January 22, 2016

Manitoba Conservation and Water Stewardship
Programs and Strategies
1007 Century Street
Winnipeg, MB R3H 0W4

E-mail: warren.rospad@gov.mb.ca

Attention: Warren Rospad

Re: Management Plan
195 Fort Street, Winnipeg, MB
Pinchin File: 110069.002

Pinchin Ltd. (Pinchin) is pleased to submit this Management Plan to Manitoba Conservation and Water Stewardship, Programs and Strategies (Manitoba Conservation) for approval detailing the management of petroleum hydrocarbon (PHC) impacted soil and groundwater at 195 Fort Street in Winnipeg, MB (Site) on behalf of MMI Asset Management Ltd.

The contact for the Site:

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MMI Asset Management Ltd.
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The Site's current and future operations are as a commercial office occupied by Symcor and the Royal Bank of Canada. The area of the impacts are covered with asphalt and located within the parking lot south of the Site Building.

1.0 Background

Pinchin completed a Phase I ESA of the Site for the Client, the findings of which were provided in the report entitled *"Phase I Environmental Site Assessment 195 Fort Street, Winnipeg, Manitoba"*, dated December 7, 2015. Based on the results of the Phase I ESA completed by Pinchin, the following could result in potential subsurface impacts at the Site:

- A residential dwelling formerly located near the south portion of the Site. Fill including demolition debris may have been used to infill the basement of the residential dwelling;
- Automotive servicing operations were located on the north and south portions of the Site from at least 1930 to 1970;

- A dry cleaning operation was located approximately 5 metres east of the Site in 1920 and a tailor (suspect dry cleaning operation) at this location from the early 1930s to the early 1950s, as identified in the reviewed city directories; and
- A fuel operation formerly located adjacent to the south portion of the Site, as identified in the 1930 and 1940 city directories.

Based on the findings noted above, Pinchin recommended that a Phase II ESA be completed at the Site to delineate the above-noted impacts.

Pinchin completed a Phase I ESA of the Site for the Client, the findings of which were provided in the report entitled *"Phase II Environmental Site Assessment 195 Fort Street, Winnipeg, Manitoba"*, dated January 22, 2016. The Phase II ESA was completed at the Site between November 28 and December 3, 2015 and consisted of the advancement of six boreholes on-Site and one borehole off-Site, all of which were completed as groundwater monitoring wells.

Select "worst case" soil samples collected during the borehole drilling program were submitted for laboratory analysis of a combination of benzene, toluene, ethylbenzene and xylenes (collectively BTEX), petroleum hydrocarbons (PHCs) in the F1 to F4 fraction range (F1-F4), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and/or metals. Groundwater samples collected from the newly installed monitoring wells were submitted for laboratory analysis of BTEX, PHCs (F1-F4) and VOCs. It should be noted that due to poor groundwater recovery two groundwater monitoring wells were not sampled at the time of the Phase II ESA.

Based on Site-specific information, the soil quality was assessed based on the Canadian Council of Ministers of the Environment (CCME) "*Environmental Quality Guidelines*" accessed on the CCME web site in September 2015 (the "CCME Soil Guidelines").

Groundwater quality was assessed based on the Ontario Ministry of the Environment and Climate Change (MOECC) "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*", dated April 15, 2011 (MOECC Table 3 Standards).

The reported concentrations of BTEX, PHCs (F1-F4), VOCs, PAHs and metals in the soil samples submitted for analysis met the CCME Soil Guidelines with the following exceptions:

- Soil sample BH2-S2 collected at borehole BH2 (MW2) exceeded the CCME Soil Guidelines for PHCs (F2) (1,400 milligrams per kilogram (mg/kg) vs. the CCME Soil Guideline of 1,000 mg/kg); and
- Soil sample BH4-S2 collected at borehole BH4 (MW4) exceeded the CCME Soil Guidelines for PHCs (F2) (1,500 mg/kg) vs. the CCME Soil Guideline of 1,000 mg/kg) that exceeded the CCME Soil Guidelines).

The reported concentrations in the groundwater samples submitted for analysis of BTEX and PHCs (F1-F4) met the MOECC Table 3 Standards, with the following exception:

- Groundwater collected from monitoring well BH2 (MW2), which had a concentration of PHCs (F2) (490 micrograms per litre (µg/L) vs. the MOECC Table 3 Standard of 150 µg/L) that exceeded the MOECC Table 3 Standards.
- Groundwater collected from monitoring well BH3 (MW3), which had a concentration of PHCs (F2) (160 µg/L vs. the MOECC Table 3 Standard of 150 µg/L) that exceeded the MOECC Table 3 Standards.

Based on the findings of the Phase II ESA, Pinchin recommended that additional boreholes be completed at the Site to delineate the extent of soil and groundwater impacts at the Site.

Pinchin completed a Supplemental Phase II ESA of the Site for the Client, the findings of which were provided in the report entitled *"Supplemental Phase II Environmental Site Assessment 195 Fort Street, Winnipeg, Manitoba"*, dated January 22, 2016. The Supplemental Phase II ESA was completed at the Site between December 19 and December 29, 2015 and consisted of the advancement of seven boreholes, all of which were completed as groundwater monitoring wells.

Select "worst case" soil samples collected during the borehole drilling program were submitted for laboratory analysis of BTEX and PHCs (F1-F4). Groundwater samples collected from the newly installed monitoring wells were submitted for laboratory analysis of BTEX and PHCs (F1-F4). It should be noted that due to poor groundwater recovery five of the newly installed groundwater monitoring wells were not sampled at the time of the Supplemental Phase II ESA.

Based on Site-specific information, the soil quality was assessed based on the above mentioned CCME Soil Guidelines and the groundwater was assessed on the above mentioned MOECC Table 3 Standards.

The reported concentrations of BTEX and PHCs (F1-F4) in the soil samples submitted for analysis met the CCME Soil Guidelines with the following exceptions:

- Soil sample BH10-S2 collected at borehole BH10 (MW10) exceeded the CCME Soil Guidelines for PHCs (F2) (2,500 milligrams per kilogram (mg/kg) vs. the CCME Soil Guideline of 1,000 mg/kg);
- Soil sample BH11-S2 collected at borehole BH11 (MW11) exceeded the CCME Soil Guidelines for PHCs (F2) (2,000 mg/kg vs. the CCME Soil Guideline of 1,000 mg/kg);
- Soil sample BH13-S2 collected at borehole BH13 (MW13) exceeded the CCME Soil Guidelines for PHCs (F2) (1,400 mg/kg vs. the CCME Soil Guideline of 1,000 mg/kg); and

- Soil sample BH14-S3 collected at borehole BH14 (MW14) exceeded the CCME Soil Guidelines for PHCs (F2) (2,400 mg/kg vs. the CCME Soil Guideline of 1,000 mg/kg).

The reported concentrations in the groundwater samples submitted for analysis of BTEX and PHCs (F1-F4) met the MOECC Table 3 Standards, with the following exception:

- The groundwater sample collected from monitoring well BH8 (MW8) exceeded the MOECC Table 3 Standards for PHCs (F2) (390 micrograms per litre (µg/L) vs. the MOECC Table 3 Standard of 150 µg/L); and
- The groundwater sample collected from monitoring well BH10 (MW10) exceeded the MOECC Table 3 Standards for PHCs (F2) (380 µg/L vs. the MOECC Table 3 Standard of 150 µg/L).

Based on the findings of the Supplemental Phase II ESA, Pinchin recommended that a management plans be developed for the Site.

All reports are being provided to Manitoba Conservation as part of this management plan.

2.0 Discussion

2.1 Groundwater

Two rounds of groundwater sampling were conducted after the borehole drilling programs as part of the ESAs. Groundwater was assessed using the Ontario Ministry of the Environment and Climate Change (MOECC) "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*", dated April 15, 2011 (MOECC Table 3 Standards). It should be noted at the time of the ESAs six of the 14 monitoring wells installed were dry due to poor groundwater recovery and were not sampled.

No groundwater exceedances of the applicable MOECC Table 3 Standards underneath the Site Building were observed; however, only one groundwater monitoring well beneath the Site Building was sampled during the ESAs due to poor groundwater recovery. The highest concentrations of PHCs (F2) concentrations exceeding MOECC Table 3 Standards within the parking lot ranged from 160 micrograms per litre (µg/L) to 490 µg/L vs. the MOECC Table 3 Standard of 150 µg/L. Given that the MOECC Table 3 Standards are protective of all land uses and that groundwater monitoring wells in the vicinity of the identified impacts had PHC concentrations below laboratory detection limits, it is Pinchin's opinion that at this time no further delineation is required at the Site.

2.2 Soil

A total of 14 soil samples were submitted for PHC soil analysis. Of these 14 soil samples, six had concentrations that exceeded CCME Soil Guidelines. All six of the soil samples that exceeded CCME Soil Guidelines were located within the parking lot south of the Site Building.

During the Phase II ESA, Pinchin identified two borehole locations, BH2 (MW2) and BH4 (MW4) that had PHC (F2) concentration that exceeded CCME Soil Guidelines. During delineation of these impacts as part of the Supplemental Phase II ESA four additional boreholes locations BH10 (MW10), BH11 (MW11), BH13 (MW13) and BH14 (MW14) were identified as having PHC (F2) concentrations that exceeded CCME Soil Guidelines. The average separation distance between each of the boreholes/monitoring wells is 5.5 metres (m). Delineation for the Site Building was completed around borehole BH2 (MW2) but was not completed around borehole BH4 (MW4) as borehole BH14 (MW14) had PHC (F2) exceedances. With approximately 3 m between the Site Building and BH14 (MW14) and not have the ability to advance boreholes within the Site Building due to unstable computer floor conditions and security logistics (RBC vault) delineation for BH14 (MW14) is limited. All borehole and monitoring well locations are presented within the Phase II ESA and Supplemental Phase II ESA reports.

Given that the PHC impacts have likely been on-Site for decades and that soil on-Site is composed of fine-grained silt and clay, which does not allow for quick subsurface migration of impacts, it is Pinchin's opinion that the PHC (F2) impacts are likely to remain in the parking lot of the Site and not mobilize under the Site Building. However, groundwater monitoring activities are required on-Site to confirm this opinion until future delineation is possible.

3.0 Management Plan

There are currently no plans to complete any subsurface work at the Site. In the event that any subsurface work is required within impacted areas in the future, such as to remove, relocate or perform maintenance on the on-Site underground utilities, any soil removal from these areas will be conducted in accordance with Manitoba Conservation guidelines at the time of removal.

It is proposed that an annual monitoring program be implemented at the Site to document hydrocarbon groundwater concentrations over time. The annual groundwater monitoring program would commence in the summer of 2016. Following completion of the first annual groundwater monitoring program, results will be reviewed to determine if any additional environmental investigations are required. All annual groundwater monitoring program reports would be submitted to Manitoba Conservation. Once results of the annual monitoring program have been obtained, this management plan may be modified through the submission of an addendum to the management plan for Manitoba Conservation's review and approval.

4.0 Closure

We trust that the information provided herein is sufficient for Manitoba Conservation to approve the management plan. If you have any questions please contact Grant Eftoda, contact information below.

Sincerely,

Pinchin Ltd.

Prepared by:

2016.01.22 13:30:06 -06'00'

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Attach. *"Phase I Environmental Site Assessment, 195 Fort Street, Winnipeg"* dated December 7, 2105
"Phase II Environmental Site Assessment, 195 Fort Street, Winnipeg" dated January 22, 2016
"Supplemental Phase II Environmental Site Assessment, 195 Fort Street", Winnipeg" dated January 22, 2106

cc: Martin McGarry, martin.mcgarry@cwwinnipeg.com