

**Fax**Ministry of    Ministère des  
Transportation TransportsPlanning & Design, Eastern Region, Postal Bag 4000,  
355 Counter St., Kingston, ON, K7L 5A3**FAX COVER SHEET****DATE:** February 24, 2000**TO:****Name:** Tony Sangiuliano**Organization:** Foundations**Fax Phone:** 416-235-5240**Subject:** Highway 417 McCormick Rankin Assignment**FROM:****Name:** Louis Tay, P.Eng.**Telephone:** (613) 545-4723**Fax. Phone:** (613) 540-5106**Number of Pages:** 3 **(Including Cover Sheet)****REMARKS:** Hi Tony,

Attached is the revised Foundations cost estimate for W.P. 128-92-00 and 452-90-00. Please review these costs and reply with your comments. I understand that you have had discussions directly with Golder to assist them in developing this estimate.

Thanks,

Louis

**\*\* IF THE TRANSMISSION IS NOT RECEIVED CORRECTLY, PLEASE CONTACT THE SENDER AS SOON AS POSSIBLE.**



## FACSIMILE TRANSMISSION

TO: MTO Planning and Design

ATTENTION: Louis Tay, P.Eng. Project Engineer

No of sheets transmitted: 2 including this sheet.

MAIL: YES NO ☒

FROM: Manny Goetz

DATE: February 24, 2000

W.O. NO. 4209-00

Highway 417 - Hwy. 17 to  
PROJECT: RR22

### Message:

Louis,

Find attached the financial proposal for the foundations work. This proposal is the result of extensive discussions between MTO Foundations and Golder Associates.

We trust that this proposal now meets the requirements of the Ministry. We will submit the full proposal upon acceptance of the Financial Proposal.

We are expecting the Geotechnical Proposal this morning. We will forward the Proposal as soon as we receive it.

Please do not hesitate to call to discuss the attached if required.

Yours very truly,  
McCormick Rankin Corporation

  
Manny Goetz, P.Eng.  
Project Manager

**McCORMICK  
RANKIN  
CORPORATION**

**FAX NO: 1-613-540-5106**

CONSULTANTS IN TRANSPORTATION

1145 Hunt Club Road, Suite 300, Ottawa, Ontario, Canada K1V 0Y3  
Tel: (613) 736-7200 Fax: (613) 736-8710 E-mail: mrc-ott@mrc.ca

## AGREEMENT NUMBER 4005-A-000092

TABLE 1 (2<sup>nd</sup> Revision)

## FINANCIAL PROPOSAL

## LANARK ROAD 29, ROC ROADS 20 AND 22

Location	Description	Cost
Lanark Road 29	Field work, including Drill Rig Rental	\$24,100
	Surveying	1,000
	Laboratory Testing	3,500
	Engineering	16,000
	Subtotal	\$44,600
ROC Road 22	Field Work, including Drill Rig Rental	\$72,500
	Surveying	1,000
	Laboratory Testing	6,500
	Engineering	56,000
	Subtotal	\$136,000
ROC Road 20	Field Work, including Drill Rig Rental	\$48,200
	Surveying	1,000
	Laboratory Testing	5,500
	Engineering	34,000
	Subtotal	\$88,700
	TOTAL	\$269,300*

\* We recommend that a contingency allowance of 10 percent be carried out on the project. This contingency allowance is to be used only with the prior approval by MTO.

FEB. 23. 2000

3:35PM

GOLDER ASSOC

NO. 886 P. 1

FEB 23 '00 03:35PM

**TELECOPIER TRANSMISSION**

TELEFAX NUMBER: (613) 224-9928

**Golder Associates Ltd.**

1796 Courtwood Crescent  
Ottawa, Ontario, Canada K2C 2B5  
Telephone (613) 224-5864  
Fax (613) 224-9928

TO: MTOFROM: G. WEBBATT: D. DUNDASDATE: FEB 23/00 TIME: \_\_\_\_\_T. SANGIULIANO

REFERENCE No.: \_\_\_\_\_

CC: F. HEFFERNAN

TOTAL NUMBER OF PAGES \_\_\_\_\_

DESTINATION FAX No.: \_\_\_\_\_

(INCLUDING COVER PAGE): \_\_\_\_\_

SUBJECT: HWY 417 BRIDGES WEST OF OTTAWA

ATTACHED IS THE COST BREAKDOWN FOR  
BOTH FIELD WORK AND OFFICE ENGINEERING  
FOR ROC RD 22.

FIN. HEFFERNAN WILL CALL TO DISCUSS.

ORIGINAL TO BE SENT: YES \_\_\_\_\_ NO \_\_\_\_\_ BY: MAIL \_\_\_\_\_ COURIER \_\_\_\_\_

## AGREEMENT NUMBER 4005-A-000092

2) Office Engineering

## Project Engineering (G. Collins)

## Monitoring Field Work

- 16 days at 4 hrs/day x \$100/hr = \$ 6,400

1600

## Attendance at meetings in Kingston for 3 structures

- 50 percent of 4 days at \$800/day \$ 1,600

1600

Design and reporting - 120hrs at \$100/hr

\$12,000

12000

\$20,000

\$15,200

## Project Manager (G.S. Webb)

## Field Work Review

- 16 days at 1 hr/day x \$140/hr \$ 2,400

1200

## Attendance at meetings in Kingston for 3 structures

- 50 percent of 4 days at \$1,200/day \$ 2,400

2400

Design and Reporting - 50 hrs at \$150/hr

\$ 7,500

7000

\$12,300

\$10,600

## Consultants

(M.S. Devata and D.E. Becker)

60 hrs at \$150/hr \$ 9,000

## Designated MTO Contact

(F.J. Heffernan)

Liaison with MTO, review, etc. - 30 hrs at \$150/hr \$ 4,500

4,500

\$13,500

4,500

Total Engineering \$45,800

## Drafting

13 B.H. Logs + Figures + Plan - 13 days

13 days x 7.5 x \$80/hr \$ 7,800

Report Preparation and Expenses \$ 2,000

9,800

Total \$ 9,800

Office Engineering Subtotal \$55,600

40,100

COST BREAKDOWN FOR ROC 22

1) Field Work

Drilling Time

Structures - 5 deep boreholes to 53 metres

Estimated Productivity - 0 - 10 m @ 2.44/hr  
 10 - 30 m @ 1.77/hr  
 30 - 53 m @ 1.07/hr

Rig Time  $\frac{5 \times 10 \text{ m}}{2.4 \text{ m/hr}} = 20.8 \text{ hours}$

+  $\frac{5 \times (30 - 10 \text{ m})}{1.7 \text{ m/hr}} = 58.8 \text{ hours}$

+  $\frac{5 \times (53 - 30 \text{ m})}{1.0 \text{ m/hr}} = 115 \text{ hours}$

194.6 hours (20 days)

15d

Embankments - 88 m to 230 m

Rig Time  $\frac{8 \times 10 \text{ m}}{2.4 \text{ m/hr}} = 33.7 \text{ hours}$

$\frac{150 \text{ m}}{1.7 \text{ m/hr}} = 88.2 \text{ hours}$

121.9 hours (12 days)

10 d

Rig Rental & Technician = \$200/hr

Field Rental Costs (194.6 hrs + 121.9 hrs) x \$200/hr = \$63,300

+ mobilization = \$ 1,000

+ supplies at \$10/m = \$ 4,950

+ technician travel/expenses 32 days at \$100/day \$ 3,200

Field Work Subtotal \$72,450

250 hrs x 200 = 50000

1000

4950

2500

58450

32 d

25d

250h

# COST BREAKDOWN FOR ROC 22

## 1) Field Work

### Drilling Time

Structures - 5 deep boreholes to 53 metres

Estimated Productivity - 0 - 10 m @ 2.44/hr  
 10 - 30 m @ 1.77/hr  
 30 - 53 m @ 1.07/hr

Rig Time  $\frac{5 \times 10 \text{ m}}{2.4 \text{ m/hr}} = 20.8 \text{ hours}$   
 +  $\frac{5 \times (30 - 10 \text{ m})}{1.7 \text{ m/hr}} = 58.8 \text{ hours}$   
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 194.6 hours

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 $\frac{150 \text{ m}}{1.7 \text{ m/hr}} = 88.2 \text{ hours}$   
 121.9 hours

Rig Rental & Technician = \$200/hr

Field Rental Costs (194.6 hrs + 121.9 hrs) x \$200/hr = \$63,300  
 + mobilization = \$ 1,000  
 + supplies at \$10/m = \$ 4,950  
 + technician travel/expenses 32 days at \$100/day \$ 3,200

Field Work Subtotal \$72,450

## AGREEMENT NUMBER 4005-A-000092

2) Office Engineering

Project Engineering (G. Collins)

Monitoring Field Work

- 16 days at 4 hrs/day x \$100/hr = \$ 6,400

Attendance at meetings in Kingston for 3 structures

- 50 percent of 4 days at \$800/day \$ 1,600

Design and reporting - 120hrs at \$100/hr \$12,000

\$20,000

Project Manager (G.S. Webb)

Field Work Review

- 16 days at 1 hr/day x \$140/hr \$ 2,400

Attendance at meetings in Kingston for 3 structures

- 50 percent of 4 days at \$1,200/day \$ 2,400

Design and Reporting - 50 hrs at \$150/hr \$ 7,500

\$12,300

Consultants

(M.S. Devata and D.E. Becker)

60 hrs at \$150/hr \$ 9,000

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(F.J. Heffernan)

Liaison with MTO, review, etc. - 30 hrs at \$150/hr \$ 4,500

\$13,500

Total Engineering \$45,800

Drafting

13 B.H. Logs + Figures + Plan - 13 days

13 days x 7.5 x \$80/hr \$ 7,800

Report Preparation and Expenses \$ 2,000

Total \$ 9,800

Office Engineering Subtotal \$55,600



Location	Description	Cost	
		Golder	MTO
Lanark Rd 29	Fieldwork	24,100	(10dx\$130/hrx10)+5000=18000 + 50x10x10 =23,000
	Surveying	1,000	1,000
	Lab	3500	3,500
	Engineeing	16,000	16,000
	<b>Subtotal</b>	<b>44,600</b>	<b>43,000</b>
ROC Rd 22	Fieldwork	72,450	77,500 (25dx\$130/hrx10hr/d)+10000 = 42,500+250x50=55000
	Surveying		1000 1,000
	Lab		6500 6,500
	Engineeing	55,600	59000 - \$40,000
	<b>Subtotal</b>	<b>144,000</b>	<b>102,500</b>
ROC Rd 20	Fieldwork	48200	(20dx\$130/hrx10hr/d)+7500 = 33,500+200x\$50=43,500
	Surveying	1000	1,000
	Lab	5500	5500
	Engineeing	34000	34,000
	<b>Subtotal</b>	<b>88700</b>	<b>84,000</b>
<b>TOTAL</b>		<b>\$277,300</b>	<b>\$229,500</b>

**Sangiuliano, Tony (MTO)**

**To:** Tay, Louis (MTO); Sutton, Robert (MTO)  
**Cc:** Dundas, Dave (MTO); Kazmierowski, Tom (MTO)  
**Subject:** Golder Proposal For Foundation Investigation and Design - Hwy 417 (ROC 20, ROC 22 and Lanark Rd 29)

Further to our meeting in Kingston regarding the above mentioned proposal, we have discussed our concerns directly with Golder Associates' Fin Heffernan. Golder Associates have agreed to address our concerns and resubmit their proposal. Concerns discussed included:

1. Clarify that at all sites, one borehole only will be advanced at each structure foundation location where deep foundation units are expected.
2. Reduce the number of boreholes at the approach embankment locations. Presently, several boreholes have been identified at the approaches including boreholes at the toes. In addition, fifty(50) metre deep boreholes have been proposed which are considered excessive.
3. Confirm that the proposal includes engineering services for the **detailed** foundation design of the embankments. We are looking for the Consultant to be included throughout the design and also in the preparation of the contract documents. We don't want the service to stop following the presentation of the options.
4. Delete risk assessment analyses to determine the relative rankings of each alternative.

Location	Description	Cost	
		Golder	MTO
Lanark Rd 29	Fieldwork	24,100 (10dx\$130/hrx10)+5000=18000 + 50x10x10 =23,000	
	Surveying	1,000	1,000
	Lab	3500	3,500
	Engineeing	16,000	16,000
	<b>Subtotal</b>	<b>44,600</b>	<b>43,000</b>
ROC Rd 22	Fieldwork	77,500 (25dx\$130/hrx10hr/d)+10000 = 42,500+250x50=55000	
	Surveying	1000	1,000
	Lab	6500	6,500
	Engineeing	59000	\$40,000
	<b>Subtotal</b>	<b>144,000</b>	<b>102,500</b>
ROC Rd 20	Fieldwork	48200 (20dx\$130/hrx10hr/d)+7500 = 33,500+200x\$50=43,500	
	Surveying	1000	1,000
	Lab	5500	5500
	Engineeing	34000	34,000
	<b>Subtotal</b>	<b>88700</b>	<b>84,000</b>
<b>TOTAL</b>		<b>\$277,300</b>	<b>\$229,500</b>

# MEMORANDUM



To: L. Tay, P. Eng.  
Project Engineer  
Planning and Design, Eastern Region

24 January 2000

From: Pavements and Foundations Section  
Room 315, Central Bldg.

Tel: (416) 235-5267  
Fax: (416) 235-5240

Re: Review of Proposal - Foundation Investigations  
Hwy 417 Bridge East of Armprior  
WP 452-90-00

We have completed a review of Golder's proposal to conduct foundation investigation at the three sites discussed below as described in their Facsimile Transmission dated January 21, 1999. Our review comments are summarized below.

## Hwy 417 at Hwy 15

1. For the 147 m and a budget of \$44,100, the unit cost per metre is \$300.00. This unit rate is reasonable.
2. Are shallow foundations a feasible option at the site or are deep foundations applicable? For deep foundations, only one(1) borehole is needed at each structure foundation location. Consequently, only three(3) structure foundation boreholes are needed rather than six(6).
3. Four(4) boreholes have been proposed at the south approach and two(2) at the north approach. Our terms of reference require only one(1) borehole at each approach. However, for sites where the subsurface conditions are comprised softer cohesive soils, two(2) boreholes at each approach would be acceptable.

## Hwy 417 at Regional Road 22

1. It is expected that deep foundation units will be required at the site. Consequently, a total of five(5) boreholes will be required – one at each structure foundation location.
2. Eight(8) boreholes have been proposed at the approaches. We feel that eight(8) boreholes are excessive. Two boreholes at each approach are considered sufficient.
3. Piezocone holes at the site are not recommended.

Hwy 417 at Regional Road 20

1. It is expected that deep foundation units will be required at the site. Consequently, a total of five(5) boreholes will be required – one at each structure foundation location.
2. Eight(8) boreholes have been proposed at the approaches. We feel that eight(8) boreholes are excessive. Two boreholes at each approach are considered sufficient.
3. Piezocone holes at the site are not recommended.

We recommend that the Consultant be directed to acknowledge and address the comments and resubmit their proposal

We trust these comments are sufficient for your purposes. If you require additional assistance, please do not hesitate to contact our office.

T. Sangiuliano, P. Eng.  
Foundation Engineer

for

D. Dundas, P. Eng.  
Senior Foundation Engineer

cc. T. Kazmierowski

**Fax**Ministry of . Ministère des  
Transportation TransportsPlanning & Design, Eastern Region, Postal Bag 4000,  
355 Counter St., Kingston, ON, K7L 5A3**FAX COVER SHEET****DATE:** January 24, 2000**TO:****Name:** Tony Sangiuliano**Organization:** Foundations**Fax Phone:** 416-235-5240**Subject:** W.P. 452-90-00 Highway 417**FROM:****Name:** Louis Tay, P.Eng.**Telephone:** (613) 545-4723**Fax. Phone:** (613) 540-5106**Number of Pages:** 3 (Including Cover Sheet)**REMARKS:**

Good Morning Tony,

As part of a roster TPM assignment, we have asked McCormick Rankin to provide us with a preliminary estimate for the foundation investigation for the Highway 417 structures at realigned County Road 29 (formerly Highway 15) and Regional Road 22. We also asked them to provide the same for Regional Road 20 in case we had the budget to include it for a future separate design assignment. McCormick Rankin asked Golders to provide this estimate (attached). Our initial review finds that the estimate is surprisingly high. Would you please review it and comment on the appropriateness of the proposed investigation and whether the corresponding price is reasonable.

We are anxious to begin this assignment and will ask McCormick Rankin to seek an estimate from another consultant if a reasonable estimate cannot be agreed upon.

Please call me to discuss your comments. Thanks,

Louis

**\*\* IF THE TRANSMISSION IS NOT RECEIVED CORRECTLY, PLEASE CONTACT THE SENDER AS SOON AS POSSIBLE.**

**GOLDER ASSOCIATES LTD.**  
1796 Courtwood Crescent  
Ottawa, Ontario K2C 2H8

Fax: (613) 224-9928

Tel.: (613) 224-5864

**FACSIMILE TRANSMISSION**

Date Sent: January 21, 2000

Our ref: 641

TO: McCormick Rankin Corp.

FAX NO.: 736-8710

ATTN: A. Wang

FROM: G. Webb

RE: Geotechnical Services, Foundation Investigation and Reports

Highway 417 Bridges East of Amprior

Total number of pages (including this cover page): 2

**MESSAGE:**

Further to our recent meeting this note confirms our interest in providing geotechnical services to your firm on the above project. The following is a very general description of our work plan and order of magnitude (only) budget for foundation investigations at 2 bridges with an option for a third. As discussed we have assumed that the foundations section of MTO will be reviewing the projects; consequently, we have followed their general approach to such investigations.

**Highway 417 at Highway 15**

Two (45 m) span, cast in place post tensioned bridge with 8.5 and 6.5 m high approach embankments on the south and north sides respectively; 19 m wide (4 lane) structure with parched abutments. The site is expected to be underlain by 10 to 14 m of predominantly sensitive silty clay the majority of which is weathered. We propose 6 structure boreholes with coring, 4 for the south approach, and 2 for the north approach, for a total 147 m of drilling. Budget \$44,100.

**Highway 417 at Regional Road 22**

Four span (28, 35, 35, and 28 m) steel girder bridge with approach fills of 8 and 7.5 m on the south and north sides respectively; 2 lane 11 m wide bridge with integral abutments. The site is expected to be underlain by about 50 m of sensitive silty clay of soft to firm consistency. We propose 7 boreholes for the structure, and 8 boreholes and 13 piezocone holes for the approaches for a total of 771 m of drilling and 650 m of piezocone. The budget for this project is \$296,300. If only boreholes were utilized, the budget would be \$426,300.

**Highway 417 at Regional Road 20**

Four span (30, 35, 35, and 30 m) steel girder bridge with approach fills of 6.8 and 6.5 m on the north and south sides respectively; 4 lane structure with integral abutments. The site is expected to be underlain by about 30 m of sensitive silty clay of soft to firm consistency. We propose 7

Q:\PROPOSAL\1001647.3a.doc

ORIGINAL TO BE SENT: YES ☐ NO ☒ BY: MAIL ☐ COURIER ☐

OFFICES IN AUSTRALIA, CANADA, GERMANY, HONG KONG, ITALY, JAPAN, NEW ZEALAND, UNITED KINGDOM, UNITED STATES

44,110

11.2.00

JAN. 24. 2000 11:22AM  
JAN. 24. 2000 10:42AM

MTD PLANNING & DESIG  
MCCORMICK RANNEY

NO. 116 P. 3  
JAN 24 00 11:23AM

Facsimile to:  
MRC

- 2 -

January 21, 2000  
641

boreholes with coring for the structure and 8 boreholes and 11 piezocone holes for the approaches for a total of 471 m of drilling and 330 m of piezocone. The budget for this project is \$174,300. If only boreholes were utilized the budget would be \$231,300.

8 370 /

Goldier Associates

1 47  
771  
471  
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13 89