

PA10.3 Attachment 3

2.1



BOARD MEMORANDUM

TO: Lorne Persiko

FILE NO: 5001-43

FROM: Remy Iamonaco

DATE: April 17, 2014

SUBJECT: **Carpark No. 1 – 20 Charles Street
Proposed – Two Additional Parking Levels
Amendment No. 2 to Consulting Services Contract**

MEETING DATE: April 30, 2014

RECOMMENDATION:

To amend the Consulting Services contract for the proposed two floor addition for Carpark No. 1 at 20 Charles Street to Read Jones Christoffersen Ltd for the amount of \$784,150 plus \$30,000 for Finite Analysis plus \$13,850 for reimbursable amount plus \$80,000 as contingency allowance being a sum total amount of \$908,000 plus HST.

MEETING	MINUTE
Apr 30 / 2014	14-052
Approved.	<i>[Signature]</i>

BACKGROUND:

1. The Phase I of construction for the above-grade four-level Carpark No. 1 at 20 Charles Street East provides 430 parking spaces. This carpark was opened on November 25, 1996 as municipal parking garage.
2. This Phase I parking garage structure is built over a TTC subway structure. To avoid loading the TTC subway structure, the TPA garage was designed using structural steel framing with concrete suspended slab to facilitate spanning over the TTC structure. The caisson foundations and the superstructure were designed with a Phase II future provision to add two additional parking levels over the existing carpark garage.
3. The Board, under Minute No. 93-045, dated March 24, 1993 retained RJC as the Prime Consultant for the consulting services required for Phase I work of building a four-level carpark.
4. The Board under Minute No. 09-032, dated March 25, 2009 retained RJC as the Prime Consultant for the consulting services required for the proposed two additional Parking Levels for the amount of \$630,000.00 plus HST.
5. Subsequent to this approval, TPA has reviewed the condition of the existing components of the parking facility. All of the components are from original construction (approximately 20 years old) and require repairs and/or replacement. Based on this requirement, TPA has requested RJC to revise their original proposal to include repairs and/or replacement of existing components in the final design package. The Board under Minute No. 13-164, dated November 20, 2013 approved the revised consulting services to an amended amount of \$760,000.00 plus HST.

6. Subsequent to this approval, TPA has reviewed the condition and the future needs of the existing Retail Spaces, Building Streetscape and Façade, Stairwell Guards/Handrails, Public Washroom, Emergency Generator, Existing Boilers and all associated components. Similar to the previously identified scope of work, all of the components are from original construction (approximately 20 years old) and require modifications, repairs and/or replacement.
7. RJC's revised proposal for services required, dated April 16, 2014, is herein attached. The summary of their fees is as follows:

			Approved Amount	Revised Amount	% of Total Upset Fee
1	Phase I	a) Data Assembly	\$27,250	\$27,250	4%
		b) Preliminary Design	\$43,600	\$43,600	6%
		c) Site Plan Approval	\$54,500	\$54,500	7%
2	Phase II	a) Detailed Design & Tendering	\$190,750	\$190,750	24%
		b) Renovation of Existing Parking Structure Components	\$99,000	\$99,000	13%
		c) Renovation/Upgrade of Existing Retail Space, Streetscape Design/Facade and All Associated Components	\$0	\$90,650	12%
		d) Renovation/Upgrades to Stairwell Handrails, Customer Service Area, Public Washroom, Emergency Generator and Replacement of Boilers with Electric Heaters	\$0	\$49,500	6%
		e) Building Permit	\$32,700	\$32,700	4%
		f) Tendering and Review Service	\$32,700	\$32,700	4%
3	Phase III	Contract Administration	\$136,250	\$136,250	17%
4	Phase IV	Warranty Period & follow-up service	\$27,250	\$27,250	3%
5	Total Upset Fee		\$644,000	\$784,150	100%
6	Additional fee for Electro-Plastic Finite Element Analysis of TTC structure, if required.		\$30,000	\$30,000	
7	Reimbursable Disbursements		\$11,000	\$13,850	
8	Contingency Allowance		\$75,000	\$80,000	
	TOTAL AMOUNT		\$760,000	\$908,000	

8. At Carpark No. 34 – 25 Dundas Street East (Dundas Square garage), TTC had requested Electro Plastic Finite Element Analysis of TTC structure as a condition for TTC approval. In other words, TTC wanted the analysis to prove that TTC structure would not be affected or move due to the construction of the new parking garage. At Carpark No. 1, TTC had not asked for this analysis and the structure already exists. While we don't anticipate for the TTC to demand this analysis, however, the Consultant has included the amount as a provision and for our information.
9. Noting the approval process involved, RJC anticipates completing the design and tendering by August 2014, with construction starting in October 2014 and completing by Spring 2016.

FINANCIAL BACKGROUND

1	Funds available under 2010 Capital Budget	\$11,000,000	
2	Funds available under 2014 Capital Budget	\$2,000,000	
3	Planned Funds under 2015 Capital Budget	\$1,000,000	
	Total Funds Available		14,000,000
4	RJC Revised Consulting Services		
.1	Fee	\$784,150	
.2	Finite Analysis (if required)	\$30,000	
.3	Disbursements	\$13,850	
	Sub-total	\$828,000	
.4	Contingency	\$80,000	
	TOTAL	\$908,000	(\$908,000)
5	Funds remaining for Construction		\$13,092,000



Remy Iamonaco
Attached:



Read Jones Christoffersen
Consulting Engineers

Suite 500
144 Front Street West
Toronto, ON M5J 2L7
Canada

416 977-5335
Fax 416 977-1427
www.rjc.ca

April 16, 2014

Toronto Parking Authority
33 Queen Street East
Toronto, Ontario M5C 1R5

Attention: Remy Iamoncao

Dear Remy:

RE: Carpark No. 1 Expansion, Renovation Enhancements

RJC No.: TOR.011602.0020

Thank you for considering Read Jones Christoffersen Ltd. (RJC) as your Prime Consultants for the Carpark No. 1 Expansion, Renovation and Enhancement project. Please accept this proposal for additional services from RJC, per your request on April 9, 2014, to include Renovation and Design Enhancements to the project as listed below (** Items chosen by TPA not to be pursued) :

A) Stairwell Guards/Handrails	\$ 17,400	
B) Customer Service Area	\$ 19,350	
C) Public Washroom	\$ 6,500	
D) Fire Pump **	\$ 0	(\$ 16,500 NIC)
E) Water Heater **	\$ 0	(\$ 4,500 NIC)
F) Emergency Generator	\$ 13,000	
G) Boiler Replacement w Electric Heaters	(\$ 6,750)	
H) Retail Areas	\$ 90,650	

Our total fee to complete this work per the attached scope description is \$ 140,150.

We are confident this proposal meets with your requirements. The specific terms and conditions of this proposal are attached with the general terms and conditions the same as those of the base scope work for this project. We look forward to the opportunity to continue our successful partnership with you.

Please feel free to contact me should you require any further details or additional information.

Yours truly,

Read Jones Christoffersen Ltd.

Darren Wint, P. Eng.
Associate

TORONTO PARKING AUTHORITY MUNICIPAL
PARKING GARAGE STRUCTURE CARPARK NO.1
RETAIL RENOVATIONS AND
MISCELLANEOUS RENOVATIONS

Proposal

April 16, 2014

Prepared by:
Read Jones Christoffersen Ltd.
Suite 500, 144 Front Street West
Toronto, ON M5J 2L7
RCJ #: TOR.011602.0020

Please find below our fee proposals for the requested additional services. Please note that these services which you have requested were not listed in our fee proposal of Oct 31, 2013 nor were these services included in our base scope of work for the two level addition project.

The additional services requested by the TPA were for renovations or replacement of the following in the existing building :

- A) Stairwell Guards/Handrails
- B) Customer Service Area
- C) Public Washroom
- D) Fire Pump **
- E) Water Heater **
- F) Emergency Generator
- G) Boiler Replacement w Electric Heaters
- H) Retail Areas

Detailed Design and Tender Documents

1. Prepare designs, specifications and working drawings for approval and construction for these revisions to the project, all of which are to be in both hard copy and electronic formats.
2. Prepare cost estimate exclusive to the additional work.
3. Prepare documents necessary for and obtain the building permit and site plan approval (site plan approval at time rates) as described below during the course of completing the design services of the main project.
4. *As a comparison to this new scope, the following is the list of the previously-approved renovations to the existing building. The design services listed in this fee proposal are exclusive of those mentioned in our previous proposal. The scope of our previous proposal is repeated here for reference only. Per our fee proposal of October 31, 2013, that scope of previously approved renovation work was for an additional \$99,000 and was limited to : i*
 - *Repaint all levels.*
 - *Co-ordinate with TPA design of New Signage and Wayfinding on all levels.*
 - *Replace all public-access doors.*
 - *Remove and replace all expansion joints.*
 - *Replace asphalt/waterproofing on level 5.*
 - *Reseal asphalt and re-line -paint all levels.*
 - *Fix leaks into retail spaces on the ground floor.*
 - *Repair warped/bent screens all levels.*
 - *Upgrade retail kitchen exhaust for all retail units.*

- *Provide new gas lines to each retail unit.*
- *Provide new fire sprinkler valves and new fire hose cabinets all levels.*
- *Replace boilers with high efficiency Boilers.*
- *Replace elevators and renovate building to suit new elevator code requirements.*
- *Replace all light fixtures.*
- *Replace fire alarm system with addressable type.*

The below scope and fees do not include the above items. The below assumes field review will take place during the execution of the main project (two level addition). The below assumes the construction schedule will be based on a single phase of construction work for this work and the two level addition. RJC reserves the right for compensation of additional field review services for staging the construction work over a longer period of time or over additional phasing/stages of construction.

A) Stairwell Renovations (as discussed on site Feb 11):

\$ 17,400 - Total Fee

\$ 10,000 IBI - Arch

\$ 6,400 MCW - Mech Elec Fee

\$ 1,000 RJC - Struct + Co-ord

- Provision of architectural drawings illustrating the replacement of door operators;
- Replacement of the street-facing ground floor window screens of each stair to match the ground floor appearance of the Retail façade's revised window screens;
- On all existing lower levels in each stairwell (and to be extended into new upper levels of same stairwells) design of revised centre wire mesh guards so as to remove portions of the existing (deteriorated/vandalized) stairwell picket guards and infill wire mesh. The existing stainless steel handrail and steel support frame for the existing handrails are to remain as mounted and installed;
- Replace 160kW or approximately \$ 80,000 of electric heaters in the existing stairs and in each existing elevator lobby (all floors).

B) Customer Service Area (As discussed Feb 10 & 11)

\$ 19,350*** - Total Fee

\$ 7,500 IBI Arch Design fee for Interior of Space only

\$ 2,500 IBI Arch Design fee for Millwork ##

\$ 4,200 MCW Mech

\$ 3,400 MCW Elec

\$ 1,750 RJC Struct + Co-ord

- Remove and replace dropped ceilings and partitions to suit "room" layout to be provided by TPA (still pending as of this date);
- Insulation of perimeter walls with existing black wall partitions to remain as built - no revisions to door locations;
- Provide new interior (frameless single glazed) and exterior (framed, double glazed) doors and glass screens;
- Note above separate fee for provision of new millwork drawings for the areas which are currently customer service areas. These drawings would be based on TPA functional plan layout or room to be provided by TPA; TPA may elect to decline this service and resolve detailed millwork design drawings through a cash allowance for this item to be done by the contractor's specialty subcontractor who installs the millwork;
- Existing service room areas adjacent to existing customer service areas are to remain finished as is - no change to interior finishes of those spaces are included in this scope;
- New electrical layout (light fixtures, receptacles etc..) and services to suit revised arch plans;
- New Mechanical Layouts (heaters, ductwork etc..) and services to suit revised arch plans;

C) Public Washroom Renovations (As discussed Feb 11) :

\$ 6,500 - Total Fee

\$ 4,200 IBI Arch

\$ 800 MCW Mech

\$ 500 MCW Elec

\$ 1,000 RJC Struct + Co-ord

- Remove and replace interior fixtures to suit new accessibility standards;
- Refinish Walls and floor;
- Remove and replace portions of walls and door to suit new accessibility standards;
- Provide new electrical and mechanical layouts and services to suit revised interior fixture layout by arch;

D) Replace Fire Pump and ATS (As discussed Feb 10) : **

\$ 16,000 - Total Fee

\$ 10,000 MCW Mech

\$ 4,500 MCW Elec

\$ 1,500 RJC Co-ord

- Remove and replace Existing Fire pump and transfer Switch;
- Replace fire protection devices in service room : Supervised valves; dry valve and related sprinkler/standpipe piping distribution within mech room.
- **** As per our Design Co-ordination Meeting at the TPA's office on April 9, 2014 the TPA have advised RJC that they decline these additional services.**

E) Replace Domestic Water Heater and Pumps (As discussed Feb 10) : **

\$ 4,500 - Total Fee

\$ 2,200 MCW Mech

\$ 1,500 MCW Elec

\$ 800 RJC Co-ord

- Remove and replace Existing Domestic Hot Water Heater in the mech service room;
- Replace Domestic Water Booster Pumps within the mech service room;
- Existing Piping and Domestic Hot Water piping-distribution to remain as installed from existing heater. TPA to confirm preferred extent of system replacement whether or not the new system is to provide hot water to retail or only to TPA service and Washroom areas. RJC recommends TPA consider option to impose on retail tenants provision of their own hot water (with Hot water tank - rental or purchase - in each unit by tenant) so as to clarify individual retail space power consumption costs.
- **** As per our Design Co-ordination Meeting at the TPA's office on April 9, 2014 the TPA have advised RJC that they decline these additional services.**

F) Emergency Generator (As discussed April 9, 2014) :

\$13,000 - Total Fee

\$ 12,000 MCW Elec Design Fee

\$ 1,000 RJC Struct + Co-ord Design Fee (Removal of existing)

- See attached MCW Memo dated April 10, 2014 for a detailed explanation.
- Due to recent changes in Safety Standard association approvals it is not likely that the existing Generator Installation may be allowed to remain in operation (be refueled) after the two level addition.

G) Replace Boilers w Electric Heaters (As discussed Feb 10, 11, March 6 and April 9, 2014)
See attached MCW Memo 003R:

\$ 3,000 - For New Design

(\$ 9,750) Credit for not completing previous redesign in progress

(\$ 6,750) Net Fee Credit

Boiler removal and replacement was requested by the TPA last year to be an additional service. The renovation design work to complete Boiler Removal and Replacement was included in our October 31, 2013 proposal. These additional services were approved by the TPA to be \$ 13,000 within our total fee of \$99,000. At this time this additional design work has been completed to 60%.

During recent discussions with the TPA we have proposed that the existing boilers may be decommissioned and not replaced. See attached memo # 003R MCW dated April 10, 2014. Rather than replace the existing boilers, the TPA may consider the option to provide individual electric heaters instead. Electric Heaters instead of New Boilers would have construction cost savings of approximately:

$\$ 200,000 \text{ (New Boilers)} - \$ 37,500 \text{ (Electric Heaters)} = \$ 162,500 \text{ Savings}$

RJC proposes a design fee of \$ 3,000 to design for New Electric Heaters for all areas where heat is required within the building. Please note, RJC proposes that \$ 3,250 (of the \$ 13,000) spent on design for boiler replacement remains - as paid - compensable and exclusive of the \$ 3,000 fee to design for New Electric Heaters. As such a \$9,750 credit to the \$ 13,000 previously approved additional fee will be applied to this change.

H) Renovation Work to Retail Spaces (As discussed Feb 10, 11, March 6 and April 9, 2014) :

\$ 90,650 Total Fee

Retail Areas - Assume two units on the south side of the building and three units on the north with wall-separations between units in positions as currently installed in the building. For the purpose of our assumed mechanical cooling design, we have assumed that each retail unit shall have cooking appliances similar to those presently installed capable of generating heat loads not to exceed a maximum heating load which we will confirm for you following a subsequent site visit of the retail kitchen areas with you.

The below fees assume field review will take place during the execution of the main project (two level addition) and the construction schedule will be based on a single phase of construction work. All retail units are assumed to be closed and worked on at the same time for each discipline. RJC reserves the right for compensation of additional field review services for staging the construction

work over a longer period of time or over additional phasing/stages of construction. There are many combinations of staging this retail renovation work. As such we are open to renegotiate the below fees if the TPA requires our efforts to be staged over more than one phase of construction.

\$11,500 Electrical Design for All Retail units :

- Assume Power at 50W/Sq. at 600 volts, 3phase with transformers and panels for the interior distribution of power BY THE TENANT.
- Separate meters from the utility.
- Provide empty conduit for Telephone: 1" f C.
- Provide empty conduit for Cable TV: 1" f C.
- Lighting as per RCP to be prepared by IBI-archtitect
- Fire alarm devices as required to meet code based on open space layout.
- Maximum 3 additional site visits

\$15,500 Mechanical System Design for All Retail Units:

- Design for Capped water connection in each space- TPA to advise if a separate check meter is required.
- Provision of new Sanitary service with connection capped below the concrete floor of each space where feasible. Clearances above TTC structure which is below some retail spaces is to be investigated.
- Provision of Gas connection with empty gas pipe lines from each retail space to a location on the south-east corner of the building where there are existing separate meters serving the south retail units. This item is repeated here for scope clarity as discussed March 6, 2014. The design costs for this item were included in the previous (Oct 31, 2013) additional fee.
- Arch-Mech design co-ordination for design of louvers at face of building for provision of louvered space to allow for intake make up air.
- Interior Ductwork for Make-up air unit and kitchen hood shall be by the tenant based on allowances made under the base building kitchen exhaust design.
- Kitchen exhaust shaft to roof with fan equipment at roof level parking. Size of shaft and fans to be determined based on Standard Schedule C type (Standard Leaseholder Agreement Contract). HVAC to consist of D/X cooling with electrical Heating coil.
- These services are provided as shell only, with the tenant responsible for the heating and cooling requirements which exceed the above assumptions. This could be provided by electric heat and/or split A/C system with condensers in the parking area. Additional hot water provisions, and internal electrical distribution that varies from that designed to be by tenant.
- Hot water, kitchen exhaust, make up air, ecology units etc. are all by the tenant.

- Demolition of existing services will be limited to capping or removing existing systems only with a list of equipment based on site audit to be completed with TPA. The General Contractor for the two storey addition is assumed to be responsible for the complete demolition and removal of finishes in each retail space.
- Maximum 3 additional site visits

\$36,650 Architectural Design for all Ground Floor Retail Units :

- Insulate Perimeter walls, ceiling and bulkhead areas on facade above vision glass
- General Layout of internal spaces and finishes - not including millwork for counters and retail specific storage
- Streetscape design of new building envelope façade with double paned insulated glass screens;
- Per TPA request to remove existing angled glass canopies, revised design to accommodate removal of existing glass canopy/awning pending approval of same request to be made by consultant to City's Planning Department.

\$5,000 Planning

- Estimated fee at time rates for Planning services to prepare, submit and negotiate resolution (if possible) of a revised Site Plan Application for a revised façade design of the ground floor of the building. These services are proposed to assist the TPA with a revised SPA to acquire City approval for the (TPA-requested) removal of the existing cantilevered glass awnings and to have the (TPA requested) "blank" space set aside above the new glass of each retail unit for future commercial signage.

\$3,000 Structural Consulting Services

- Review of the Structural Modifications to Existing Base Building which are required to accommodate the above-described Mech, Elec and Arch renovations. This includes structural review of proposed holes in walls & floors for new exhaust systems, structural support of new (roof top Fans etc.) equipment and structural framing support of revised arch finishes and support of new Glazing system.

\$5,000 Cost Consulting

- Preparation of one elemental cost breakdown report of the above-described retail area renovation work based on final design drawings.

\$6,000 Prime Consulting Services - Co-ord of Design Work

- Co-ordination of A-M-E Design Services for all proposed revisions to scope listed here - assuming all of the additional services listed here shall be pursued concurrently including field review and related incremental contract admin work to be added to general contract for the two level addition project.

Qualifications:

1. RJC has anticipated a normal site plan application process and allowed for the following in our time rate estimate of Planning costs :
 - Meeting with city planners to present the schematic designs and receive comments
 - SPA Resubmission
 - Review and incorporation of comments from planning and one re-submission
 - Follow-up to respond to queries from first submission.
2. We have not allowed for multiple SPA submissions, committee of adjustment process or OMB appeals to resolve the TPA's requested revision to the Retail frontage to accommodate new retail signage. If the provision of these time rate services exceeds the estimated fee amount of \$5,000, we will advise the TPA and ask how we should proceed.
3. Tender permit documents for the base scope of work are near complete at the time of the submission of this proposal however they do not include the above listed project design revisions. TPA approval to proceed to complete these design revisions is pending TPA Board approval - planned for April 30 , 2014
4. RJC assumes receipt of approval of additional services from TPA by May 1, 2014. With this approval, RJC's design team propose to complete the design revisions by the end of May 2014 for review by TPA.
5. This revision to project has had an effect on project schedule of approximately 3 months, 2 months of which have already taken place.
6. RJC does not recommend submitting current design drawings to initiate the permit process. This is because not all of the recommended renovation work in the retail areas is addressed on the current drawings. Plans examination by the Building Department may uncover the perceived code violations in the existing retail areas. Discovery of these issues may entail an expectation that these areas be addressed on the permit application (re)submission.



MCW Consultants Ltd.

Memorandum

Date: April 10, 2014

Queen's Quay Terminal
207 Queen's Quay West, Suite 615
Toronto, Ontario M5J 1A7

Phone (416) 598-2920
Fax (416) 598-5394
www.mcw.com

Project Name: Toronto Parking Authority
20 Charles Street East

Client: RJC

To: RJC

Attention: Darren Wint

Fax number:

Distribution:

Project No.: 3588D

Memo No.: 002R

Page No.: 1 of 2

Office: Toronto

From: David Hillyar

The purpose of this memo is to document the proposed changes to the generator and the effect on the design and on the construction costs.

At the time we were awarded the project to complete the two level addition, we had not completed a detailed condition survey of the systems in the building. Now we appreciate the variances which were acceptable at time of original construction but are no longer acceptable to today's more stringent standards.

The existing generator was installed in 1996; the exhaust piping is schedule 40 steel; the fuel tank is a single wall type; the fill and vent lines are inside the parking structure. This design was acceptable in 1996 however the regulations governing the installation of fuel fired equipment has changed since then.

TSSA is the body responsible for the enforcement of the CSA B139 Ontario Installation Code for Oil Burning Equipment. The proposed work will require that TSSA perform an inspection. It is unknown if TSSA will allow the present arrangement to be "grand fathered".

TPA has requested that the fuel tank be replaced with a double wall tank. The double wall tank will physically fit into the existing space but with the new tank come many implications that the TPA may wish to avoid if possible. These implications are:

- 1 The fill and vent lines cannot be extended to the property line without obstructing the headroom in the garage.
- 2 The current regulations require that the exhaust piping be a ULC approved chimney OR a schedule 40 piping system that has been tested by a third party to withstand a 5psig pressure test for 2 hours. Even if the existing fuel tank is not replaced the implication of extending the exhaust is that TSSA will come to the site to inspect the overall installation and shut down the generating set from future operation and/or re-filling of fuel.

MCW Consultants Limited recommends that the above issues be addressed prior to construction to avoid additional costs and delays during construction.



MCW Consultants Ltd.

Project Name: Toronto Parking Authority
To: RJC

Project No.: 3588D
Memo No.: 002R
Page No.: 2

The simplest method of addressing these issues is to install a natural gas fired packaged generator on the new 7th floor parking level. A separate gas supply will be needed from the existing gas meter located at the south east corner of the building, to the 7th floor. The generator will need an area of approximately one parking space. New power feeders will be required from the 7th floor to the ground emergency power distribution panel. The cost of this installation is estimated to be \$1000/kW or \$150,000.

The engineering fee for this work will be \$12,000.

MCW recommends discussing the options for the TPA on this matter further is a subsequent meeting



MCW Consultants Ltd.

Memorandum

Date: April 10, 2014

Queen's Quay Terminal
207 Queen's Quay West, Suite 615
Toronto, Ontario M5J 1A7

Phone (416) 598-2920
Fax (416) 598-5394
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Project Name: Toronto Parking Authority
20 Charles Street East

Client: RJC

To: RJC

Attention: Darren Wint

Fax number:

Distribution: Al Medeiros - MCW

Project No.: 3588D

Memo No.: 003R

Page No.: 1 of 2

Office: Toronto

From: David Hillyar

The purpose of this memo is to document our recommendations the proposed changes to the boiler plant.

The existing boilers were installed in 1996; the chimney extends to the roof and requires replacement; one of the existing boilers is inoperable; it has been proposed that the two boilers be replaced.

The existing boiler plant provides heat to the retail spaces, to the parking office and for the heating of ventilation air. The existing boilers are rated at approximately 600Mbtu/hr (200kW) input each and have 100% standby capacity. The boiler efficiency is estimated to be 70% or 140kW output.

MCW Consultants Limited is recommending that the boiler plant be demolished and not replaced.

In order to eliminate the existing boilers the following work has to implemented

- 1 Convert 5 unit heaters for hot water to electricity (25kW)
- 2 Convert the ventilation air coil from glycol to electricity (20kW)
- 3 Convert 2 entrance heaters from hot water to electricity (10kW)
- 4 Convert the parking office baseboard from hot water to electricity (3kW)
- 5 Convert the tenant spaces baseboards from hot water to electricity (25kW)

If the tenant spaces are to be renovated then the power required for heating these spaces should be fed through the individual tenant space meter and have the tenant pay the cost.

The advantages replacing the boilers with electric heat is:

- 1 The estimated cost of \$200,000 to replace the boilers and chimney is eliminated
- 2 The maintenance cost of the boilers is eliminated.
- 3 The unit heaters, entrance heaters and hot water baseboards are 25 years old and will be replaced with new devices.
- 4 The tenants will pay for their own heating.

The disadvantage of replacing the boilers with electric heat is:



MCW Consultants Ltd.

Project Name: Toronto Parking Authority
To: RJC

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-
- 1 The cost of converting the above equipment list to electric heat is estimated to be \$500/kw or a total of approximately $75\text{kW} \times \$500 = \$37,500$.

The engineering fees associated with the two options are:

- 1 To replace boilers with new is \$16,000.
- 2 To replace existing hot water heat with electrical resistance heat is \$3,000.



MCW Consultants Ltd.

Memorandum

Date: April 14, 2014

Queen's Quay Terminal
207 Queen's Quay West, Suite 615
Toronto, Ontario M5J 1A7

Phone (416) 598-2920
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Project Name: Toronto Parking Authority
20 Charles Street East

Client: RJC

To: RJC

Attention: Darren Wint

Fax number:

Distribution:

Project No.: 3588D

Memo No.: 004

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Office: Toronto

From: David Hillyar

The purpose of this memo is to document the additional services required for the replacement of the existing resistance heaters in the stairwells and elevator lobbies.

There is presently 160kW of heating installed in the existing stairwells and lobbies. We estimate a construction cost of \$500/kW or \$80,000 to replace the existing heaters.

Our fee for this work is \$6,400.