PM By: NVeloso CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-034\Drafting\cad\061413034-02.dwg



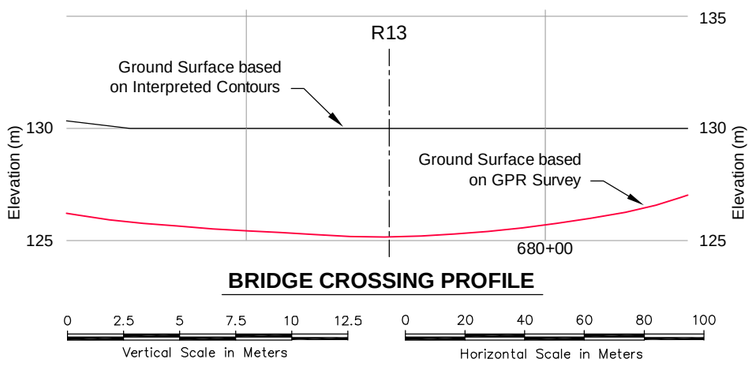
PLAN

0 50 100 150 200 250
Scale in Meters



PROPOSED BRIDGE R13 PLAN (12m SPAN)

NTS



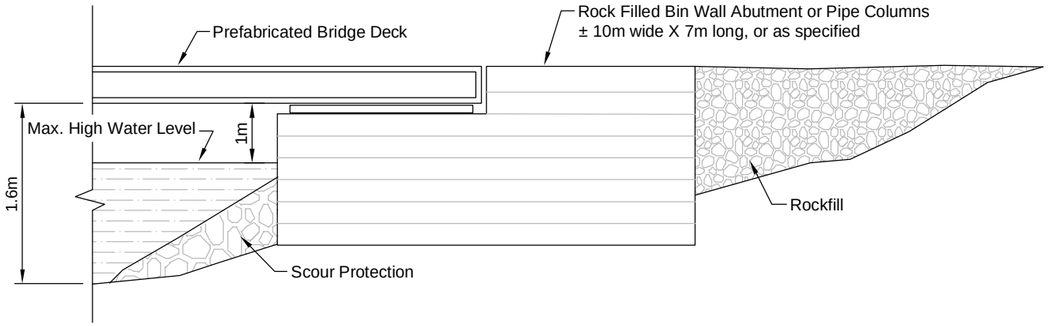
BRIDGE CROSSING PROFILE

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).

REFERENCE

1. Cumberland Resources Ltd. NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in September 2006



TYPICAL ROAD SECTION AT ABUTMENT

NTS

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R13 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034-02	
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

FIGURE 14

REVISION DATE: 06/09/27 01:58PM By: NVeloso CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-034\Drafting\cad\061413034-02.dwg

Due to the broad nature of the crossing, four corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower section will be made up of three 1.20 m diameter culverts side by side with one 1.20 m culvert on top in a pyramid configuration. An engineering design cross section and plan for crossing R14 is provided in Figure 10 below. It is estimated that this culvert installation will receive drainage from a 558 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

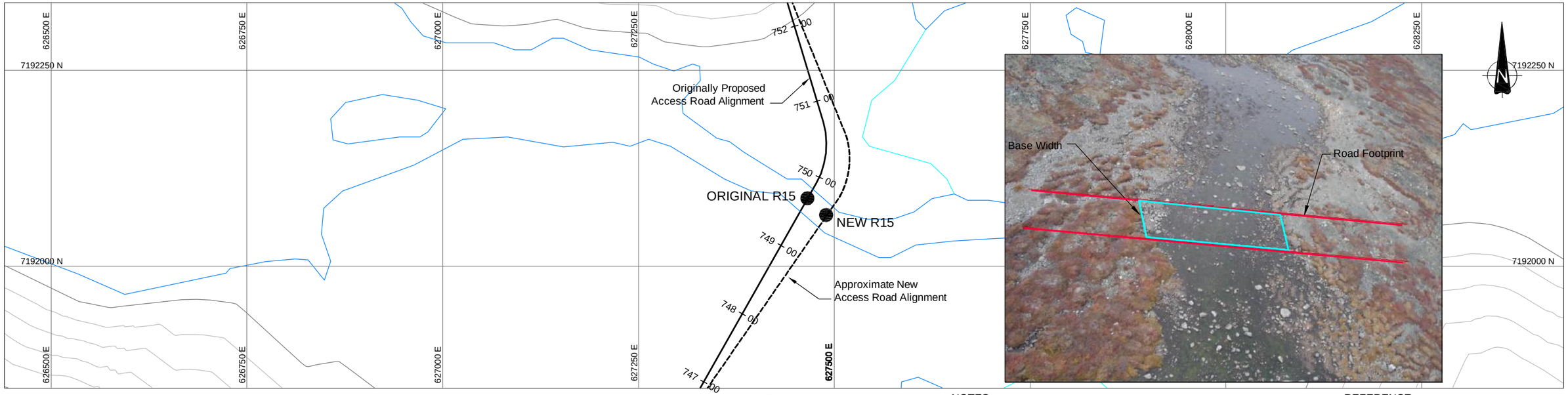
Crossing R15 / B04:

Crossing R15 is a proposed as a 30 metre long bridge crossing (B04), located at kilometre 75 along the proposed all-weather road (figure 6). The watercourse is well connected to the western basin of Amarulik lake and connects a network of over-wintering lakes upstream of Amarulik Lake. This crossing was first visited on June 4, 2005 with 25% increased flow than during the habitat assessment evaluation visit on June 28, 2005. The total estimated discharge rate was 4.3 m^3/sec on June 28 based on a stream width of 25 m, water depth of 0.38 m and estimated water velocity of 0.45 m/s. Water depth declined through the summer from 28 cm (July 4) to 18 cm on August 19.

Stream flow was characterized by a riffle (50%) run (50%) sequence with a significant elevation change from the upstream lake to downstream pools. Substrate in riffle portions of the stream consisted of boulder (40%) / cobble (50%) and some gravel (10%); otherwise, substrate was more mixed (30% boulder, 40% cobble, and 30% gravelly-sand). Wide, shallow boulder / cobble fields that directed stream flow around boulders and above cobbles during high water level periods became impassable by fish as water levels decreased through July and August. During the August reconnaissance, water level decreased 12 cm and boulder barriers had formed both upstream and downstream of the proposed crossing. Therefore, a hoop net and a larval drift trap were set from June 28 to July 9, 2005, but not in August. The hoop net blocked approximately 25% of the total wetted channel width, however at this portion of the channel, only approximately 40% of the wetted width was passable. Although connectivity and potential for fish passage was ranked as good, only two Arctic grayling were captured during the spring survey (June 28 to July 9). A minnow trap was not set at B04. Larval drift traps collected fry on only two occasions (July 14 and 15), which were identified as larval Arctic grayling. Stream dwelling invertebrates including Chironomidae, Plecoptera, Ephemeroptera, Coleoptera, Culicidae, and Oligochaeta were also identified.

Given the proximity and connectivity of crossing 15 (B04) to Amarulik Lake, and possible upstream overwintering habitat, fish activity was less prominent than expected. It may be that the upstream and downstream boulder and cobble fields act as barriers throughout the majority of the open-water season, and that fish movement and activity peaked prior to setting hoop nets. The larval drift trap findings demonstrate that this stream has a potential for Arctic grayling spawning habitat, thus this watercourse was ranked as high value habitat.

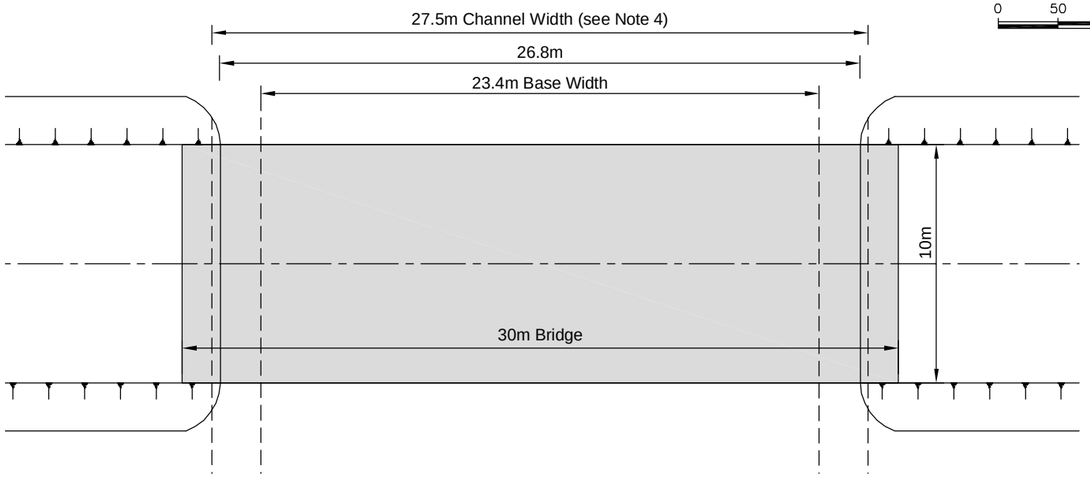
Crossing R15 (B04) is planned as a 30 metre span bridge. Abutments for the bridge will be constructed using a bin wall design. The bridge has a planned width between the abutments of 23.4 m for the base of the stream and 26.8 m for the top of water. An engineering design cross section and plan for crossing R15 is provided in Figure 15 below. It is estimated that the channel R15 receives the drainage from an area of approximately



PLAN

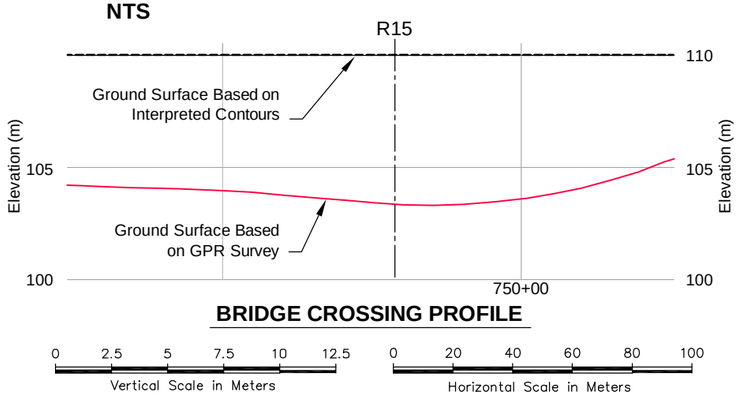
0 50 100 150 200 250

Scale in Meters



PROPOSED BRIDGE R15 PLAN (30m SPAN)

NTS



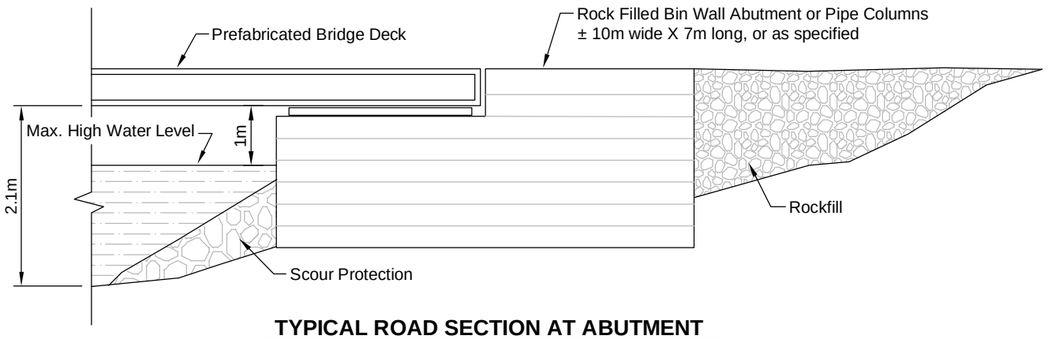
BRIDGE CROSSING PROFILE

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Road alignment and crossing location revised based on field observations.
4. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).

REFERENCE

1. Cumberland Resources Ltd. NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in September 2006



TYPICAL ROAD SECTION AT ABUTMENT

NTS

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R15 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034-02	
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

FIGURE 15

REVISION DATE: 06/09/27 01:58PM By: NVeloso CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-034\Drafting\cad\061413034-02.dwg

4,877 hectares. Due to the expected frozen conditions at the time of construction, minimal impacts on the environment are expected.

Crossing R16 / B08:

Crossing R16 is a proposed as a 12 metre long bridge (B08) crossing, located at approximately km 80 along the road and is situated approximately 6 km northwest of Amarulik Lake (figure 6). This stream connects a large downstream lake that eventually discharges into Amarulik Lake, with a small upstream lake that is part of a series of small lakes and ponds.

The stream was 1.3 m wide, shallow (0.28 m) and consisted of a braided channel with grassy vegetation and mixed subsurface flow, descending to an alternating, riffle (50%), run (15%), and pool. Below a series of small pools, the stream connects to the outflow lake through a confined riffle – run channel. A flow velocity of 0.4 m/s and discharge rate of 0.14 m^3/sec was estimated for the channel on July 7, 2005. Water levels declined over the course of the open water season. Substrate in riffle portions of the stream consisted of boulder (30%), cobble (45%), and variable substrate of gravel, exposed sediment, and grass. Substrate in pools consisted of fine sediment and grass.

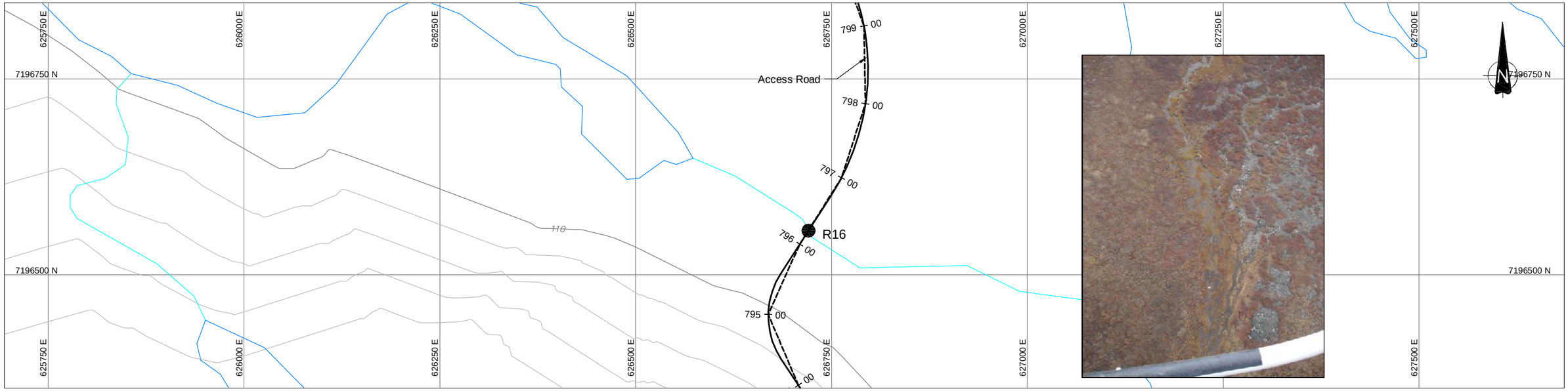
Given the apparent good connectivity of the stream, proximity to a large upstream overwintering lake, and substrate composition, a larval drift trap was set from June 28- July 19, 2005 to determine the spawning capacity of the stream. One egg and 25 fry were collected with all fry collected between July 10 and 18, 2005. Minnow traps were also set from August 14 – 21. Hoop nets were not set as the depth of the stream was too shallow to accommodate a net. Five fry were identified and all were young-of-the-year ninespine stickleback.

The shallow depth, upstream and downstream barriers and poor substrate rank this stream as poor to nil habitat quality for Arctic grayling or other large species. However, the habitat is suitable for a small population of stickleback that inhabits the stream during summer. It is not known if stickleback are able to move out of the stream and survive the winter, as this watercourse is completely frozen for several months of the year. On this basis, the fish-bearing capacity of this stream is low.

The bridge for crossing R16 (B08) is planned with a 12 metre span. Abutments for the bridge will be constructed using a pre-cast concrete foundation and structural steel design. The bridge has a planned width between the abutments of 5.6 m for the base of the stream and 9.0 m for the top of water. An engineering design cross section and plan for crossing R16 is provided in Figure 16 below. It is estimated that crossing R16 receives the drainage from an area 1,241 hectares in size. Construction of this bridge should take place in the late fall under frozen conditions and due to the proposed span length of the bridge and the frozen conditions at the time of construction, minimal impacts on the environment are expected.

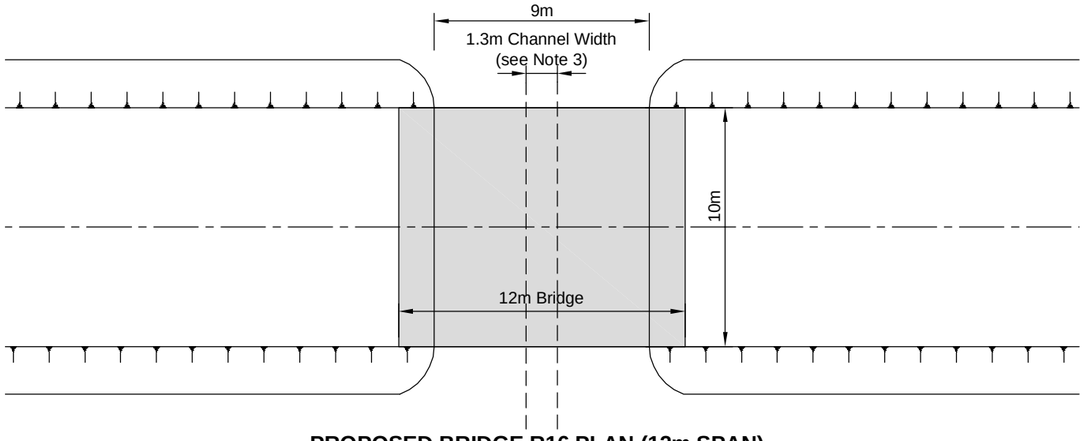
Crossing R17:

Crossing R17 is a proposed culvert crossing located approximately 84 km along the proposed all-weather road (figure 6). The crossing occurs in a wetland depression. This saturated, wetland area has numerous standing pools and is a simple channel connecting one small, isolated fishless pond to a network of pools. There is no fish habitat and no potential for fish presence at proposed crossing R17.



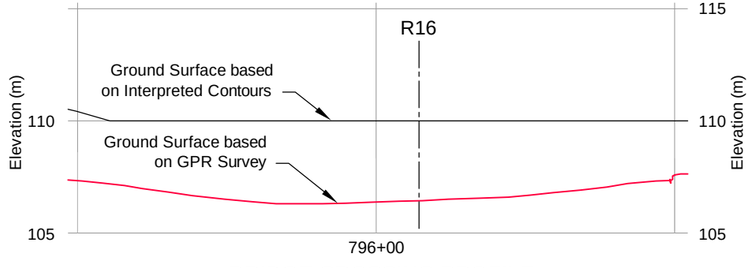
PLAN

0 50 100 150 200 250
Scale in Meters



PROPOSED BRIDGE R16 PLAN (12m SPAN)

NTS



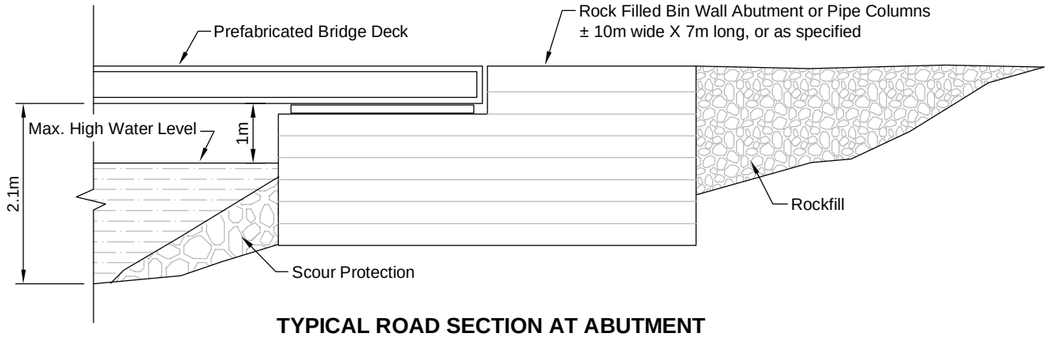
BRIDGE CROSSING PROFILE

0 2.5 5 7.5 10 12.5
Vertical Scale in Meters

0 20 40 60 80 100
Horizontal Scale in Meters

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).



TYPICAL ROAD SECTION AT ABUTMENT

NTS

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

REFERENCE

1. Cumberland Resources Ltd.
   NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in
   September 2006

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R16 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.		061413034-02
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

FIGURE 16

Two corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower culvert will be 1.20 m in diameter with a smaller 0.7 m diameter culvert placed on top. An engineering design cross section and plan for crossing R17 is provided in Figure 10. It is estimated that this culvert installation will receive drainage from a 161 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R18 / B09:

Crossing R18 is situated 85.5 km along the proposed all-weather road (figure 6) and is planned as a 12 metre long bridge crossing (B09). The stream is a braided channel downstream from a pond closely connected to a series of lakes to the west and northwest of the proposed crossing. The watercourse at crossing R18 is a continuously flowing, diffuse, braided stream with riffles and pools between boulders and undulating grassy hummocks. The substrate is predominantly boulder (70% to 90%) and cobble (30% to 10%) with greater presence of boulders in the midstream boulder field. Flow transitions between subsurface flow and emergent flow in the midstream boulder field. Discharge was crudely estimated at 0.02 m^3/sec on July 1, and decreased to near zero flow by August 10.

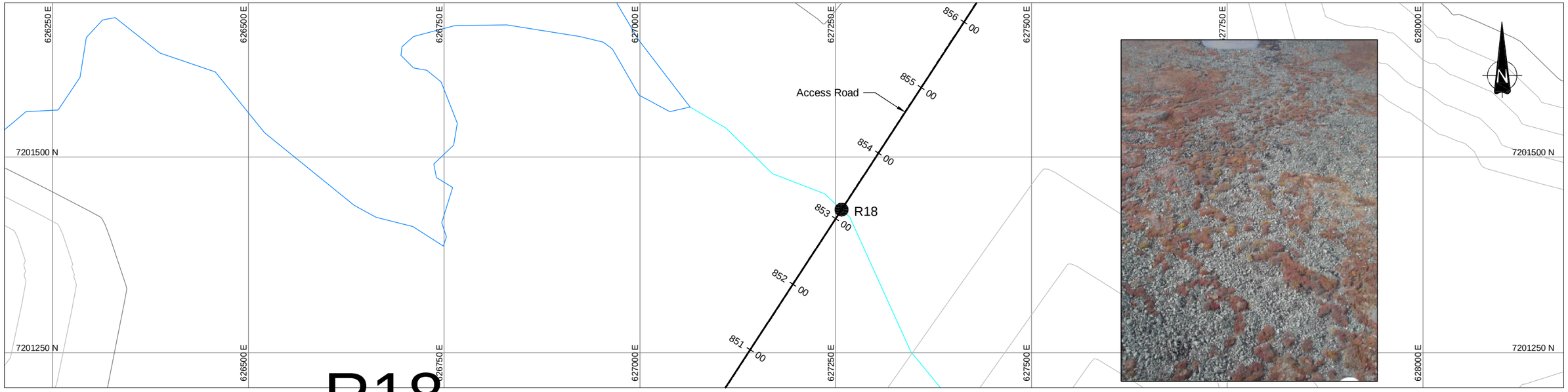
No fish were observed at crossing R18 during the July visit, however small fish were observed in isolated pools during the August visit and were probably stickleback. Although small fish were observed in August at crossing R18, the crossing is not passable by migrating fish species like grayling or round whitefish and the substrate is not suitable for fish spawning. Given the unfavourable substrate, negligible connectivity, and poor accessibility from upstream or downstream directions, stream habitat value and fish-bearing capacity in the vicinity of crossing R18 is ranked as low.

The bridge for crossing R18 (B09) is planned with a 12 metre span. Abutments for the bridge will be constructed using a pre-cast concrete foundation and structural steel design. The bridge has a planned width between the abutments of 5.9 m for the base of the stream and 9.0 m for the top of water. An engineering design cross section and plan for crossing R18 is provided in Figure 17 below. It is estimated that crossing R18 receives the drainage from an area 1,126 hectares in size. Construction of this bridge should take place in the late fall under frozen conditions and due to the proposed span length of the bridge and the frozen conditions at the time of construction, minimal impacts on the environment are expected.

Crossing R18A:

Crossing R18A is planned as a culvert crossing. The crossing is located approximately one kilometre south of crossing R19 (Bridge 05), 88 kilometres along the proposed road from Baker Lake (figure 6). The crossing was evaluated on July 08, 2006 to assess the importance of this ephemeral drainage area to fish species. The crossing is characterized as a homogenous flooded area accommodating minimal flow and drainage during freshet and rain events. There is no distinguishable channel connecting the adjacent pond to the west and the lake to the east at this location. There is no suitable habitat at crossing R18A for any potential fish species, as substrate consists of predominantly grass, exposed soil and boulders. The potential for fish species inhabiting this area is limited by available water depth, dissolved oxygen, and flow. No fish were found during the investigation and no fish are expected to inhabit this poor quality drainage area.

R18



PLAN

0 50 100 150 200 250

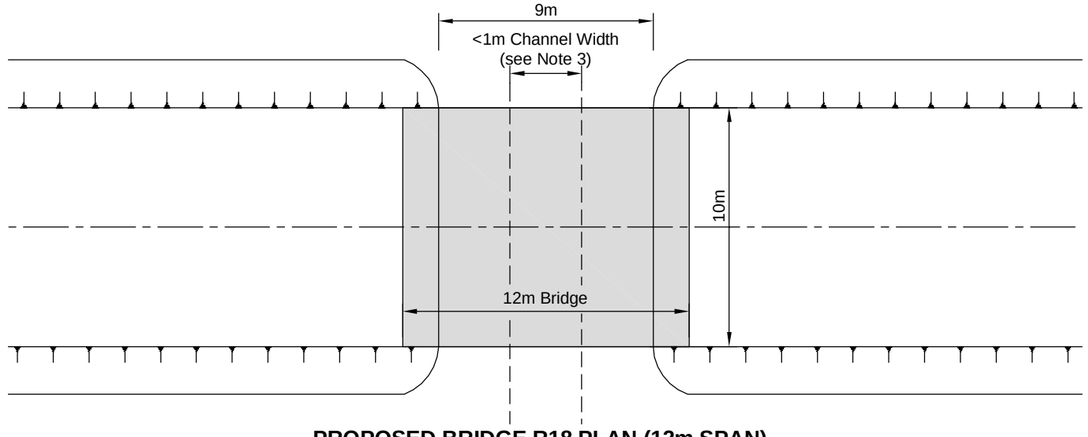
Scale in Meters

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).

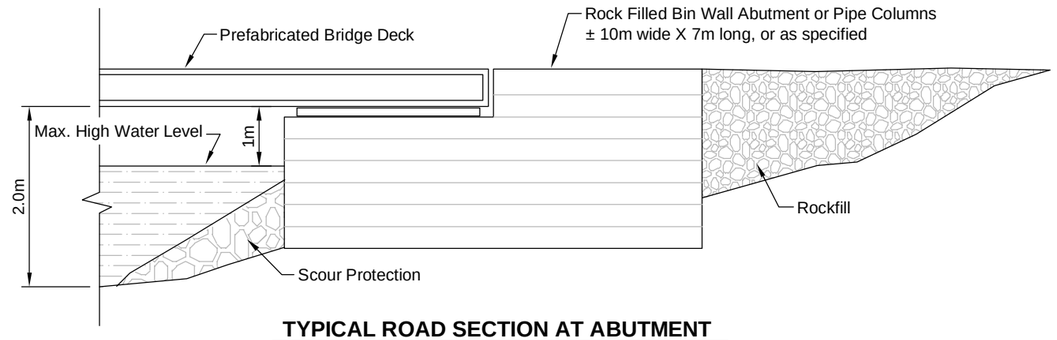
REFERENCE

1. Cumberland Resources Ltd. NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in September 2006



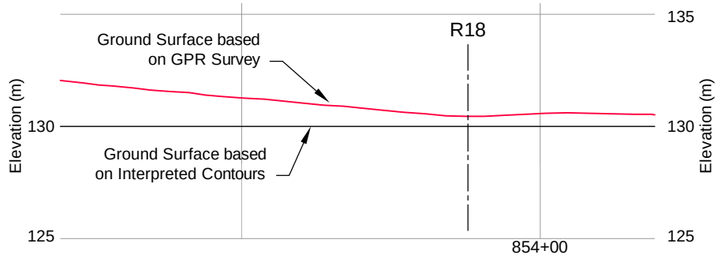
PROPOSED BRIDGE R18 PLAN (12m SPAN)

NTS



TYPICAL ROAD SECTION AT ABUTMENT

NTS



BRIDGE CROSSING PROFILE

0 2.5 5 7.5 10 12.5

Vertical Scale in Meters

0 20 40 60 80 100

Horizontal Scale in Meters

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

TEHEK LAKE ACCESS ROAD CONCEPTUAL BRIDGE CROSSING R18 AND ABUTMENT DETAILS

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034-02	
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

FIGURE 17

REVISION DATE: 06/09/27 01:58PM By: NVeloso CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-034\Drafting\cad\061413034-02.dwg

Four corrugated steel culverts are planned for the installation at crossing 18A. The culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower section will be made up of three 1.20 m diameter culverts side by side with one 1.20 m culvert on top in a pyramid configuration. An engineering design cross section and plan for crossing R18A is provided in Figure 10 below. It is estimated that this culvert installation will receive drainage from a 469 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R19 / B05:

Crossing R19 is a proposed as a bridge crossing (B05) with 12 metre span. The crossing is located at kilometre 89 along the proposed road from Baker Lake (figure 6). The stream at this crossing connects a small network of lakes with a small upstream lake that eventually discharges to the north basin of Amarulik Lake. The 4.6 m wide, 0.36 m deep, stream is generally well confined with defined banks of exposed vegetation. A flow velocity of 0.36 m/s and a discharge rate of 0.6 m^3/sec were measured for the channel. The stream is characterized as alternating riffle-run. The stream flow characteristics differ along the channel, with riffle (80%) and run (20%) upstream, separated by a glide and pool area which transitions to a riffle (40%) and run (60%) portion downstream with a general width of 5 m. Water depth fluctuated in the spring/summer survey and progressively decreased from a peak level of 55cm to 30 cm over the course of the summer/fall survey. Composition of substrate in riffle portions consisted of boulder (60%) and cobble (40%). Riffle portions had a small gravel component.

The connectivity and ideal substrate warranted setting a hoop net, larval drift trap and minnow trap following the reconnaissance visit on June 28, 2005. The larval drift trap and hoop net were set from June 29 to July 20 during the spring/summer survey and a hoop net was set in the summer/fall survey from August 8 to August 20 to determine fish utilization. The hoop net blocked 100% of the stream. A total of 222 fish were captured from hoop nets at crossing 15 (B05) during the spring/summer survey (June 29 to July 20) comprised primarily of Arctic grayling (214 fish), with a few lake trout (2) and round whitefish (6). Upstream movement of grayling peaked on July 6, which is perhaps a week or two later than upstream movements by grayling at the more southerly bridge crossings. This is a reflection of the colder local climate north of the Half Way Hills. By contrast, very few fish were observed in August as only two grayling were captured.

Two lake trout and two slimy sculpins were collected at crossing R19 (B05) from minnow trap sets from July 12 to 17 and August 12 to 21. Larval drift traps yielded only a single fry that was identified as an Arctic char young-of-the-year. Given the large number of grayling that moved up the stream, it was unusual that no larval grayling were captured in the drift net. This suggests that Arctic grayling did not spawn in this stream, but used it as a migratory corridor to access spawning habitat upstream. Stream dwelling invertebrates similar in composition to those collected in the other streams were also found in the larval drift trap at B05.

The proposed crossing is situated in the extreme headwaters of the Prince River drainage that is connected to Baker Lake and Chesterfield Inlet. It is possible that the Arctic char fry was spawned from anadromous parents, although, it is equally likely that this is a product of lake dwelling char from an upstream lake. Given the poor accessibility, it is unlikely there is an anadromous char population here.

Habitat utilization and species abundance results are evidence of the importance of this channel for spring migration of Arctic grayling, and opportunistic use of the stream by round whitefish and lake trout. Fish were present in the stream throughout the open water season and habitat importance of this stream was ranked as high.

The bridge for crossing R19 (B05) is planned with a 12 metre span. Abutments for the bridge will be constructed using a pre-cast concrete foundation and structural steel design. The bridge has a planned width between the abutments of 3.7 m for the base of the stream and 9.0 m for the top of water. An engineering design cross section and plan for crossing R19 is provided in Figure 18 below. It is estimated that crossing R19 receives the drainage from an area 2,026 hectares in size. Construction of this bridge should take place in the late fall under frozen conditions and due to the proposed span length of the bridge and the frozen conditions at the time of construction, minimal impacts on the environment are expected.

Crossing R20:

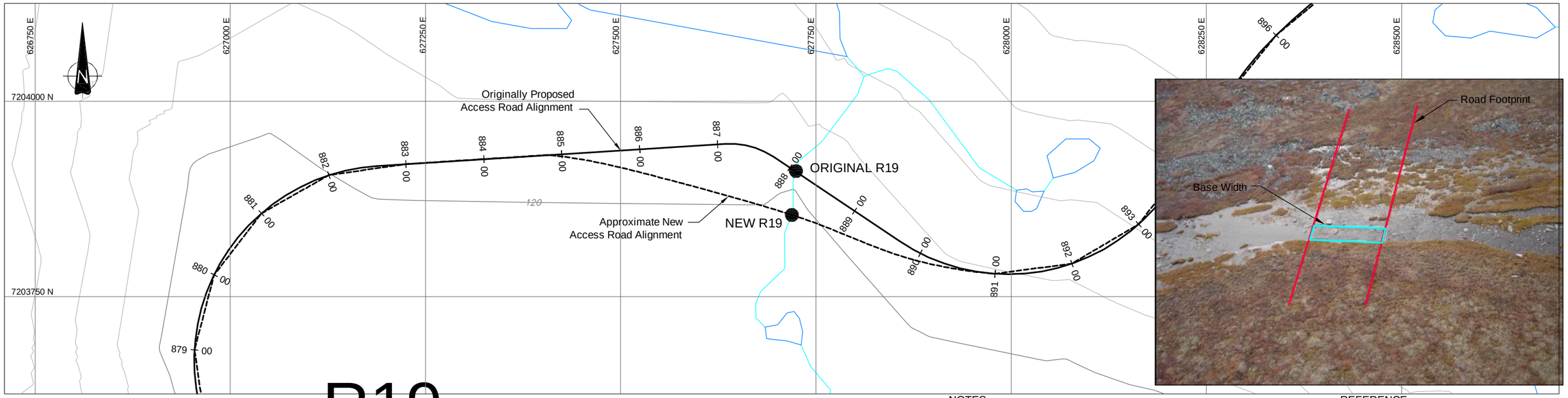
Crossing R20 is a planned culvert crossing approximately 91.5 km along the proposed road from Baker Lake (figure 7). This crossing is situated downstream from a small isolated pond east and upgradient from the crossing. The channel flows primarily subsurface through a boulder field near the proposed crossing and eventually drains through a grassy wetland depression into a downstream lake. The substrate upstream is 100% boulder and the downstream wetland area has a variable substrate dominantly consisting of grass. A defining feature of this stream profile is the steep cliff and hill to the north of the stream.

No fish were observed in this stream; however, the downstream portion of the stream may be suitable habitat for ninespine stickleback. Fish habitat suitability is very low and there is no potential for spawning by sport fish. Habitat ranking of watercourse crossing R20 is low.

Two corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower culvert will be 1.20 m in diameter with a smaller 0.7 m diameter culvert placed on top. An engineering design cross section and plan for crossing R20 is provided in Figure 10. It is estimated that this culvert installation will receive drainage from a 75 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R21:

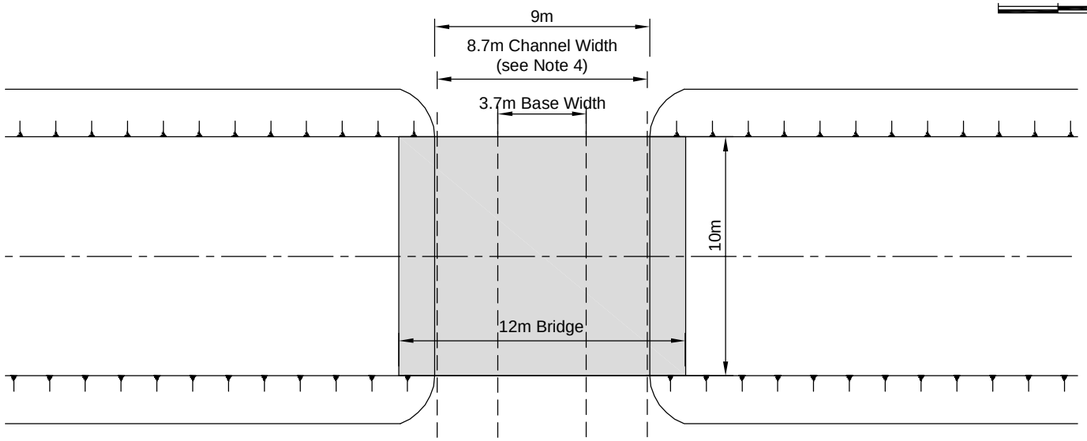
Crossing R21 is located at kilometre 93.5 along the proposed all-weather road (figure 7) and is situated in the extreme northern headwaters of the Prince River drainage system. A culvert crossing is proposed through this grassy ephemeral depression, which facilitates local runoff during spring freshet and periods of rain. No water flow was observed during the July 1 and August 12, 2005 visits, however, standing pools and small braided channels were observed south of the crossing location. The watercourse is located downstream from



R19

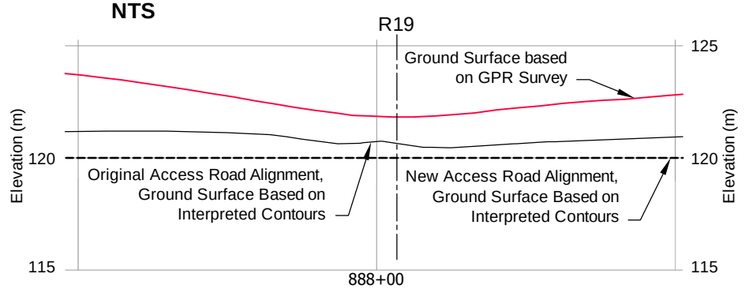
PLAN

0 50 100 150 200 250
Scale in Meters



PROPOSED BRIDGE R19 PLAN (12m SPAN)

NTS



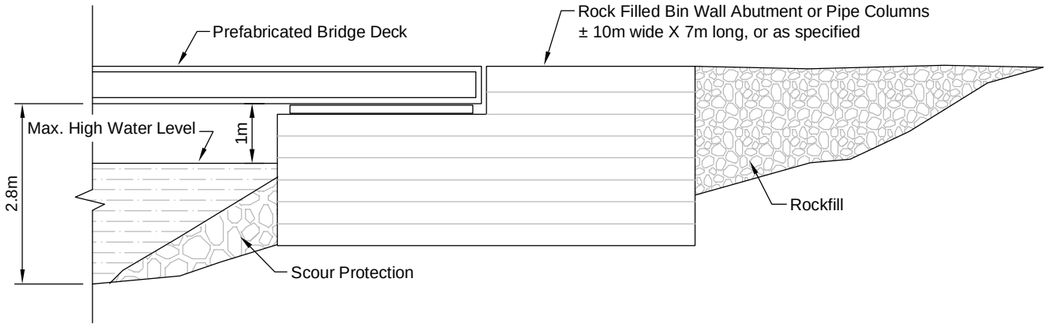
BRIDGE CROSSING PROFILE

0 2.5 5 7.5 10 12.5
Vertical Scale in Meters

0 20 40 60 80 100
Horizontal Scale in Meters

NOTES

1. The 2m contours have been inferred based on 10m contour interval reference maps. As such, variations should be anticipated between the topographic contours presented and actual ground elevations.
2. Bin wall abutment design for 30m (100ft) spans; pipe column abutment design for 12m (40ft) spans.
3. Road alignment and crossing location revised based on field observations.
4. Channel Width: Width of the stream that contains no terrestrial vegetation and is basically the rocky channel (Azimuth 2005).



TYPICAL ROAD SECTION AT ABUTMENT

NTS

NOTE

Ground surface elevations collected during GPR survey are based on GPS data and should be considered approximate.

REFERENCE

1. Cumberland Resources Ltd.
   NAD83 Projection: UTM Zone 14
2. Photos taken by Azimuth in
   September 2006

PROJECT

CUMBERLAND RESOURCES LTD.

TITLE

**TEHEK LAKE ACCESS ROAD
CONCEPTUAL BRIDGE CROSSING R19
AND ABUTMENT DETAILS**

Golder Associates

PROJECT No. 06-1413-034A			FILE No.	061413034-02	
DESIGN	PA	27SEP06	SCALE	NTS	REV. A
CADD	NV	27SEP06			
CHECK	PA	27SEP06			
REVIEW					

FIGURE 18

REVISION DATE:06/09/27 01:58PM By: NVeloso CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-034\Drafting\cad\061413034-02.dwg

a small isolated lake and series of ponds, and discharges to a series of small ponds approximately 1.5 km south of the proposed crossing. It is likely that the majority of the upstream discharge is absorbed by vegetation and grassy substrate. There is negligible fish habitat and no potential for fish presence at proposed crossing R21.

Three corrugated steel culverts are planned for the installation at crossing R21. The culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower section will be made up of two 1.20 m diameter culverts side by side with one 1.20 m culvert on top in a pyramid configuration. An engineering design cross section and plan for crossing R21 is provided in Figure 10. It is estimated that this culvert installation will receive drainage from a 279 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R23:

Crossing R23 is located at kilometre 100 along the proposed route from Baker Lake (figure 7) and is within the Meadowbank River system that joins the Back River drainage that eventually flows to the Arctic Ocean. The watercourse is down gradient of a small pond at the headwaters of a small lake system that drains via several larger lakes and eventually flows into Inuggugayualik Lake. The stream is located in a relatively deep valley protected by hills to the north and south. It is likely that the valley fills with snow and thus serves as the secondary source of discharge to the up gradient pond basin. The stream is fairly narrow (4 m) and shallow (12 cm) and braided with small riffle (50%) and run (50%) portions both upstream and downstream of the proposed crossing. Substrate is predominantly boulders and cobbles with grass and boulder hummocks. The stream winds between the hummocks and large boulders with a total estimated discharge of 0.04 m^3/sec on July 1, 2005. Discharge appeared to be lower during the August 8, 2005 visit.

No fish were observed at the crossing however, it is possible that ninespine stickleback were present near the receiving lake downstream of the crossing. Boulder barriers were evident throughout this watercourse, limiting the connectivity of this stream during the open-water season. The presence of other fish species is unlikely. Fish habitat at crossing 23 is very limited, given the lack of upstream lake habitat, shallow depth, and unsuitable substrate conditions. The importance of this watercourse as fish-bearing habitat is low.

Two corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower culvert will be 1.20 m in diameter with a smaller 0.7 m diameter culvert placed on top. An engineering design cross section and plan for crossing R23 is provided in Figure 10 below. It is estimated that this culvert installation will receive drainage from a 125 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R24:

Crossing R24 is located west of the north basin of Third Portage Lake, approximately 10 km from Meadowbank camp at kilometre 105 along the road from Baker Lake (figure 7). The crossing is proposed as a culvert crossing situated in a wide boulder field in a shallow valley that connects a large, L-shaped lake. The up-gradient lake is uniquely positioned spanning

the Arctic and Hudson Bay watershed divide, discharging to both. A small portion of the lake drains east through the crossing R23 watercourse to Third Portage Lake, a headwater lake to the Quoich River. However, the majority of flow drains west through small rapids and an incised canyon at the north end of the lake, which ultimately flows to the Back River system that drains to the Arctic Ocean. Flow at the potential crossing location was imperceptible and was entirely subsurface on July 1, 2005 and August 8, 2005. Discharge was evident downstream of the proposed crossing where the surface flow emerges as it descends down a bank to discharge to Third Portage Lake. Discharge was estimated as 0.01 m^3/sec. The substrate is 100% boulders at the proposed crossing site. Fish habitat potential at crossing R24 is very low and there is no potential for fish presence.

Three corrugated steel culverts are planned for the installation at crossing R24. The culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower section will be made up of two 1.20 m diameter culverts side by side with one 0.70 m culvert on top in a pyramid configuration. An engineering design cross section and plan for crossing R24 is provided in Figure 10. It is estimated that this culvert installation will receive drainage from a 224 hectare area during freshette. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R25:

Crossing R25 is located at approximately 109 km along the proposed all-weather road (figure 7) and is proposed as a culvert crossing. The location of the crossing is situated in a small ravine with granite exposed hills and steep, variable descending terrain. This small (0.5 m wide) ephemeral watercourse connects an isolated pond to Third Portage Lake. This small ravine eventually trickles down a large hill that banks the north basin of Third Portage Lake.

Stream flow was negligible with an estimated discharge of only 0.005 m^3/sec during the July 4, 2005 visit. The stream is generally confined with a mixture of boulder outcrops and cobble, exposed granite and small grassy substrate pools. Prior to descending into Third Portage Lake, small pools and glides predominate in a vegetated area. Imperceptible discharge and dried up pools were observed during the August 21, 2005 visit.

This watercourse facilitates local runoff during freshet and has negligible fish habitat value and no potential for fish presence at crossing R25.

Two 0.7 m diameter corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring freshette. An engineering design cross section and plan for crossing R25 is provided in Figure 10. It is anticipated that the crossing will have to accommodate drainage from a 41 hectare area. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Crossing R26:

Crossing R26 is the last crossing along the proposed road route from Baker Lake (figure 7) to the Meadowbank site and is proposed as a culvert crossing. The crossing is located near the end of the road, between the proposed mill complex and the Portage open pit. The

crossing is located at the western most connecting channel between Second Portage and Third Portage Lakes. It is anticipated that this proposed culvert installation will be of a temporary nature since the crossing is located within the perimeter of the Portage South and East dykes which will be dewatered early in the development of the project. As part of the "No Net Loss" plan for the project lakes the easternmost channel connecting Second Portage and Third Portage Lakes will be widened and deepened to facilitate greater water flow, thereby compensating for the loss of this channel during mine operation.

The channel was visited on September 7, 2006 and found to be 38 m wide and 0.25 m deep, with a boulder and cobble substrate. Water flow within the channel dominantly occurs beneath or between the boulders during open water periods, except during the spring freshette. The channel is frozen to the bottom during the winter months. Water flow through the channel was estimated at 1.25 m^3/s during the September visit.

This short connecting channel does not contain any spawning, nursery, rearing or feeding habitat for fish. Due to the shallow water depth and the large boulder substrate obstructions, fish passage through this channel is difficult during the open water season, except during peak spring freshette. Movement by fish between the lakes is impossible during the winter season (October to June) because the channel is frozen.

Due to the broad nature of the crossing, four corrugated steel culverts will be installed in an offset staked configuration at this crossing to accommodate the anticipated flow from this area during the spring. The lower section will be made up of three 1.20 m diameter culverts side by side with one 1.20 m culvert on top in a pyramid configuration. An engineering design cross section and plan for crossing R26 is provided in Figure 10. The construction of this culvert crossing should take place in the winter under frozen conditions, thereby minimizing the potential impacts of the construction on the environment.

Proposed Quarry sites:

It is anticipated that a total of eleven quarries will be required along the route to provide the necessary aggregate for construction of the road from Baker Lake to the Meadowbank site. Four of these quarry sites will be located on Inuit Owned Lands (two in BL-14 and two in BL-18), six quarry sites will be located on Crown Lands and one quarry will be developed within lands administered by the Hamlet of Baker Lake. Each quarry will have a planned footprint of approximately 150m X 150m and yield a combined 1,012,000 m^3 of material. This represents the total estimated amount of material required to construct the road from Baker Lake to the Meadowbank site. It should be noted that these quarries, as identified, are idealized to generate the appropriate volume of rock. The ultimate size and locations of the quarries will have to be finalized after field visits to the sites are conducted, prior to the start of construction. It is possible that a greater number of smaller quarries may be used to reduce haulage distances, however, the total volume of material quarried should remain constant. If other more appropriate quarry sites are selected at a later date, geochemical sampling of the material will be completed prior to use in road construction to ensure that the material will be non-acid generating.

Initially, potential quarry sites along the route were assessed based on the results of air photo interpretation and geophysical investigations conducted along the route in the spring

of 2005. The following criteria was used during the selection process: locations with significant areas of exposed bedrock (ideally 200m x 200m), moderate relief, located away form surface waters, on the windward side of slopes (N, NW, W) and well spaced along route (ie 5-10 km apart). During the summer of 2005 Golder Associates Ltd. collected rock samples from twenty potential quarry sites along the proposed route. Samples were tested for their geochemical characteristics to assess their acid generating potential. The reader is referred to a document entitled "Airphoto Interpretation, Site Reconnaissance, Mapping and Sampling: Tehek Lake Access Road, Meadowbank Gold Project", for detailed test results for all samples collected during the study. This document is included as Appendix II of this document.

The attached figure 3 shows the locations of the preferred quarry sites along the route, numbered in ascending order from Baker Lake to the Meadowbank site. Table 1 below provides a list of the proposed quarry sites along the road and their corresponding station numbers as referenced in the above mentioned Golder Report (Appendix II).

Table 1 :

QUARRY SITE	2005 SAMPLE STATION NUMBER
Q-1	Station 2
Q-2	Station 4
Q-3	Station 7
Q-4	Station 8
Q-5	Station 10
Q-6	Station 11
Q-7	Station 13
Q-8	Station 16
Q-9	Station 18
Q-10	Station 20
Q-11	Station 22

The reader is referred to the attached 1:50,000 scale maps (figures 4 through 7 - in pocket) which show the locations and proposed footprints of the preferred quarry sites along the route from Baker Lake to the Meadowbank site. Table 2 below provides detailed information on the proposed footprint (location) and rock types for each of the proposed quarries.

Table 2: Proposed Quarry sites (UTM NAD 83 / Zone 14 co-ordinates)

Quarry sites on Crown land:

Quarry No.	Proposed Quarry Boundaries								Rock Type
	Northwest corner		Northeast corner		Southeast corner		Southwest corner		
	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	
Q-2	7147861.47	642116.46	7147861.47	642263.55	7147704.1	642263.55	7147703.85	642116.43	Granite
Q-5	7168421.56	629519.96	7186421.56	629671.3	7168271	629671.03	7168271	629520.48	Quartzite or granite gneiss
Q-6	7173355.36	627252.27	7173355.36	627403.61	7173204.8	627403.34	7173204.8	627252.79	Felsite – Intermediate Volcanics
Q-7	7181683.93	626031.61	7181683.93	626182.96	7181533.37	626182.68	7181533.37	626032.13	Metawacke
Q-8	7191601.48	627175.81	7191601.48	627327.15	7191450.92	627326.88	7191450.92	627176.32	Metawacke
Q-9	7201846.87	627404.84	7201846.87	627556.19	7201696.32	627555.91	7201696.32	627405.36	Mafic volcanics

Quarry sites on Inuit Owned land:

Quarry No.	Proposed Quarry Boundaries								Rock Type
	Northwest corner		Northeast corner		Southeast Corner		Southwest Corner		
	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	
Q-3	7157460.97	637523.55	7157460.97	637670.98	7157303.59	637670.98	7157303.34	637523.87	Granite
Q-4	7163566.9	632053.17	7163566.9	632200.26	7163409.52	632200.26	7163409.27	632053.15	Quartzite
Q-10	7206417.96	629844.38	7206417.96	629995.73	7206267.41	629995.45	7206267.41	629844.9	Granite
Q-11	7214239.17	632952.04	7214239.17	633103.38	7214088.61	633103.11	7214088.61	632952.55	Granite

Quarry sites on Hamlet of Baker Lake municipal land:

Quarry No.	Proposed Quarry Boundaries								Rock Type
	Northwest corner		Northeast corner		Southeast Corner		Southwest Corner		
	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	
Q-1	7138364.64	644352.07	7138364.64	644499.16	7138207.26	644499.16	7138207.01	644352.05	Granite

Quarry Operations:

Quarrying of bedrock will be required to produce the volumes of aggregate necessary for road construction. During quarrying operations, the use of explosives will be required to blast and shatter the rock to produce an aggregate of a suitable size for road construction. Two mine drills, capable of drilling four and six inch diameter holes, will be employed to drill the required blast holes. These holes will be charged with explosives and blasted to shatter the rock. Once the rock has been shattered by blasting, the shattered rock will be loaded into the mine haulage trucks (100/150 tonne capacity) using a loader and/or backhoe from

the mining fleet and transported to the appropriate site along the road. The rock will be dumped and spread out to create a road bed using two D9 dozers and a 16H grader. Once the road bed has been constructed to the Meadowbank site, final surfacing of the road will commence utilizing the 250 tph crushing plant currently located at the site. The crushing plant is mobile and will be relocated to each of the existing quarry sites along the route to produce the fine aggregate required to cap the road and ready it for use by the transportation fleet.

Construction Equipment:

Construction of the road will utilize appropriate pieces of the mining fleet, supplemented with some conventional road building equipment. The majority of this equipment will be sourced and shipped on barges to Baker Lake during the 2006 shipping season. A fuel truck will be available to supply fuel to the road crew during construction, so that no caches of fuel will be required along the route. A table detailing the proposed equipment for the road construction is provided in table 3 below:

Table 3 : Road Construction Equipment

Quantity	Type of Equipment
8	CAT 773 Haul Trucks
2	CAT 988 Loaders
1	CAT D6 Dozer
2	CAT D8 Dozers
1	CAT 345 Excavator
1	CAT 14 Grader
1	CAT IT28 Tool Carrier
1	Bobcat
1	Fuel Truck
1	Service Truck
2	CAT 563 Packers
1	Reedrill B5000
1	Reedrill 345
1	Interoc An 109
1	Ingersoll 750-250 Compressor
1	Explosives Truck

Operation of Road:

The road is designed for use by conventional tractor trailers which will transport supplies from a storage depot in Baker Lake to the site. It is anticipated that the road will be used for 10 months or 300 days per year, avoiding use during spring run-off when wet conditions could affect the quality of the road bed. The haulage equipment will generally operate in convoys and will be supported by state-of-the-art Global Positioning System (GPS) technology and radio controls. Vehicles will be equipped with safety provisions and equipment so that major blizzards can be safely waited out at any point along the road, in

addition, refuge stations will be established approximately every 10 km along the access road to provide shelter in case of emergency.

It is anticipated that approximately 70,000 tonnes of dry freight and diesel fuel will have to be transported to the site each year. At approximately 40 tonnes per load, this translates into the delivery of 1,750 loads (or 3,500 passes including return trip) of supplies each year. It is anticipated that the road will be in use approximately 300 days of the year, therefore, approximately 12 passes (six loads delivered) per operating day will be required on the road.

Mitigation and Environmental Measures:

In determining the preferred route for the road, baseline environmental studies and geotechnical analysis was completed to mitigate adverse affects of the local environment within the proposed road corridor. During operation of the road, the following measures will be implemented to lessen the impact on the environment::

- providing informational and training sessions regarding the potential for wildlife vehicle collisions
- implementing dust control measures during construction and operation
- restricting vehicles to designated roads and approved construction areas
- banning any off-road travel to avoid damage to vegetation
- monitoring and reporting of wildlife observed in the vicinity of the roads and immediately reporting to appropriate environmental mine staff who will issue notices to vehicle operators accordingly
- posting appropriate speed limits (e.g. <50kph)
- giving wildlife the right of way and reducing traffic speeds when animals are detected near road or other approved work areas

Decommissioning and Reclamation:

The road will be decommissioned after mining operations have been completed (est. 2018), unless the road operation and maintenance responsibility is transferred to another interested private party or government agency. Decommissioning of the road will be accomplished by loosening compacted surfaces, flattening side slopes and removing all culverts and bridges from drainage paths along the route.