AGNICO-EAGLE
MEADOWBANK DIVISION

January 12, 2011

Via Email and Xpresspost

Mr. Richard Dwyer
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU   X0B 1J0
Phone: (867) 360-6338
licensingadmin@nunavutwaterboard.org

Dear Mr. Dwyer,

Re: Meadowbank Water License 2AM-MEA0815 Part D, Item 3 – Vault Haul Road Crossing

As required by Water license 2AM-MEA0815, Part D, Item 3, which states, '*The Licensee shall submit to the Board for approval, at least one (1) year prior to Construction, final design and construction drawings of the Vault Haul Road Crossing'*, please find for approval the final design drawings and supporting documentation for the Vault Haul Road Crossing.

This crossing will provide access for mine operations at the Vault Lake deposit. The following letter outlines the background of the project, the construction plan, mitigation measures and monitoring of the Vault Crossing.

Site Description

The Vault crossing stream is characterized as diffuse, boulder predominated channel that connects Turn Lake to Drill Trail Lake, two headwater lakes that drain into Second Portage Lake. Peak discharge is from late June to early July during freshet (See Appendix A for representative photos). In early July the stream is very shallow (less than 20 cm in most sections) and provides some seasonal habitat for slimy sculpin or stickleback but is not used by other species. Similar to other crossings within the project lakes no fish have been found or are likely to use this channel for passage between lakes.

Location, Timing and Construction Planning

The Vault crossing is located at UTM Zone 14 640945E 7217501N. See Figure 1.

To minimize potential impacts of erosion and the introduction of TSS planned for the winter period while potential pathways of effects for these fish are minimal. More specifically, construction of the crossing is planned to be completed under frozen conditions starting in January 2012. Plans are to construct a 25m wide crossing with three 1800mm culverts. The culverts will be embedded, placed on material pads and backfilled. The banks of the roadway will be stabilized with coarse substrate to prevent erosion. For more details on the construction planning and figures please refer to Appendix B.

Mitigation

Based on the planned timing, the crossing construction will not involve in-water work. Furthermore, no in-water work will be completed during the critical spawning period for fish that may use the downstream area for feeding (ie lake trout). All material and equipment used for this construction will be stored 30m above the ordinary high water mark to prevent any deleterious substances from entering the water way.

Monitoring

A qualified environmental technician will be on-site during the construction activity and will take photos before and after the completion of the crossing. Since the activity will be completed during the winter, no water quality monitoring will be completed during the construction activity. Follow-up monitoring will take place in June 2012 prior to freshet to evaluate bank stability. Qualified environmental personnel will also monitor the potential introduction of Total Suspended Solids during the spring freshet and throughout the summer following rain events. Furthermore, flow data will be compared to baseline flow data collected on July 1st, 2009.

AEM has met with DFO representatives on November 9th and December 7th, 2010 concerning the Vault Road Crossing. A request to the DFO for a Letter of Advice was send on December 9, 2010. Construction of the Vault Crossing will not begin until the DFO approval has been provided.

Should you have any questions or require more information, please contact me directly at stephane.robert@agnico-eagle.com or by telephone at 819-763-0229.

Regards,
Agnico-Eagle Mines Limited – Meadowbank Division

Stéphane Robert
Environment Superintendent

cc: Lou-Ann Cornacchio, INAC
David Abernethy, INAC
Stephen Hartman, KIA
Anne Wilson, EC
Derrick Moggy, DFO

EXECUTIVE SUMMARY

Agnico-Eagle Mines Meadowbank Division (AEM) is planning to construct a road to provide access for mine operations at the Vault Lake deposit. This road gained regulatory approval during the Environmental Assessment Review Process. Along the road there is a stream called the *Vault crossing* which is characterized as a wide, boulder predominated channel that connects Turn Lake to Drill Trail Lake. These two lakes are headwater lakes that ultimately drain into Second Portage Lake and then into Tehek Lake.

Through most of the year, the stream is very shallow and similar to other crossings within the project lakes, no fish have been found and are unlikely to use this channel for passage between lakes. To minimize potential impacts to fish related to erosion, construction is planned to be completed under frozen conditions All material and equipment used for this construction will be stored 30m above the ordinary high water mark to prevent any deleterious substances from entering the water way. Follow-up water quality monitoring and flow monitoring will be completed by qualified environment technicians following the construction of the crossing.

Specifically, AEM plans to construct a 25m wide crossing consisting of three 1800mm culverts. The culverts will be embedded, placed on material pads and backfilled. The banks of the roadway will be stabilized with coarse substrate to prevent erosion.

As required by Water license 2AM-MEA0815, Part D, Item 3, this report contains all the final design drawings and supporting documentation for the Vault Haul Road Crossing.

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ᐊᒡᓂᑯ ᐃᑯ ᐅᔭᕋᒃᑕᕆᐊᑦ ᐊᐳᖅᑎᓐᓇᖅᑐᒥ, ᐊᑉᕐᑯᑎᓕᐅᕈᐊᖅᑐᑦ ᐅᑦᒍᖅᐸᒥᑐᒧᑦ, ᓄᓇᒥ ᐊᑦᓯᓕᖅᐸᓕᐊᔪᒥᒃ ᐅᔭᕋᒃᑕᕐᕕᐅᓂᐊᖅᑐᒥᒃ ᐊᑎᓕᒃ Vault Lake deposit. ᑕᒻᓇ ᐊᑉᕐᑯᑎᐅᓚᐅᓯᐊᖅᑐᑐᖅᑲᖅ, ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᖃᐅᔨᓴᓚᐅᑎᓪᓗᒍ ᐸᕐᓇᒍᑕᐅᑎᓪᓗᒍ, ᑕᒻᓇᓗ ᓴᓇᔭᐅᓂᐊᕐᓂᖓ ᐊᖏᓚᐅᓯᒪᑉᓗᓂ ᓚᐃᓴᑯᑦ. ᐊᑉᕐᑯᒥ ᑭᐱᓯᔪᖅ ᑯᒐᓇᖅ, ᐃᓗᑐᓂᑯᑦ ᑯᒃᑐᖅ, ᒪᕈᓄᑦ ᑕᓯᓇᒃᓄᑦ ᐊᑎᓕᒃ Turn Lake ᐊᒻᒪ Drill Trail Lake. ᑕᑯᐊᒃᓗ ᑕᓯᓇᒃ ᑯᒃᓅᑎᒃ, ᐊᐳᖅᑎᓐᓇᖅᑐᑉ ᑕᓯᐊᓄᑦ ᐊᒻᒪ ᑕᓯᕐᔪᐊᓗᒃᔪᐊᕐᒧᑦ. ᑕᒪᓇ ᑭᖑᓂᕐᒥ ᐊᑉᕐᑯᑎᓕᐅᕐᓂᖓ, ᐸᕐᓇᒐᐅᓯᒪᔪᖅ.

ᑕᒻᓇ ᑯᒐᓇᖅ ᐅᑭᐅᓗᒃᑕᒥ ᑯᓕᕋᖕᒐᑦ ᑯᓗᐊᔪᐃᑐᖅ ᐃᑦᑲᑐᓇᖑᒐᒥ. ᑕᒻᓇᓗ ᑯᒐᓇᖅ ᖃᐅᔨᓴᐅᓯᒪᔪᖅ, ᐃᖅᑲᓗᖅᑲᖏᓗᓂ. ᑯᒐᑉ ᓴᓂᐊᒍᑦ ᐊᑉᕐᑯᑎᓕᐅᕐᓂᐊᖅᑐᑦ, ᓄᓇ ᕿᕿᑎᓗᒍ ᐅᑭᐅᒥ. ᐊᑉᕐᑯᑎᓕᐅᓕᖅᐸᑕᓗ 30ᒥᑐᑦ ᑲᒐᓇᒥᑦ ᐅᖕᒐᓯᓂᖅᑐᒥᒃ ᐱᕐᑯᑎᑦ ᓴᓂᕙᒃᓯᒪᓂᐊᖅᑐᑦ. ᐊᑉᕐᑯᓗ ᓴᓇᔭᐅᒐᓂᒃᐸᑦ, ᑯᒐᓇᖅ ᐊᕙᑎᓕᕆᔨᓂᑦ ᖃᐅᔨᓴᖅᑕᐅᑕᕐᓂᐊᖅᑐᖅ. ᑕᒪᑯᐊ ᐊᕙᑎᓕᕆᔩᑦ ᑕᓯᕐᓂᒃᓗ ᑲᒐᕐᓂᒃᓗ ᐅᑭᐅᓗᒃᑕᖅ ᖃᐅᔨᓴᖅᑕᕐᒪᑕ, ᐊᐳᖅᑎᓐᓇᖅᑐᑉ ᐊᕙᑕᓂ.

ᑯᒐᓇᑯᑦ ᐃᑲᕐᕕᒃᒥᒃ ᓴᓇᓂᐊᖅᑐᑦ, ᑕᑭᓂᓕᒃᒥᒃ 25ᒥᑐᑦ, ᐊᒻᒪ ᓱᑉᓗᓕᒃᓂᒃ ᐊᒪᓂᓕᒃᓂᒃ 1800mm ᐊᑐᕐᓂᐊᖅᑐᑦ. ᑕᑯᐊ ᓱᑉᓗᓕᑦ ᓂᕈᒥᒃᑐᒥᒃ ᑐᖕᒐᕕᖅᕐᓂᐊᖅᑐᑦ ᐃᓕᔭᐅᒍᒥᒃ ᑯᒐᓄᑦ. ᓱᑉᓗᓕᐅᑉᓗ ᖃᖕᒐᓄᑦ ᑐᐊᕙᒃᒥᒃ ᐃᓕᓂᐅᖅᑲᐃᓗᑎᒃ, ᐃᑲᕐᕕᒃ ᓱᖏᑲᓂᕐᓂᐊᕐᒪᑦ.

ᑕᒪᓇᓗ ᐊᑉᕐᑯᑕᐅᓂᐊᕐᑐᖅ, ᐊᑉᕐᑯᒥᓗ ᐃᑲᕐᕕᖅ ᑎᑎᕋᐅᓯᐅᓯᒪᔪᖅ ᓚᐃᓴᒥ ᓇᓴᐅᑎᓕᒃ 2AM-MEA0815, Part D, Item 3. ᑕᒪᓇᓗ ᐸᕐᓇᒍᑕᐅᓯᒪᔪᖅ ᑭᖑᓂᕐᒥ, ᑲᔪᓯᓂᐊᖅᑯᓂᓗ.

AGNICO-EAGLE
MEADOWBANK DIVISION

FOR CONSTRUCTION
STAVIBEL 2009-11-27

1		FOR CONSTRUCTION	N.P.	P.G.	P.G.	J.B.
0		FOR COORDINATION		P.G.		-

P.Eng.
2009-11-27

Stavibel inc.
STAVIBEL

MEADOWBANK GOLD PROJECT
ROAD TO VAULT DEPOSIT
STREAM CROSSING AT LAKE OUTLET
TURN LAKE

Surface hydrology

Nancy Perreault dess.	27 NOVEMBRE 2009
Patrick Giard, P.Eng.	André Levesque, Eng.
Patrick Giard, P.Eng.	VD2415-001
Julie Bélanger, Ing.	-
1:1	VD2415-01-C100 1

APPENDIX A:

PHOTOGRAPHIC DOCUMENTATION

DECEMBER 2010

Appendix A: Photo Presentation

Photo 1: Vault Lake crossing July 1st 2009. Turn Lake to the north is iced over

Photo 3: Boulder barrier downstream.

Photo 4: Proposed crossing location. Photo taken from the middle of the channel, July 1st, 2009 to the west.

Photo 5: Photo taken from the east to west side. On July 1st, 2009 bankful width is approximately 60m and wetted width is 25m. The 25m of wetted width is considered low value habitat.

Photo 6: Photo taken during July 8, 2006 survey

Photo 7: June 4, 2005 during freshet looking toward Drill Trail lake

APPENDIX B:

CIVIL DESIGN PARAMETERS FOR A STREAM CROSSING BETWEEN TURN LAKE AND DRILL TRAIL LAKE

DECEMBER 2010

AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION

CIVIL DESIGN PARAMETERS FOR A STREAM CROSSING BETWEEN TURN LAKE AND DRILL TRAIL LAKE

HAUL ROAD FROM MEADOWBANK TO THE VAULT DEPOSIT

STUDY OF THE UPSTREAM HYDROLOGY FOR CULVERT SIZING

CONSULTANT REF.: VD2415-1

DECEMBER 4, 2009

AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION

AEM

CIVIL DESIGN PARAMETERS FOR A STREAM CROSSING BETWEEN TURN LAKE AND DRILL TRAIL LAKE

HAUL ROAD FROM MEADOWBANK TO THE VAULT DEPOSIT

STUDY OF THE UPSTREAM HYDROLOGY FOR CULVERT SIZING

CONSULTANT REF.: VD2415-1

DECEMBER 4, 2009

Prepared and approved by :

REGISTERED PROFESSIONAL ENGINEER
B.A.P. GIARD
LICENSEE
NWT/NU

Patrick Giard, P. Eng., CCE
AEM Construction Department
Civil & Environment Projects

TABLE OF CONTENTS

APPENDIX 1 **Environment Canada** : AVERAGE ANNUAL PRECIPITATION AND SNOWFALL

The annual total precipitation is the sum of the rainfall and the assumed water equivalent of the snowfall for a given year. A specific gravity of 0.1 for freshly fallen snow is used, which means that ten inches (25.4 cm) of freshly fallen snow is assumed to be equal to one inch (2.54 cm) of rain. The mean annual total precipitation and snowfall maps on this plate are primarily based on thirty-year data during the 1921 to 1950 period.

APPENDIX 2 **Environment Canada** : VARIATIONS IN SEASONAL PRECIPITATION

The four maps on this plate show the mean precipitation for spring (March to May), summer (June to August), fall (September to November) and winter (December to February). The total precipitation for any season is the sum of the rainfall and one-tenth of the snowfall for that particular three-month period. The mean seasonal precipitation is the mean of the seasonal totals during the period 1921 to 1950 inclusive.

APPENDIX 3 **Environment Canada** : AVERAGE ANNUAL SNOW COVER

Snow cover data refer primarily to the presence and total depth of a snow cover on the surface of the earth. This is in contrast to data concerning characteristics of freshly fallen snow. Snow cover depth is increased by the occurrence of freshly fallen snow, but it is decreased by melting, wind action and settling. Two maps on this plate show the mean dates of the occurrence of the first and last snow covers of one inch (2.54 cm) or more. These dates are not necessarily the average dates of the beginning and ending of a continuous snow cover since the snow cover may form and later disappear once or several times during a winter season. A third map showing the mean annual number of days with a snow cover of one inch (2.54 cm) or more only includes those days on which there was a snow cover. For the last map, the mean annual maximum depth of snow data were obtained by averaging the maximum depth reported for each snow season of record. Snow cover data are mainly based on the ten-year period from 1941 to 1950.

1. HYDROLOGY OF UPSTREAM BASIN

a. Surface area of the Turn Lake basin

The surface area of the hydrologic basin upstream of the outlet of Turn Lake was measured on topographical maps along with average slopes of sub-basins.

	sub-basin	Turn Lake Basin				
		A_b total area (ha)	**A_L water area (ha)**	**A_L/A_b (%)**	**S_b Slope (%)**	**C_b Coef.** infiltration
ZONE						
A1	TURN LAKE	300.0	300.0	100%	0.01%	0.05
A2	upstream South	124.2	13.8	11%	2.0%	0.72
A3	upstream South	76.3	0.0	0%	4.7%	0.80
A4	upstream S-W	358.6	41.9	12%	1.5%	0.71
A5	upstream West	155.2	1.5	1%	4.9%	0.79
A6	upstream N-W	943.4	37.9	4%	1.7%	0.77
A7	upstream North	205.1	1.5	1%	1.6%	0.79
A8	upstream N-E	219.5	0.0	0%	3.9%	0.80
	outlet TURN LAKE	**2382.4**	**396.6**	16.6%	**2.0%**	

b. Location of nearest IDF weather stations

1) Cambridge Bay Airport, Nunavut : lat. 69.0° N long. 105.0° W

2) Fort Reliance Airport, NWT : lat. 62.5° N long. 109.0° W

3) Cape Dorset Airport, Nunavut : lat. 64.2° N long. 76.5° W

The IDF data from these airports has been interpreted to provide some local previsions of rainfall data at the project site.

Meadowbank Project, Nunavut : lat. 65.0° N long. 96.0° W

c. Interpretation of IDF data and local previsions

25 year return	**Meadowbank Gold Project**	Cambridge Bay Airport, Nunavut	Fort Reliance Airport, NWT	Cape Dorset Airport, Nunavut
t (min)	I_{25} (mm/h)	I_{25} (mm/h)	I_{25} (mm/h)	I_{25} (mm/h)
5	50.0	35	85	30
10	37.3	23	67	22
15	26.7	18	44	18
30	18.3	14	26	15
60	12.3	9	18	10
120	7.4	6.1	9.0	7.0
360	4.1	3.7	4.5	4.0
720	2.8	2.6	2.8	3.1
1440	2.0	1.8	1.9	2.2

100 year return	**Meadowbank Gold Project**	Cambridge Bay Airport, Nunavut	Fort Reliance Airport, NWT	Cape Dorset Airport, Nunavut
t (min)	I_{25} (mm/h)	I_{25} (mm/h)	I_{25} (mm/h)	I_{25} (mm/h)
5	60.3	47	95	39
10	43.7	29	74	28
15	35.0	25	57	23
30	22.3	17	33	17
60	15.0	13	18	14
120	9.4	7.6	12.0	8.5
360	5.4	4.7	5.6	5.9
720	3.7	3.5	3.6	3.9
1440	2.3	2.1	2.4	2.4

d. Proposed location of stream crossing

The location of the culverts is latitude 65.049981° N, longitude 96.004715° W.

However, the location and disposition of these culverts is described in detail on construction drawings VD2415-01-C100, VD2415-01-C103, VD2415-01-C104, all of which have been designed and stamped by the undersigned.

2. DETAILS ON THE APPLICATION OF THE RATIONAL METHOD TO PERMAFROST AREAS

a. While permafrost constitutes the whole of land surfaces, a runoff coefficient of 0.80 was considered. The infiltration is low, such as for an unpaved parking lot.

b. Considering the relative wetland and permafrost areas defined in Section 1-a, the average weighted runoff coefficient was evaluated to be 0.675.

c. Given that the average weighted runoff coefficient is greater that 0.40, the equation deemed appropriate for calculating the concentration time was the following :

$$T_C = 0.057\, L_C / (S_C{}^{0.2} \times A^{0.1})$$

Where	T_C	is	concentration time (minutes)
	L_C	is	the length of water stream (m)
	S_C	is	"85-10" slope of water stream (%)
	A	is	surface area of basin (ha)

Source : ***Equation 3.5.2b*** of Page 3A-16 — *Manuel de conception des ponceaux*
Service de l'hydraulique, édition 1995
Ministère des Transports du Québec
ISBN 2-550-28765-7

d. The corresponding concentration time was calculated to be 488 minutes.

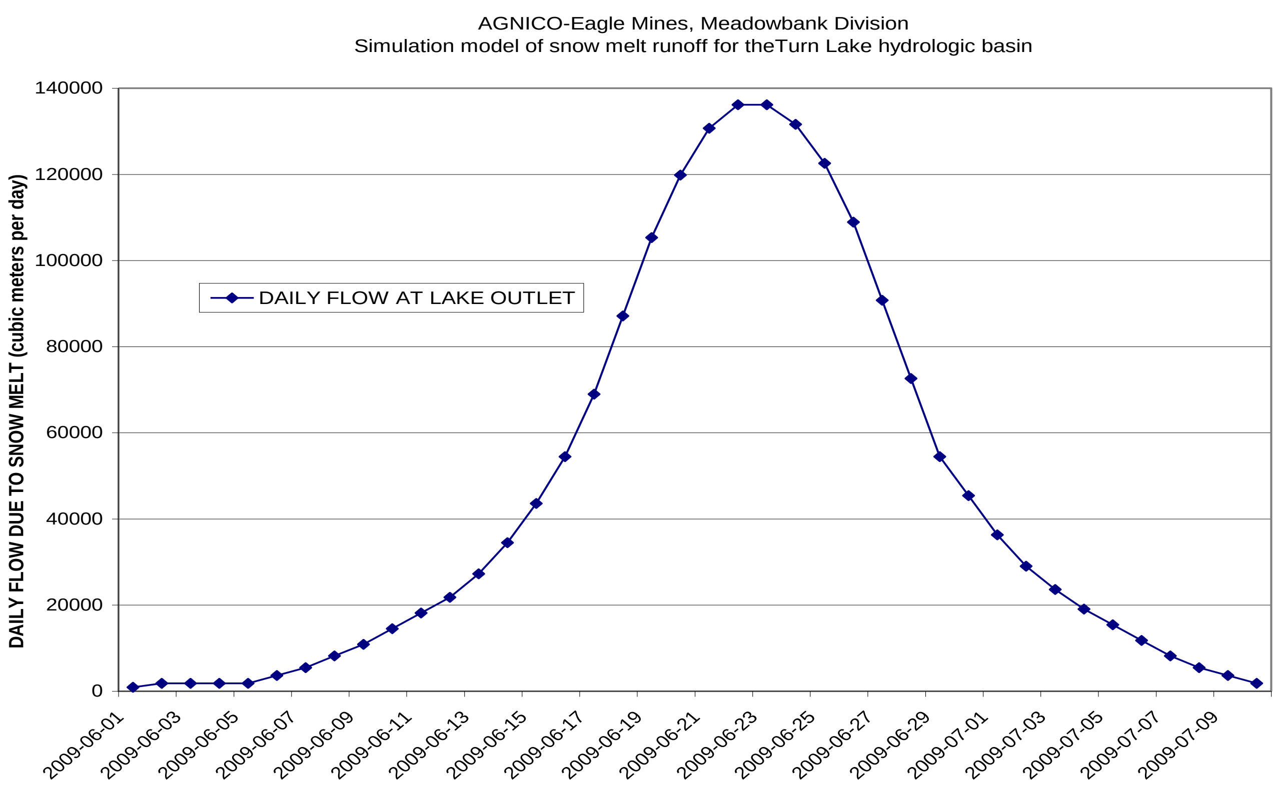
3. SIMULATION MODEL : RUNOFF VOLUMES DURING SNOWMELT

a. Annual average for snow precipitation

According to APPENDIX 1 and APPENDIX 3, the average annual precipitation would be 200 mm, of which snow accumulation amounts to 76 mm rain equivalent. These values are consistent with precipitation data from other documents and preliminary studies.

Based on observations made in Baker Lake during the 2009 spring runoff, a snowmelt model was defined, and adapted to the Turn Lake basin. Most of the spring runoff volume reports to the lake outlet in late June and early July.

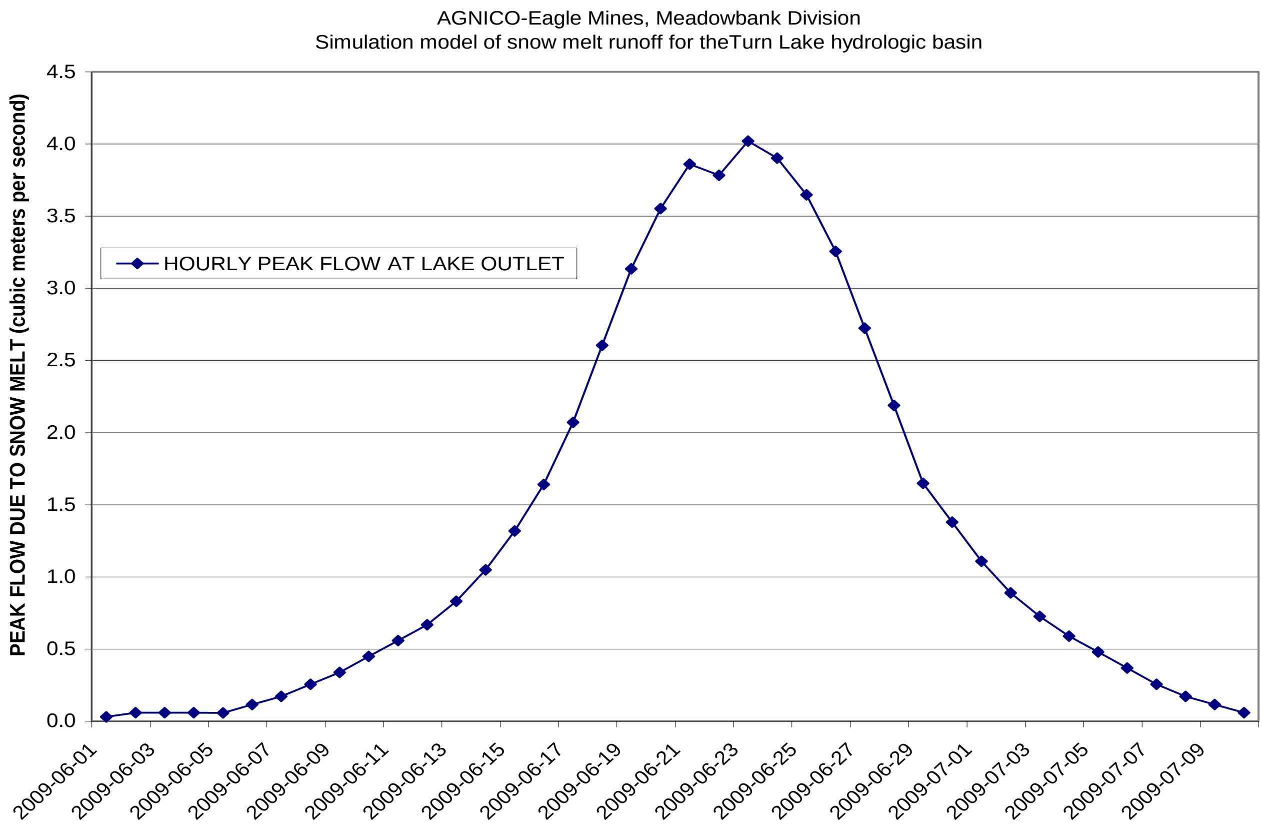
During that thawing period, an estimated volume 1.8 million cubic meters of water flows out from the lake outlet, within a duration of about 500 hours.



b. Simulated hourly peak flow at Turn Lake outlet, during snowmelt

Considering that 60% of the daily snowmelt volume reports to the lake outlet over an 8 hour period, a daily peak factor of 1.8 has been set within a simulation model.

This simulation model indicates that the hourly peak flow during snowmelt would be in the range of 4.0 cubic meters per second.



c. Characteristics of the natural stream channel at the crossing site

From the bathymetric survey data, the natural slope of the stream channel has been measured to be within the 0.9 % to 1.0 % range.

This natural channel may be assumed to a Trapezoidal Channel of 7.0 m width. The channel course is rather straight, with some medium boulders, and its Manning's coefficient is estimated at 0.050 for water velocity simulations.

The simulation results show that, for a flow of 4.0 cubic meters per second, the average water depth in the stream channel would be about 0.57 m, and that water velocities would average 0.80 m/s.

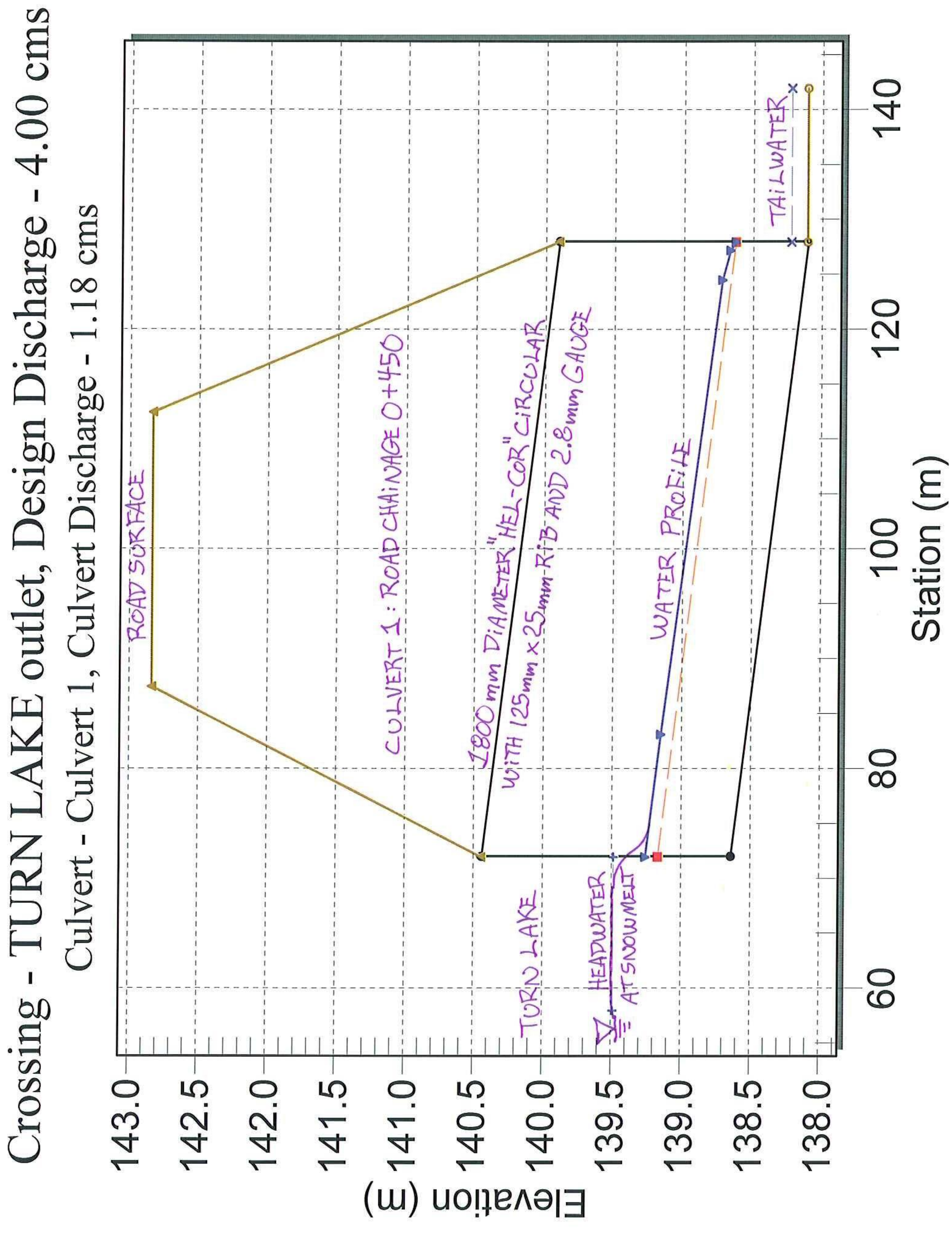
d. Simulation of maximum headwater elevation during snowmelt

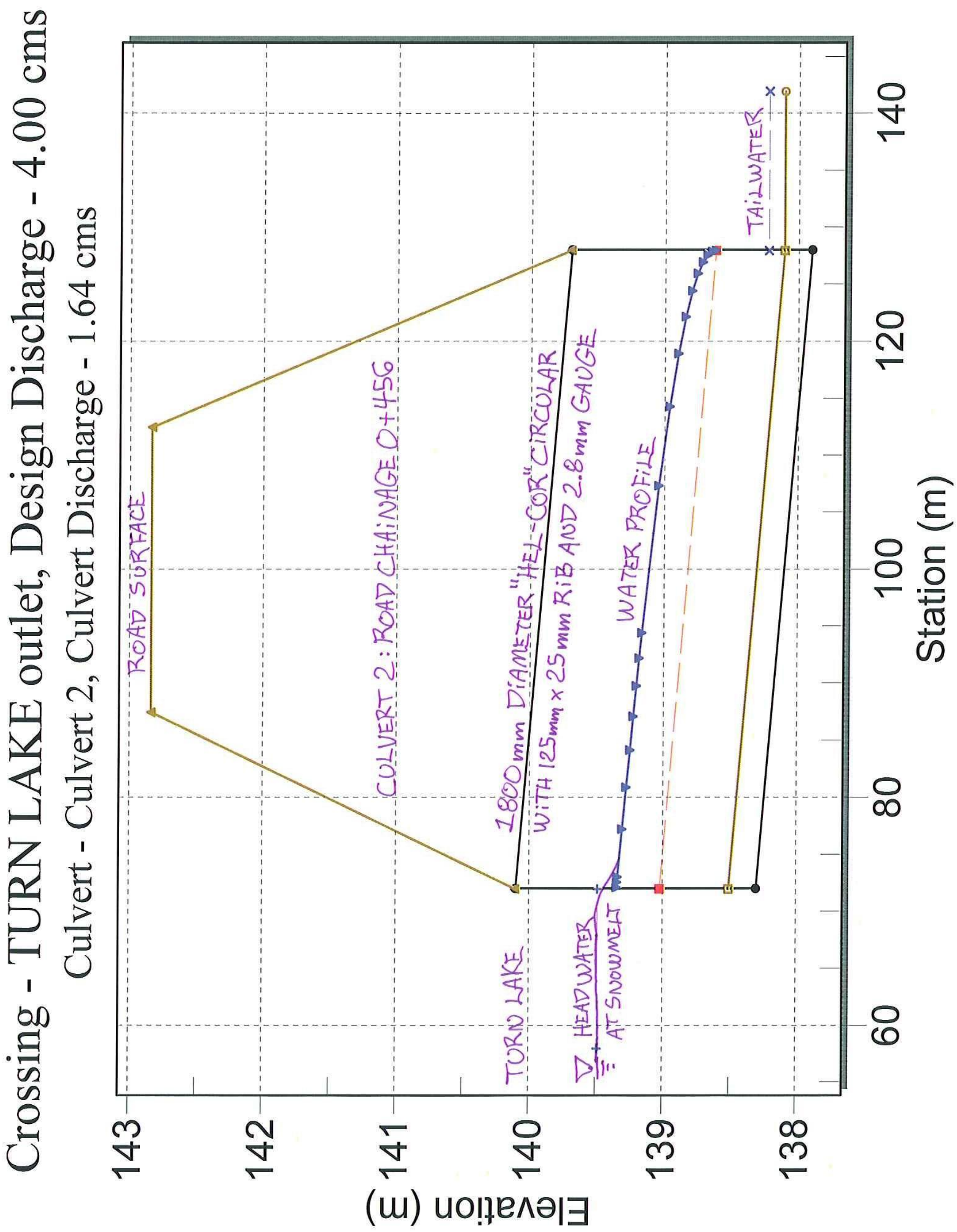
Given the hourly peak flow during snowmelt which has been calculated to be in the range of 4.0 cubic meters per second in Section 3-b, the maximum headwater elevation was simulated for such a design flow.

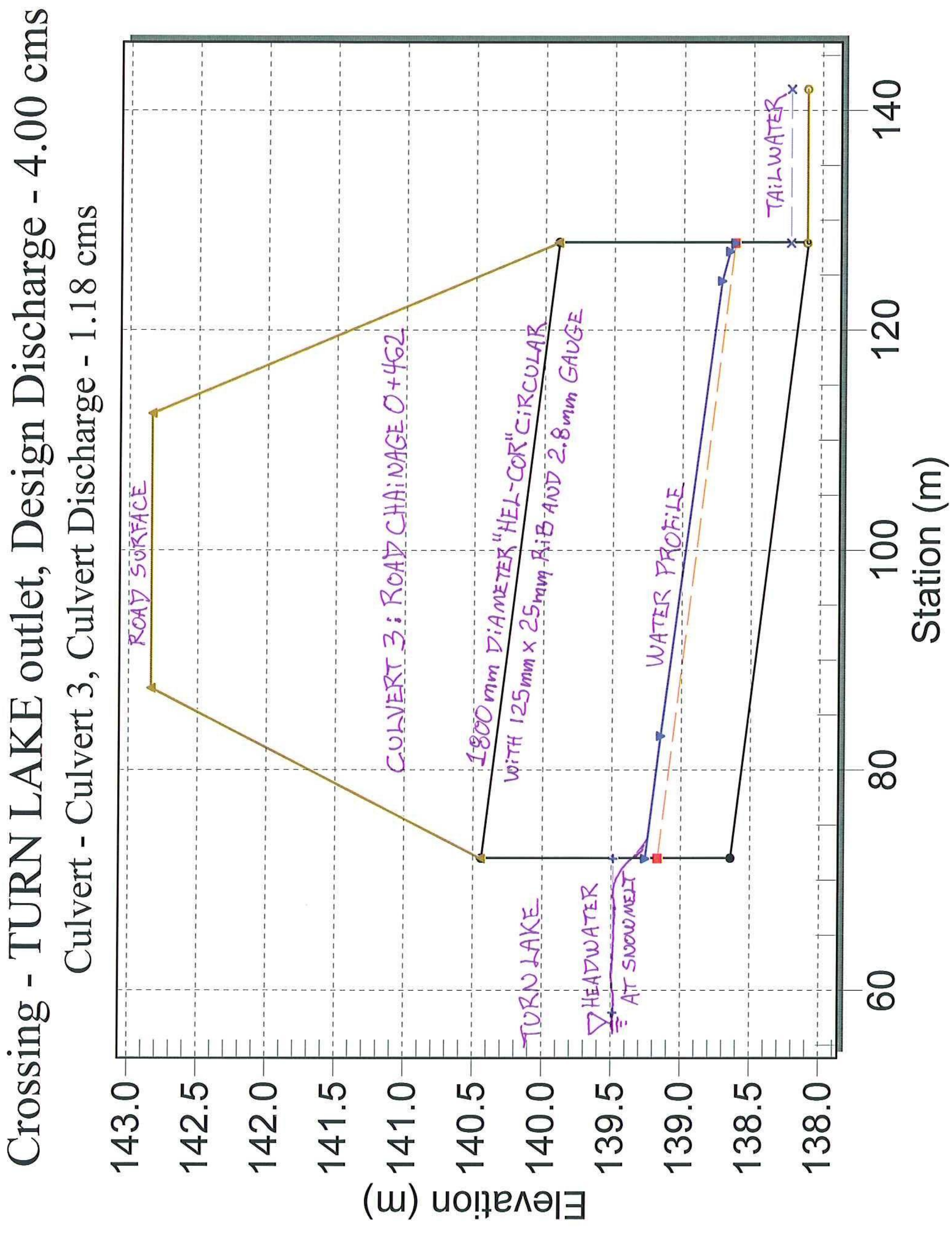
The software used is the HY-8 Culvert Hydraulic Analysis Program (HY-8 7.2) which was designed by the Office of Bridge Technology, from the Federal Highway Administration of the U.S. Department of Transportation.

The simulation results shown hereunder indicate the maximum elevation level that may be expected for Turn Lake during the snowmelt period, following the implementation of the proposed stream crossing.

In short, this simulation indicates that the increase in headwater elevation would be limited to about 0.30 m (139.50 m versus summer level of 139.20 m). This is comparable with natural seasonal variations in lake elevation that may be expected in undisturbed flow conditions, prior to the road construction.


Crossing - TURN LAKE outlet, Design Discharge - 4.00 cms
Culvert - Culvert 1, Culvert Discharge - 1.18 cms
ROAD SURFACE
CULVERT 1 : ROAD CHAINAGE 0+450
1800 mm DIAMETER "HEL-COR" CIRCULAR
WITH 125mm x 25mm RIB AND 2.8mm GAUGE
WATER PROFILE
TAILWATER
TURN LAKE
HEADWATER
AT SNOWMELT
Elevation (m)
Station (m)
143.0
142.5
142.0
141.5
141.0
140.5
140.0
139.5
139.0
138.5
138.0
60
80
100
120
140


Crossing - TURN LAKE outlet, Design Discharge - 4.00 cms
Culvert - Culvert 2, Culvert Discharge - 1.64 cms
Elevation (m)
143
142
141
140
139
138
Station (m)
60
80
100
120
140
ROAD SURFACE
CULVERT 2: ROAD CHAINAGE 0+456
1800mm DIAMETER "HEL-COR" CIRCULAR
WITH 125mm x 25mm RIB AND 2.8mm GAUGE
WATER PROFILE
TURN LAKE
HEADWATER AT SNOWMELT
TAILWATER


Crossing - TURN LAKE outlet, Design Discharge - 4.00 cms
Culvert - Culvert 3, Culvert Discharge - 1.18 cms
Elevation (m)
Station (m)
143.0
142.5
142.0
141.5
141.0
140.5
140.0
139.5
139.0
138.5
138.0
60
80
100
120
140
ROAD SURFACE
CULVERT 3: ROAD CHAINAGE 0+462
1800 mm DIAMETER "HEL-COR" CIRCULAR
WITH 125mm x 25mm RIB AND 2.8mm GAUGE
WATER PROFILE
TURN LAKE
HEADWATER
AT SNOWMELT
TAILWATER

4. SIMULATION MODEL : RUNOFF VOLUMES DURING HEAVY RAINFALL

a. Method used for determination of flow lamination factor

When the water retention zones (e.g. water surfaces) are uniformly spread onto the hydrologic basin, the laminating coefficient that applies to the reduction of peak flow at the lake outlet may be defined as a function of the ratio of wetland surface area to the total area of the basin.

Given that this wetland surface ratio was measured to be 16 % in Section 1-a, the coefficient for peak flow reduction is considered to be 0.62 for this basin. In other words, the area of Turn Lake buffers any peak flows at its outlet.

Source : ***Figure 3.6*** of Page 3A-17 — *Manuel de conception des ponceaux*
Service de l'hydraulique, édition 1995
Ministère des Transports du Québec
ISBN 2-550-28765-7

b. Laminated peak flow at Turn Lake outlet, based on a 25 year recurrence

Considering a concentration time of 488 minutes, as defined in Section 2-d, the interpolation of rainfall intensity for a 25 year return gives 3.6 mm/h.

25 YEAR RETURN PERIOD

t (min)	I_{25} (mm/h)
5	50.0
10	37.3
15	26.7
30	18.3
60	12.3
120	7.4
360	4.1
488	3.6
720	2.8
1440	2.0

The base flow from the basin for 3.6 mm/h is calculated to be 16.1 cubic metres per second.

Q = 2384 ha x 0.675 x 3.6 mm/h x 0.00275

The laminated flow at the lake outlet is reduced to 10 cubic metres per second

c. Laminated peak flow at Turn Lake outlet, based on a 100 year recurrence

Considering a concentration time of 488 minutes, as defined in Section 2-d, the interpolation of rainfall intensity for a 100 year return gives 4.8 mm/h.

100 YEAR RETURN PERIOD

t (min)	I_{100} (mm/h)
5	60.3
10	43.7
15	35.0
30	22.3
60	15.0
120	9.4
360	5.4
488	4.8
720	3.7
1440	2.3

The base flow from the basin for 4.8 mm/h is calculated to be 21.5 cubic metres per second.

Q = 2384 ha x 0.675 x 4.8 mm/h x 0.00275

The laminated flow at the lake outlet is reduced to 13 cubic metres per second

5. ROAD DESIGN PARAMETERS

a. Road crest width

The width of the road has been set to 25.0 meters, as per requirements for hauling with mining trucks that have been defined by the Mining Engineering Department of Agnico-Eagle Mines.

b. Installation of wheel stoppers on road shoulders

The geometry of installation of wheel stoppers on road shoulders have been defined according to safety requirements from the Mining Act. Generally, such wheel stoppers are not recommended, as they enhance the formation of potholes on the road surface, due to accumulation of surface water runoff.

c. Recommended slope angles

The recommendation for slope angles is shown on the construction drawings.

6. CULVERT DESIGN PARAMETERS

a. Minimum granular cover thickness

A minimum of 1.2 m of suitable granular cover is required over the culverts.

b. Recommendations for purchasing of culverts

HEL-COR Lock Corrugated Round Steel Pipe with these specifications :

1800 mm diameter with sufficient length for rip-rap at extremities
Either choice of Galvanized Steel or Aluminized Steel Type 2 finish
125 mm x 25 mm Corrugation and a minimum of 2.8 mm thickness

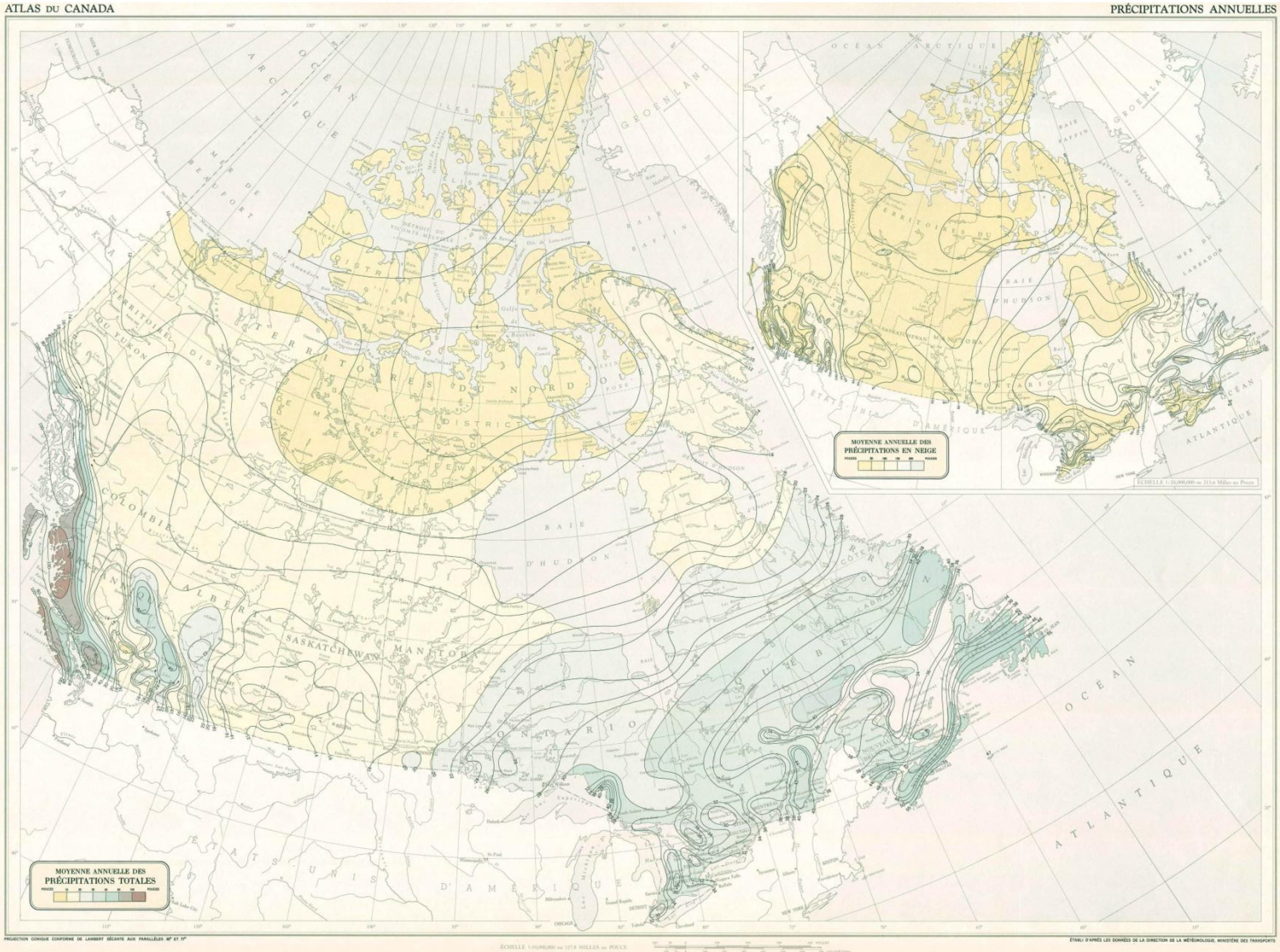
c. Culvert installation slopes and invert elevations

As indicated on drawings VD2415-01-C103 and VD2415-01-C104.

APPENDIX 1

MAP issued by Environment Canada

AVERAGE ANNUAL PRECIPITATION AND SNOWFALL



PROJECTION CONIQUE CONFORME DE LAMBERT SÉCANTE AUX PARALLÈLES 49° ET 77°

ÉCHELLE 1:10,000,000 ou 157,8 MILLES au POUCE

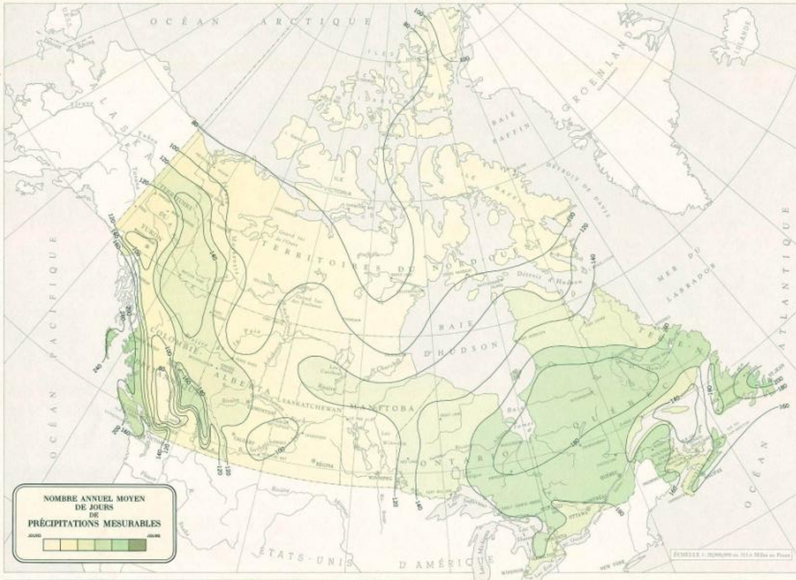
ÉTABLI D'APRÈS LES DONNÉES DE LA DIRECTION DE LA MÉTÉOROLOGIE, MINISTÈRE DES TRANSPORTS

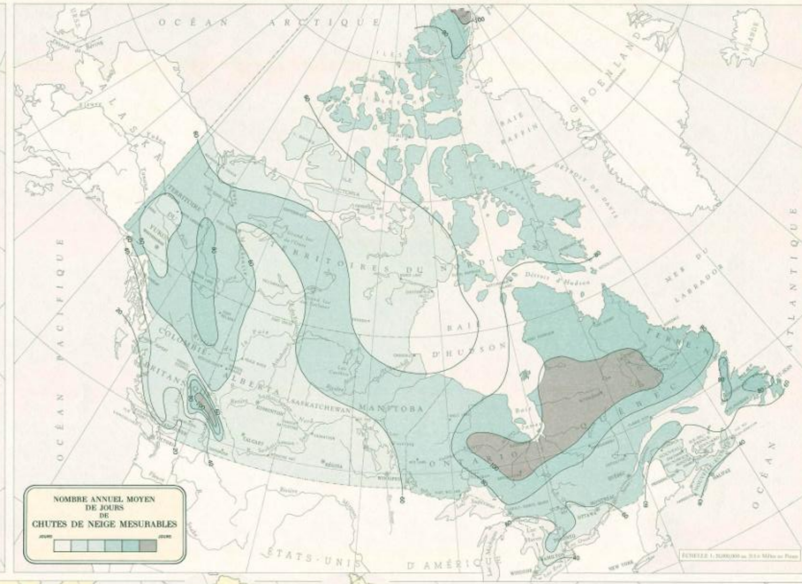
APPENDIX 2

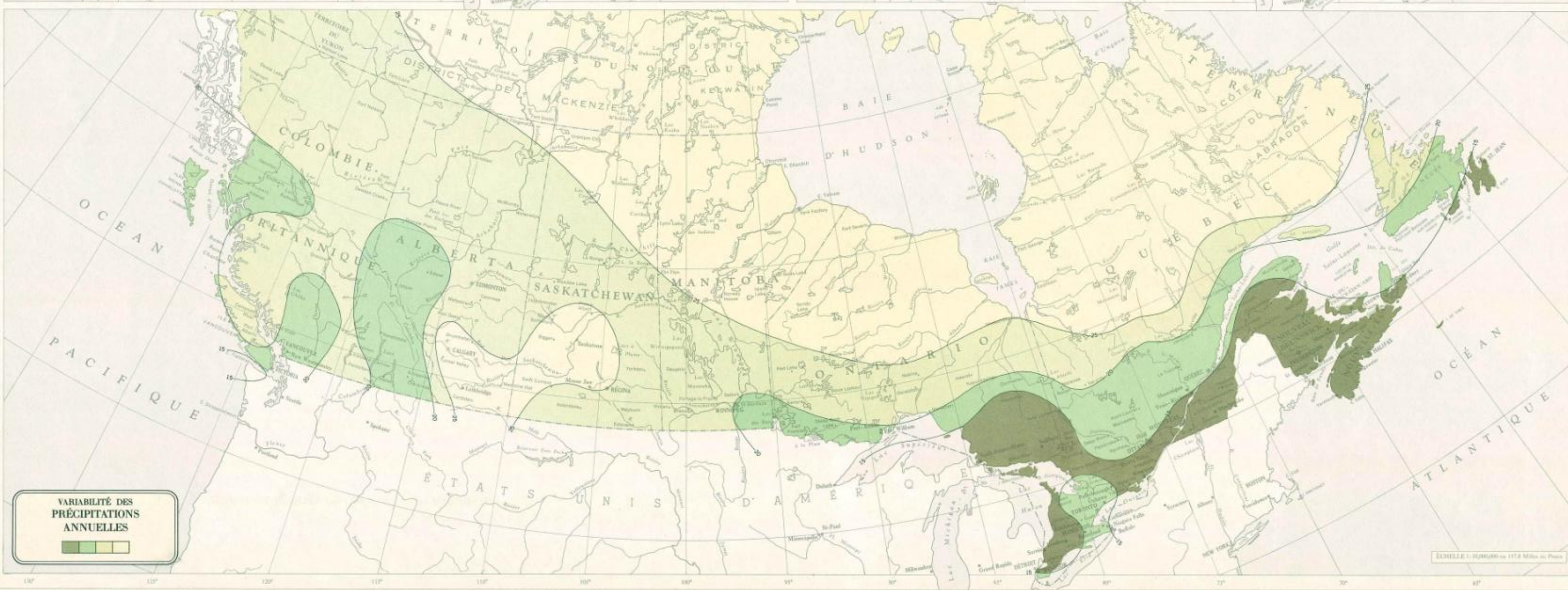
MAP issued by Environment Canada

VARIATIONS IN SEASONAL PRECIPITATION

JOURS DE PRÉCIPITATIONS ET VARIABILITÉ DES PRÉCIPITATIONS







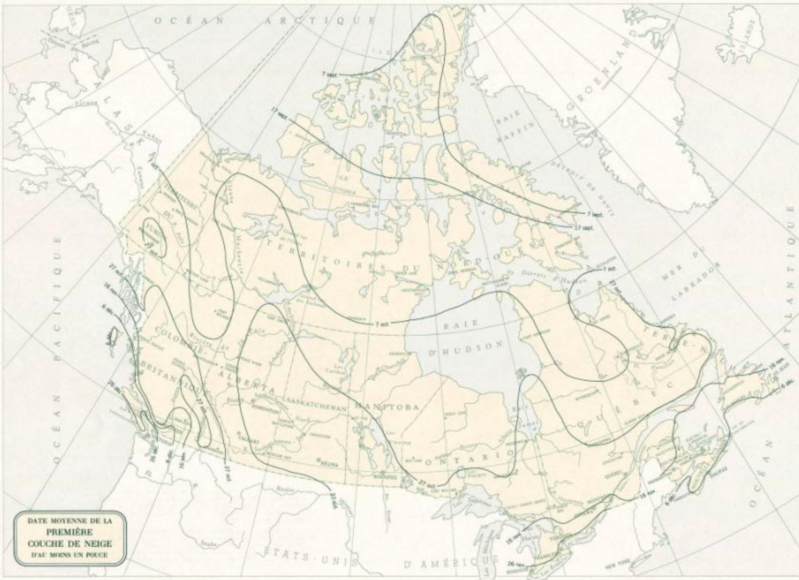
PROJECTION CONIQUE CONFORME DE LAMBERT SÉCANTE AUX PARALLÈLES 49° ET 77°

ÉTABLI D'APRÈS LES DONNÉES DE LA DIRECTION DE LA MÉTÉOROLOGIE, MINISTÈRE DES TRANSPORTS

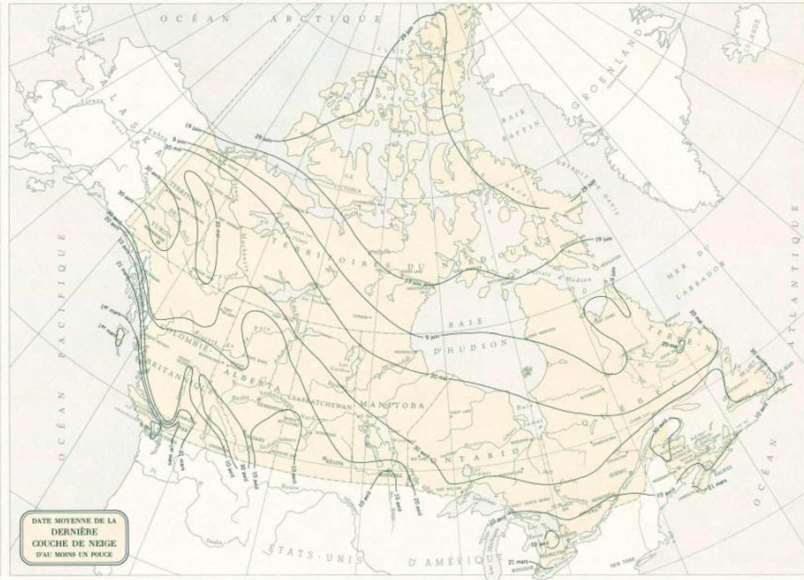
APPENDIX 3

MAP issued by Environment Canada

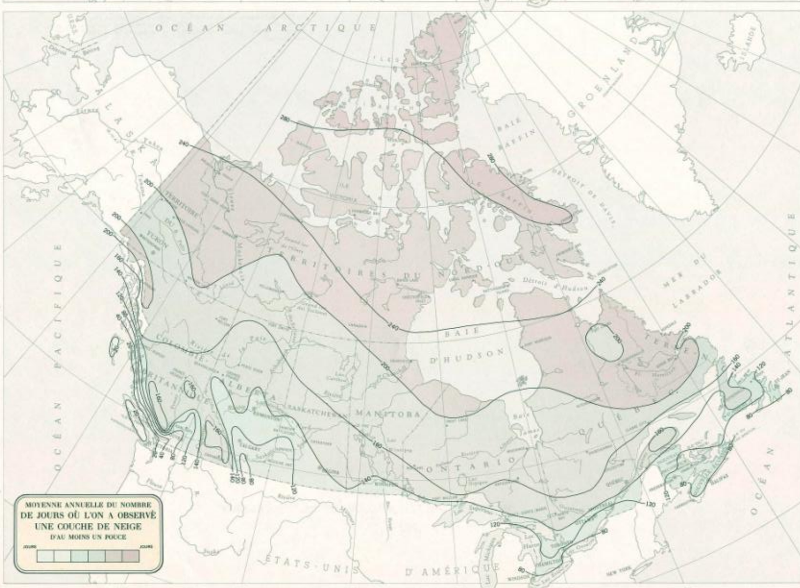
AVERAGE ANNUAL SNOW COVER



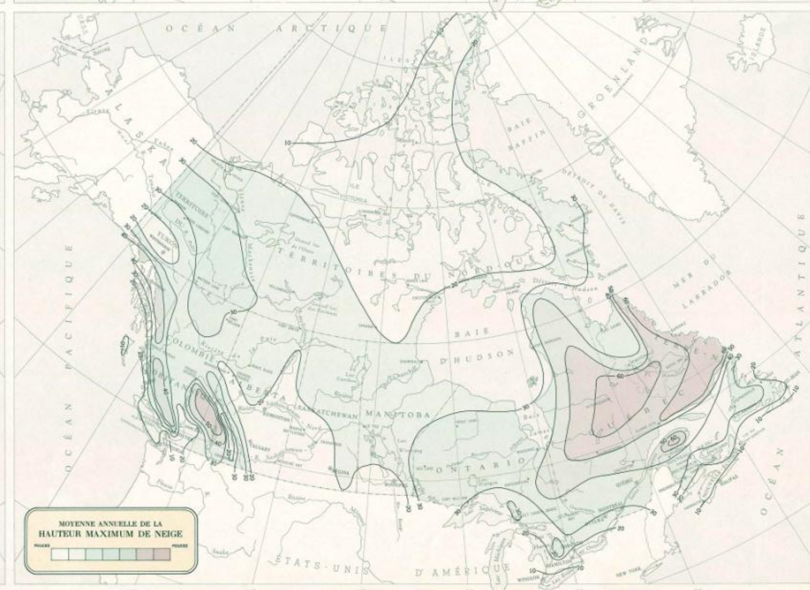
DATE MOYENNE DE LA PREMIÈRE COUCHE DE NEIGE D'AU MOINS UN POUCE



DATE MOYENNE DE LA DERNIÈRE COUCHE DE NEIGE D'AU MOINS UN POUCE



MOYENNE ANNUELLE DU NOMBRE DE JOURS OÙ L'ON A OBSERVÉ UNE COUCHE DE NEIGE D'AU MOINS UN POUCE



MOYENNE ANNUELLE DE LA HAUTEUR MAXIMUM DE NEIGE

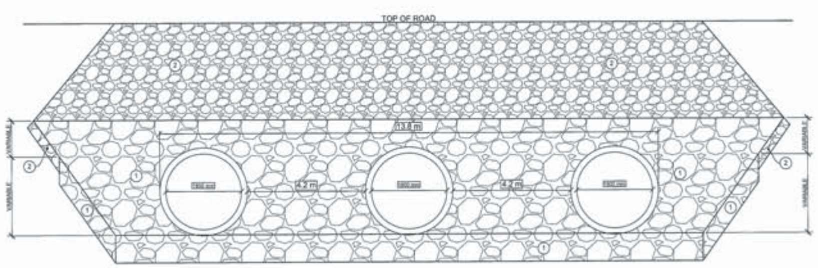
PROJECTION CONIQUE CONFORME DE LAMBERT SÉCANTE AUX PARALLÈLES 49° ET 77°

ÉCHELLE 1:20,000,000 ou 315.6 MILLES au POUCE

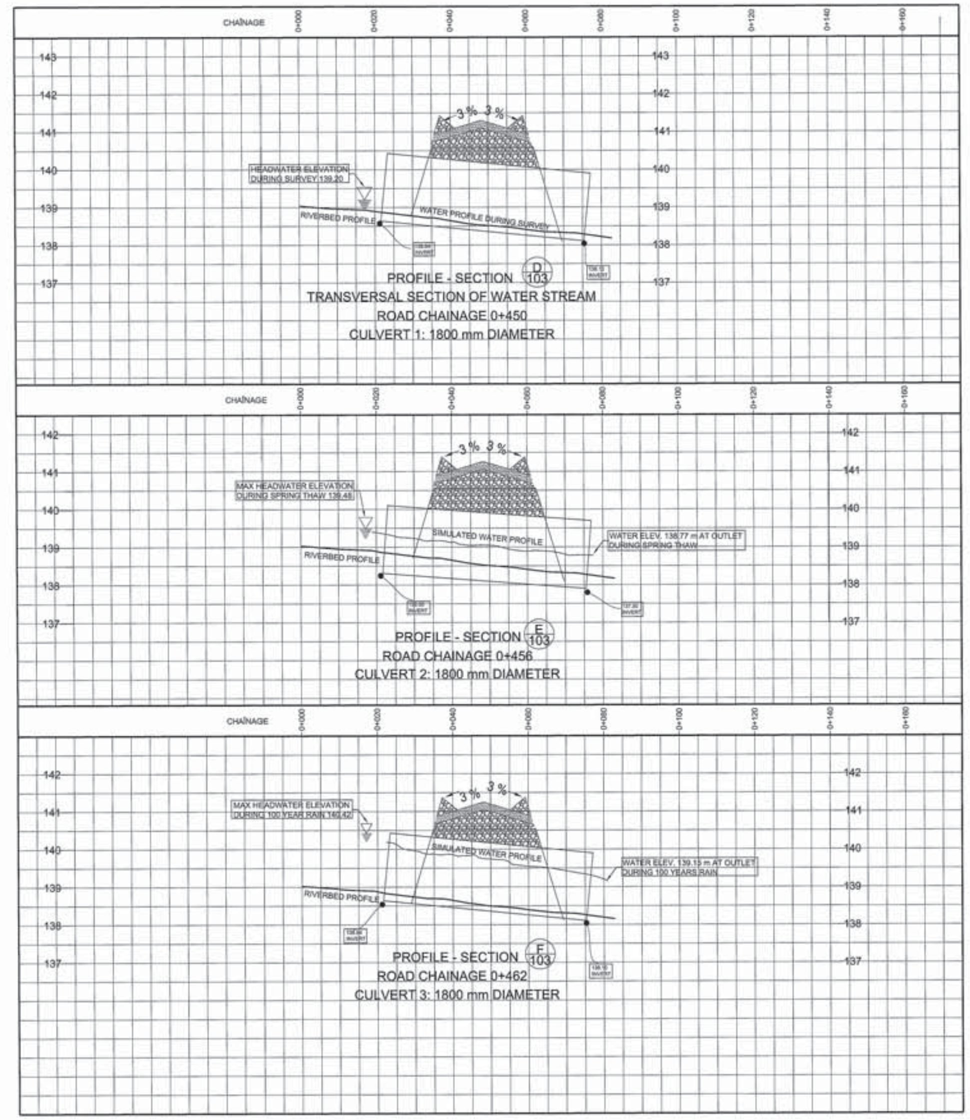
ÉTABLI D'APRÈS LES DONNÉES DE LA DIVISION DE LA MÉTÉOROLOGIE, MINISTÈRE DES TRANSPORTS.

DESCRIPTION

1. BLASTED ROCK: 300-500 mm SIZE RANGE AND NON ACID-GENERATING WITH 800 mm THICK LAYER ON TOE OF SLOPE
2. BLASTED ROCK: 100-200 mm SIZE RANGE AND NON ACID-GENERATING WITH 400 mm THICK LAYER ON CREST OF SLOPE



RIP-RAP DETAIL AT BOTH ENDS
NOT TO SCALE



PROFILE - SECTION D/103
TRANSVERSAL SECTION OF WATER STREAM
ROAD CHAINAGE 0+450
CULVERT 1: 1800 mm DIAMETER

PROFILE - SECTION E/103
ROAD CHAINAGE 0+456
CULVERT 2: 1800 mm DIAMETER

PROFILE - SECTION F/103
ROAD CHAINAGE 0+462
CULVERT 3: 1800 mm DIAMETER

FOR CONSTRUCTION
STAVIBEL 2009-11-27

AGNICO-EAGLE
MEADOWBANK DIVISION

No	Date	Révisions				
1	20091127	FOR CONSTRUCTION	N.P.	P.G.	P.G.	J.B.
0	20091026	FOR COORDINATION	J.L.	P.G.		-

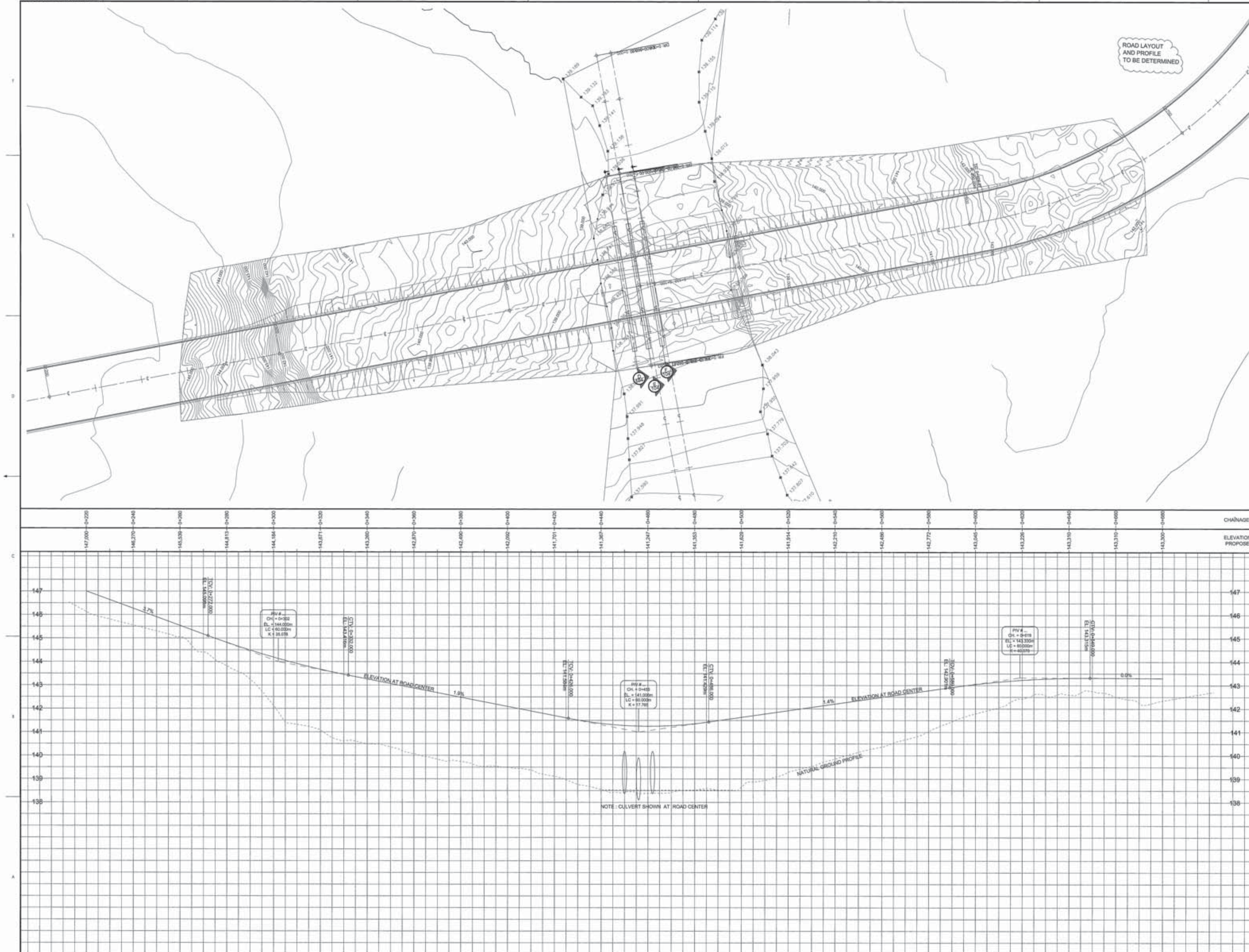
2009-11-27

Stavibel inc.
Val-d'Or

MEADOWBANK GOLD PROJECT
ROAD TO VAULT DEPOSIT
STREAM CROSSING AT LAKE OUTLET
TURN LAKE

Civil - Culvert design
As per preliminary road layout
Longitudinal section of water stream
ROAD LAYOUT OPTION 3-B

Dessiné par : Nancy Perreault dess.	Date orig. : 27 NOVEMBRE 2009
Conçu par : Patrick Giard, P. Eng.	Chargé de projet : André Levesque, Eng.
Vérifié par : Patrick Giard, P. Eng.	Projet n° : VD2415-001
Approuvé par : Julie Bélanger, Ing.	Référence : -
Échelle : 1:500	Dessin n° : VD2415-01-C104 — Rév. n° : 1



AGNICO-EAGLE
MEADOWBANK DIVISION

FOR CONSTRUCTION
STAVIBEL 2009-11-27

1		FOR CONSTRUCTION	N.P.	P.G.	P.G.	J.B.
0		FOR COORDINATION	J.L.	P.G.		

2009-11-27

STAVIBEL
Stavibel Inc.
Val-d'Or

MEADOWBANK GOLD PROJECT
ROAD TO VAULT DEPOSIT
STREAM CROSSING AT LAKE OUTLET
TURN LAKE

Civil - Culvert design

Transversal section of water stream

ROAD LAYOUT OPTION 3B

Nancy Perreault dess.	27 NOVEMBRE 2009
Patrick Giard, P. Eng.	André Levesque, Eng.
Patrick Giard, P. Eng.	VD2415-001
Julie Bélanger, ing.	
1:800	VD2415-01-C103 — 1