

**Environmental Impact Assessment Registration Document  
(In accordance with the New Brunswick Environmental Impact Assessment Regulation)**

**For**

**Marsh Creek Wastewater Treatment Plant Decommissioning  
(City of Saint John)**

**January 26<sup>th</sup>, 2015**

## 1.0 Proponent

- (i) Name of Proponent: City of Saint John
- (ii) Address of Proponent: 15 Market Square, PO Box 1971, Saint John, New Brunswick, E2L 4L1
- (iii) Chief Executive Officer: J. Patrick Woods, C.G.A. – City Manager, City of Saint John ; (506) 658-2913
- (iv) Principal Contact Person for purposes of Environmental Impact Assessment: David Russell, P.Eng – Municipal Engineer, (506) 658-4763
- (v) Property Ownership: City of Saint John

## 2.0 The Undertaking

- (i) *Name of the Undertaking:* Marsh Creek Wastewater Treatment Plant Decommissioning
- (ii) *Project Overview:* The Marsh Creek Wastewater Treatment Plant (MCWWTP) is located at 180 Thorne Avenue in Saint John on PID 00411710. This facility consists of a small operations building and a concrete treatment lagoon. Until February 2014 the MCWWTP treated wastewater from East Saint John. In February 2014, the newly constructed Sanitary Lift Station # 4 came online and sanitary flows were diverted from the MCWWTP to the new Eastern Wastewater Treatment Facility (EWWTF) via Lift Station # 4.

This plant is no longer in use and the City has removed all useful equipment from the building. The concrete lagoon has been drained and the remaining sludge has been removed.

The proposed plan for decommissioning the MCWWTP consists of removing the building and all remaining contents, cutting of the foundation/lagoon walls just below the ground surface, cutting or drilling holes in the bottom of the concrete lagoon, backfilling the lagoon, and grading the site as necessary.

- (iii) *Purpose/Rationale/Need for the Undertaking:* Now that this facility is no longer in use it makes sense to demolish it. This property may be put up for sale after the decommissioning has been completed. Interest has been expressed in this property, although no official agreements have been signed at this time. This property could be of use to various parties as this is an industrial/commercial area of the City.

Decommissioning this facility is the most reasonable option at this point. The “do nothing” approach would not make much sense. It would leave a vacant building and concrete lagoon on a property with industrial or commercial potential in the middle of the City. The building would slowly fall into disrepair and become unsightly and provide no benefit to the community.

(iv) *Project Location:*

The project site is located at 180 Thorne Avenue in Saint John and the PID is 00411710. A 1:50,000 scale map showing the site can be found on Drawing # 1 of the attached Phase I ESA.

(v) *Siting Consideration: Not Applicable*

(vi) *Physical Components and Dimensions of the Project: See Drawings X and Y*

(vii) *Construction Details:*

*A contractor will be hired to complete the decommissioning work for this facility. Below are assumptions on how they will likely proceed with the work:*

*-Estimated duration of work will be approximately 1-2 weeks.*

*-Estimated hours of construction: Monday to Friday, 7am-7pm, weekends as needed.*

*-Demolition and backfill work will likely be completed with an excavator. Materials will be removed from site with a tandem dump truck. Backfill material will be brought to site with a tandem dump truck. Backfill material will be placed with excavator or loader. Site grading will be completed with a loader, dozer, or grader.*

*-The sequencing of the work will be up to the Contractor, however it might look something like this:*

*-Remove all above ground materials including the building, any fencing, metal railings, etc.*

*-Remove any water or other material from the tanks (if present)*

*-Insert holes in the bottom of the concrete lagoon (this will be done to ensure that the lagoon does not act as a bathtub after demolition has been completed)*

*-Cut off the concrete lagoon walls approximately 1-2 feet below the existing ground.*

*-Backfill the lagoon using any suitable debris from the site (if appropriate) and clean backfill.*

*-Grade the site to match the existing ground.*

*-Estimated construction start date will be the Spring/Summer of 2015.*

*-A reasonable amount of construction noise can be expected with this type of work, however the contractor will be required to obey the City's noise by-laws.*

*-The contractor will be responsible for removing all waste material from the site and disposing of it in accordance with NB laws and regulations.*

*-The site can be accessed via the entrance on Thorne Avenue and no traffic detours will likely be needed.*

*-No clearing and grubbing activities will be taking place*

*-All fills materials will be provided by the contractor undertaking the work.*

*-It appears that this work will not be taking place in the areas listed in "Section 3.0 – Description of the Existing Environment" of the Registration Guide Document.*

*(viii) Operation and Maintenance Details:*

The items in this section are generally not applicable. Construction details will be the same as listed above. All fill materials will be provided by the contractor (which hasn't be hired yet). This project won't be tendered until all regulatory approvals have been granted. This contractor will also be removing any waste material from site, including the existing building. City of Saint John staff have already removed any assets of value that were previously on site.

*(ix) Future Modifications, Extensions, or Abandonment:  
Not Applicable*

*(x) Project Related Documents: **SEE ATTACHMENTS***

*-Relevant email correspondence with NBDELG*

*-Approval to Operate Certificate*

*-Site Plan (Drawing X)*

*-Aerial Site Plan (Drawing Y)*

*-Phase I Environmental Site Assessment (ESA) – Marsh Creek Wastewater Treatment Plant*

### **3.0 Description of the Existing Environment**

*i) Physical and Natural Features – See the attached Phase I ESA as well as the information below.*

*ii) Cultural Features – Generally not applicable*

*iii) Existing and Historic Land Uses – See the attached Phase I ESA as well as the information below.*

A Phase I ESA was completed on the subject property. Any potentially hazardous materials onsite are outlined in this report. A detailed description of the site can be found in Section 4.0 (Site Description) of the Phase I ESA report. This report also outlines historical land uses of the subject property as well as adjacent properties. The site does not appear to be within 500 metres of any municipal surface water supplies or any Environmentally Significant Areas identified by the New Brunswick Nature Trust.

-See Drawings 1 and 2 of the Phase I ESA as well as drawings X and Y for information on the facilities and properties involved. The PID of the subject site is 00411710.

-Drawings X and Y show the location of the treatment plant that will be demolished.

-The MCWWTP is not within 30 metres of a Provincially Significant Wetland. Although a small corner of the subject property is within the 30 metres buffer of a Provincially Significant Wetland, the limits of the demolition work will not be completed within the buffer area. The approximate boundaries of the Provincially Significant Wetland and the 30 metres buffer are shown on Drawings X and Y.

-There are no monitoring wells on site.

-This site not an on-site disposal site.

-An inspection of the building was completed as part of the Phase I ESA. Hazardous materials such as lead based paint, asbestos, UFFI, and PCB's were not found on site. However, because of the age of the building the presence of these materials is possible. If any of these materials are discovered during or prior to demolition, the contractor completing the work will be responsible for removing and disposing of these materials in accordance with New Brunswick laws and regulations. It should be noted that the pole mounted transformer on-site belongs to Saint John Energy and its removal will be their responsibility, should they chose to do so. The removal of that pole is not part of this particular project.

---

#### **4.0 Summary of Environmental Impacts**

There are no anticipated environmental impacts as a result of this work. All work will be contained to the limits of the existing facility. The building will be removed from site, the concrete tanks will be backfilled, and the site will be graded to match the existing profile of the ground.

#### **5.0 Summary of Proposed Mitigation**

Once the successful contractor has been awarded the contract, they will be responsible for removing all unsuitable material from site. Any material that is deemed suitable will be used as backfill on-site. There likely won't be a lot of opportunities for reuse of material. However, any metal removed from site will likely be recycled. In general this decommissioning is not really expected to create a large volume of waste.

The contractor will be providing the site supervision during the decommissioning in coordination with City staff as needed. The contractor undertaking this decommissioning will be responsible for inspecting and separating all non-hazardous waste from any hazardous waste prior to recycling or disposal. The contractor will also be responsible for ensuring that all waste material is directed to

the proper facility in accordance with New Brunswick laws and regulations. As noted above, this decommissioning is not expected to generate a large volume of waste.

As noted in the Phase I ESA, no PCB sources were found on-site, although the potential does exist because of the age of the building. The contractor will be required to inspect all potential PCB sources prior to demolition and dispose of these materials in accordance with provincial regulations and at an approved facility.

The existing water services will be closed at the curb stop. As well, prior to demolition, the existing water service will be disconnected from the facility and capped. See drawing X and Y.

There are no known water wells on the site.

The existing sanitary forcemain (inlet pipes) as well as the existing sanitary sewer main (outlet pipe) (as shown on drawing X and Y) will be disconnected from the building and capped prior to demolition of the building.

## **6.0 Public Involvement**

As part of the Harbour Clean-Up project that the City of Saint John undertook between 2008 and 2014, more than 25 public information sessions were held at various locations throughout the City. As a result of this, the citizens of Saint John became very informed about the nature of the project being undertaken. Through these meetings residents and business owners all over the City were made aware of the following objectives of the overall project:

- Build a new wastewater treatment plant on the east side of the city (In 2012 the EWWTF) was completed).
- Build 23 small to medium sized lift stations throughout the City.
- Build one large Lift Station (Lift Station # 4) to accommodate all sanitary flows treated by the MCWWTP. (Lift Station # 4 came online in early 2013 and all flow that used to be treated at the MCWWTP was diverted to this new lift station. From there it is pumped to the EWWTF)
- Discontinue the process of dumping raw sewage into Saint John Harbour and the Bay of Fundy by redirecting all City sewage flows to the new EWWTF or one of the other existing wastewater treatment plants around the City via one of these new lift stations.
- Decommission any existing facilities that are no longer needed as a result of the new facilities completed under this project.

As well, information letters will be sent to all adjacent land owners prior to demolition. Property owners will be advised that they can call the Project Manager (David Russell, P.Eng.) if they have any comments or concerns about the project. Prior to the start of any new construction project in the City, pre-construction letters are typically sent out to all local businesses and residents in the

construction area. This has proven to be an effective way of keeping the citizens of Saint John informed.

The demolition of this facility is not expected to have a big impact on any of the adjacent land owners. However, as stated above, they will have an opportunity to bring any comments forward to the City's Project Manager prior to the start of construction.

### **7.0 Approval of the Undertaking**

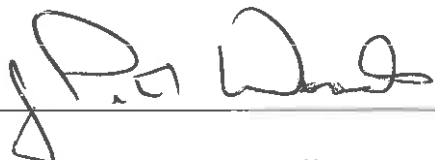
-A building permit will be required from the City of Saint John prior to construction.

-An Approval to Construct Certificate may be required under the Water Quality Regulation - Clean Environment Act. Clarification will be sought on this requirement prior to construction.

### **8.0 Funding**

Not applicable

### **9.0 Signature**



A handwritten signature in black ink, appearing to read "J. Patrick Woods", is written over a horizontal line. The signature is stylized and cursive.

J. Patrick Woods, C.G.A. - City Manager

## **Attachments**

*Project Related Documents, as noted in section 2 x):*

-Relevant email correspondence with NBDELG

-Approval to Operate Certificate

-Site Plan (Drawing X)

-Aerial Site Plan (Drawing Y)

-Phase I Environmental Site Assessment – Marsh Creek Wastewater Treatment Plant



## Russell, David

---

**From:** Swanson, Lee (ELG/EGL) <Lee.Swanson@gnb.ca>  
**Sent:** June-25-14 9:36 AM  
**To:** Russell, David  
**Cc:** McPherson, Brad (ELG/EGL); Maguire, David (ELG/EGL)  
**Subject:** RE: City of Saint John - Decommissioning of the former Marsh Creek Wastewater Treatment Plant

Hi David,

First, I want to congratulate you and the City on the Harbour Clean-up initiative and all the progress you have made in the last few years! It's great to see the improvements and these older facilities being taken off line. As we discussed, I have attached below the web links for the "Guide to EIA in NB", as well as a link to the "Additional Information Requirements for Decommissioning of Existing Facilities". The third link is just to our web site for general information purposes.

- 1) A Guide to Environmental Impact Assessment in New Brunswick:  
<http://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/EIA-EIE/GuideEnvironmentalImpactAssessment.pdf>
- 2) Additional Information Requirements for Decommissioning of Existing Facilities:  
<http://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/EIA-EIE/DecommissioningExistingFacilities.pdf>
- 3) Other general information on EIA in New Brunswick:  
[http://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/environmental\\_impactassessment.html](http://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/environmental_impactassessment.html)

For public consultation (see Appendix C of the Guide) be sure to include a summary of all the consultation that has been undertaken for the larger Harbour Clean-up project as well as consultation for this specific project. There will be no fee for registration because the proponent is the City, and you can send 6 hard copies of the registration document and one digital copy directly to me (see Section 10: Submission Instructions Page XXV of the Guide) to register.

Please let me know if you have any questions as you prepare the registration document. I look forward to seeing the document soon.

Regards,  
Lee

*Lee Swanson, B.Sc. M.A.  
Project Manager / Gestionnaire de Projets  
Environmental Assessment Section / Section de l'évaluation environnementale  
Department of Environment and Local Government / Ministère de l'Environnement et Gouvernements locaux  
P.O. Box / Case postale 6000  
Fredericton, NB E3B 5H1  
Tel: (506) 453-7108; Fax: (506) 453-2627  
[Lee.Swanson@gnb.ca](mailto:Lee.Swanson@gnb.ca)*

Print Less  
Save More



Imprimer moins  
Économiser plus

*Pause before you print this email  
Réfléchissez avant d'imprimer ce courriel*



## APPROVAL TO OPERATE

S-1708

Pursuant to paragraph 8(1) of the *Water Quality Regulation - Clean Environment Act*, this Approval to Operate is hereby issued to:

**The City of Saint John**  
for the operation of the  
**Marsh Creek - Activated Sludge**

Description of Source: WWT: Class II, WWC: Class II, Facility Size: Medium

Source Classification: Fees for Industrial Approvals Regulation - Clean Water Act Class 16

Parcel Identifier: 00411710

Mailing Address: 175 Rothesay Ave.  
Saint John, NB E2L 4L1

Conditions of Approval: See attached Schedule "A" of this Approval

Supersedes Approval: S-1537

Valid From: March 01, 2010

Valid To: February 28, 2015

Recommended by:   
for Community Planning & Environmental Protection Division

Issued by:   
for Minister of Environment

MAR 3 2010

Date

## SCHEDULE "A"

### A. DESCRIPTION OF WASTEWATER WORKS

#### WASTEWATER COLLECTION SYSTEM

Facilities used in the collection and transmission of wastewater.

- Including are: i) six (6) pumping station and force mains.  
ii) Sewers, manholes, and all other items used in the collection and transmission of wastewater to the wastewater treatment facility.

#### WASTEWATER TREATMENT FACILITIES

2. Includes all facilities located on Property Identification Number (PID) 00411710 used in the treatment of wastewater and the discharge of treated effluent including, but not limited to:
- i) one (1) bar screen;
  - ii) one (1) by-pass chamber;
  - iii) one (1) comminutor (not in operations at the moment);
  - iv) one (1) grit removal chamber;
  - v) one (1) aeration basin
  - vi) two (2) secondary clarifiers with sludge removal and transmission facilities;
  - vii) two (2) aerobic digesters;
  - viii) two (2) automated 24 hour composite samplers; and
  - ix) sampling, analytical and flow monitoring facilities.

The outfall pipe runs underground and discharges into Marsh Creek.

### B. DEFINITIONS

3. "Approval Holder" means The City of Saint John.
4. "Department" means the New Brunswick Department of Environment.
5. "Minister" means the Minister of Environment and includes any person designated to act on the Minister's behalf.
6. "Director" means the Director of the Impact Management Branch of the Department and includes any person designated to act on the Director's behalf. *SI*

7. **"Inspector"** means an Inspector designated under the *Clean Air Act*, the *Clean Environment Act*, or the *Clean Water Act*.
8. **"Operator"** means the person responsible for the day-to-day performance of the wastewater works or any portion of the wastewater works. An Operator is typically employed by the Approval Holder for this work.
9. **"statutory holiday"** means New Years Day, Good Friday, Easter Monday, the day fixed by proclamation of the Governor-in-Council for the celebration of the birthday of the Sovereign (Victoria Day), Canada Day, New Brunswick Day, Labour Day, the day fixed by proclamation of the Governor-in-Council as a general day of Thanksgiving, Remembrance Day, Christmas Day, and Boxing Day. If the Statutory Holiday falls on a Sunday, the following day shall be considered as the Statutory Holiday.
10. **"after hours"** means the hours when the Department's offices are closed. These include statutory holidays, weekends, and the hours before 8:15 a.m. and after 4:30 p.m. from Monday to Friday.
11. **"normal business hours"** means the hours when the Department's offices are open. These include the period between 8:15 a.m. and 4:30 p.m. from Monday to Friday excluding statutory holidays.
12. **"ACWWVCP"** means the Atlantic Canada Water and Wastewater Voluntary Certification Program.
- ~~13. **"environmental emergency"** means a situation where there has been or will be a release, discharge, or deposit of a contaminant or contaminants to the atmosphere, soil, surface water, and/or groundwater environments of such a magnitude or duration that it could cause significant harm to the environment or put the health of the public at risk. This does not include wastewater overflows that are the result of excessive rainfall or snowmelt.~~
14. **"Canada-wide Strategy"** means the Canada-wide Strategy for the management of municipal wastewater effluent, February 2009.

## C. TERMS AND CONDITIONS

### GENERAL

15. The Approval Holder shall operate the wastewater works in compliance with the *Water Quality Regulation 82-126* filed under the *Clean Environment Act* of the Province of New Brunswick. Violation of this Approval or any term and/or condition stated herein constitutes a violation of the *Clean Environment Act*. *ST*

16. The issuance of this Approval does not relieve the Approval Holder from compliance with other by-laws, federal or provincial acts or regulations, or any guidelines issued pursuant to regulations.
17. The Approval Holder shall make application in writing, on a form provided by the Minister, for Approval to undertake any modification to the Wastewater works that would significantly change the current composition and/or quantity of contaminants being discharged to the environment. The Minister must receive such application **at least ninety (90) days** prior to the planned modification commencement.
18. An Inspector, at any reasonable time, has the authority to inspect the wastewater works and carry out such duties as defined in the *Clean Air Act*, the *Clean Environment Act* and/or the *Clean Water Act*.
19. The wastewater treatment facility has determined to be a **Medium** facility using the Canada-wide Strategy.
20. The wastewater treatment facility has been evaluated under the ACWWVCP classification system and it has been determined to be a **Class II** wastewater treatment facility.

#### EMERGENCY REPORTING

21. Immediately following the discovery of an environmental emergency, a designate representing the Approval Holder shall notify the Department in the following manner:

During normal business hours, telephone the Department's Central Office **until personal contact is made** (i.e. no voice mail messages will be accepted) and provide all information known about the environmental emergency. The telephone number for the Central Office is provided below:

**Central Office (506) 453-7945**

After hours, telephone the Canadian Coast Guard **until personal contact is made** and provide all information known about the environmental emergency. The telephone number for the **Canadian Coast Guard is 1-800-565-1633**.

22. Within 24-hours of the time of initial notification, a copy of a **Preliminary Emergency Report** shall be faxed by a designate representing the Approval Holder to the Department's Central Office using the fax number provided below. The Preliminary Emergency Report shall clearly communicate all information available at the time about the environmental emergency. *SI*

Within five (5) days of the time of initial notification, a copy of a **Detailed Emergency Report** shall be faxed by a designate representing the Approval Holder to the Department's Central Office using the fax numbers provided below. The Detailed Emergency Report shall include, as a minimum, the following: i) a description of the problem that occurred; ii) a description of the impact that occurred; iii) a description of what was done to minimize the impact; and iv) a description of what was done to prevent recurrence of the problem.

**Central Office Fax No: (506) 453-2390**

#### LIMITS

23. The Approval Holder shall ensure that the concentration of contaminants in the final effluent from the wastewater treatment facility do not exceed the following limiting criteria:
- i) BOD<sub>5</sub>: shall not exceed 20 mg/L; and
  - ii) Suspended Solids: shall not exceed 20 mg/L.

Monthly average results may be considered for effluent limit compliance.

#### OPERATING CONDITIONS

24. The Approval Holder shall ensure that the wastewater works are maintained in working order at all times in order to prevent the discharge of untreated or partially treated wastewater to the environment and/or to prevent increased infiltration/inflow of ground or surface water into the wastewater collection system.
25. The Approval Holder shall ensure that scum, grit and debris removed from the wastewater works are disposed at an approved facility.
26. The Approval Holder shall ensure that sludge from the clarifiers and the sludge holding tank are removed once a year, or more if required, and transported and disposed of at a location approved by the Director.
27. The Approval Holder shall keep a sufficient inventory of spare parts for the most critical components of the equipment in order to keep downtime on the wastewater treatment facility to a minimum.

#### OPERATOR TRAINING & CERTIFICATION

28. The Approval Holder shall employ, as a minimum, one (1) Class I and one (1) Class II Wastewater Treatment Certified Operator to operate the wastewater treatment facility. *ST*

29. The Approval Holder shall ensure that the Operator(s) responsible for the wastewater collection system have, as a minimum, the ACWWVCP Constitution's education and experience requirements to write a Class I Wastewater Collection System Operator Exam.
30. If appropriate training and/or certification levels are not met at any time, the Approval Holder must submit an Operator training and certification plan in writing to the Director.

## MONITORING

31. The Approval Holder shall conduct the following sampling and testing at the indicated frequency:

PARAMETER	FREQUENCY	SAMPLE LOCATION
Flow, DO, pH	Three times a week	Final Effluent
Biochemical Oxygen Demand (BOD), Suspended Solids (SS)	8 hour composite twice monthly	Final Effluent
Total Phosphorous (TP), Nitrates (NO <sub>3</sub> ), Nitrites (NO <sub>2</sub> ), Nitrogen (TKN), Nitrogen Ammonia, (NH <sub>3</sub> N), E. coli	Once a month	Final Effluent

32. The Approval Holder shall ensure that all samples are collected using the methods described in the latest edition of the ISO 5667-10, *Water quality - Sampling - Part 10: Guidance on sampling of waste waters*, or an alternative method approved by the Director.
33. The Approval Holder shall ensure that all laboratory testing is conducted using the methods described in the latest edition of "*Standard Methods for Examination of Water and Wastewater*", or an alternative method approved by the Director.
34. The Approval Holder shall ensure that all equipment used in the monitoring of wastewater is maintained in working order at all times and is calibrated in a manner and frequency outlined in the manufacturer's specifications. *ST*

35. If any testing indicates that one or more limits set in this Approval have been exceeded, the Approval Holder shall ensure that another sample is taken and tested within one day of becoming aware of the exceedance. If the second sample also indicates that the limit(s) have been exceeded, the Approval Holder shall notify the Director in accordance with the procedure for reporting violations, described in the Reporting section of this Approval.
36. For quality assurance, the Approval Holder shall collect one duplicate sample over the course of the year. One sample is to be analyzed using regular procedure; the other sample is to be analyzed at a lab accredited to analyze the parameters outlined in the previous condition.

## REPORTING

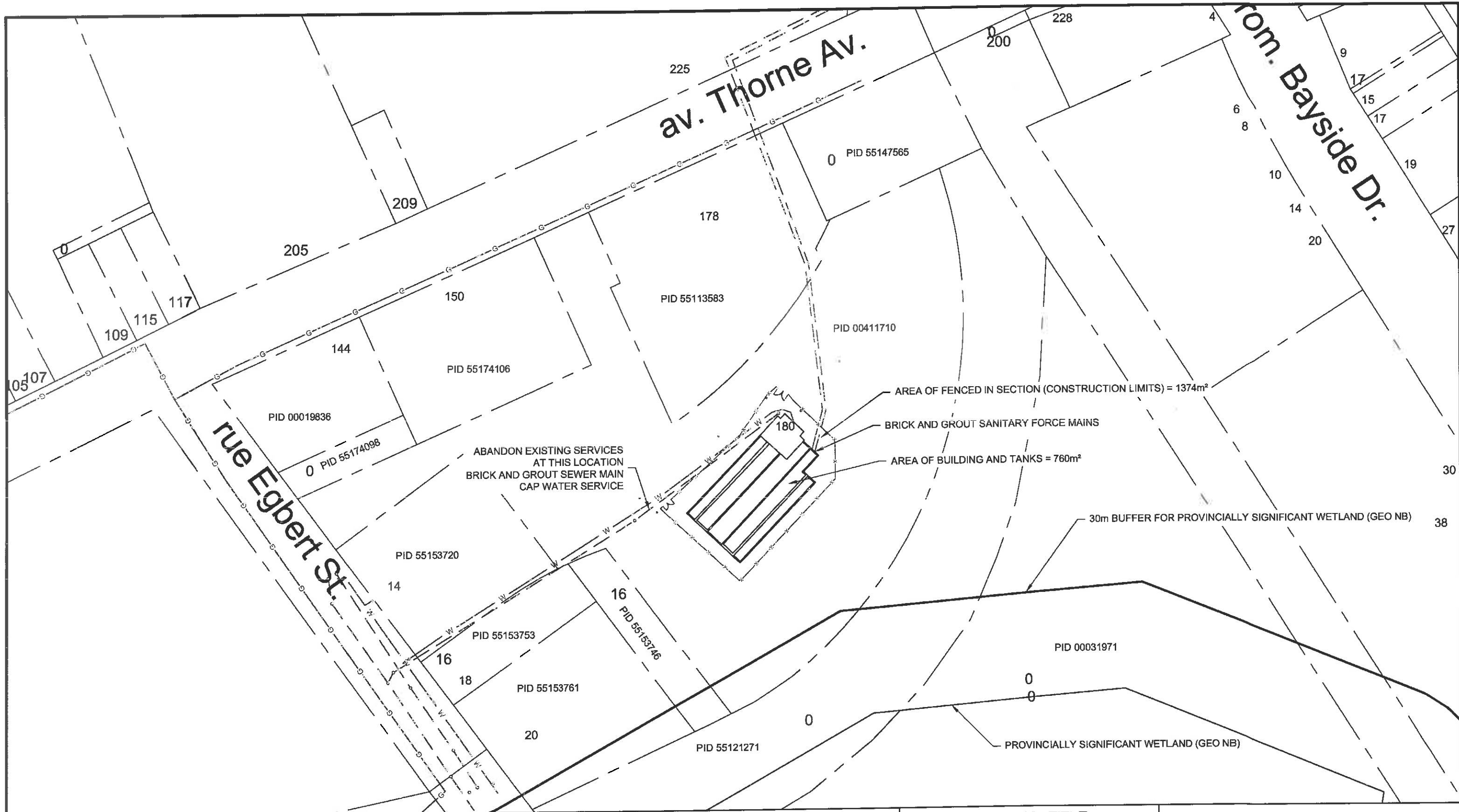
37. In the event the Approval Holder violates any Term and Condition of this Approval or the *Water Quality Regulation - Clean Environment Act*, the Approval Holder is to immediately report this violation to the Director.
38. The Approval Holder shall immediately report raw wastewater discharges from the wastewater works and any other environmental emergency through the Emergency Reporting System as described in the Emergency Reporting section of this Approval. This does not apply to raw wastewater discharges that are directly caused by excessive rain or snow melt.
39. The Approval Holder shall record the results from the testing required by this Approval as well as a list of all raw wastewater discharges, including those that were directly caused by excessive rain or snow melt. This list shall be maintained for a period of at least two years, and shall be made available to the Director and/or an Inspector on request.
40. **Within 30 days of the end of each year**, with the period starting on the first day of January each year, the Approval Holder shall submit to the Director an annual report summarizing the following:
  - i) the results of the testing required in the Testing and Monitoring section of this Approval including the duplicate sample which is analyzed by an accredited laboratory,
  - ii) a summary of the date, location, and duration of all raw wastewater discharges, including those that were directly caused by excessive rain or snow melt,
  - iii) a summary report of any other environmental emergencies that were reported through the Emergency Reporting procedure described in this Approval and
  - iv) a list identifying the Operator(s) and indicating the certification level of each Operator(s).
  - v) a summary of the dates, volumes and location of sludge disposed. *ST*



Prepared by: Susan Tao  
Susan Tao, M.I.T.  
Approvals Coordinator, Water & Wastewater Management

Reviewed by: Timothy R. LeBlanc  
Timothy R. LeBlanc, P.Eng.  
Manager, Water & Wastewater Management





DWN. BY: KS	DATE: JAN 21, 2015
DWG No.: X	REV: 1
SCALE 1:1000	

NOTE: ALL INFRASTRUCTURE LOCATIONS AS WELL AS PROPERTY AND BOUNDARY LINES ARE APPROXIMATE AND FOR ILLUSTRATION ONLY. THIS DRAWING IS NOT FOR CONSTRUCTION.

PROJECT TITLE  
**MARSH CREEK WASTEWATER TREATMENT PLANT DECOMMISSIONING**

DRAWING TITLE  
**SITE PLAN**







DWN. BY: KS	DATE: JAN 21, 2015
DWG No.: Y	REV: 1
SCALE 1:1000	

NOTE: ALL INFRASTRUCTURE LOCATIONS AS WELL AS PROPERTY AND BOUNDARY LINES ARE APPROXIMATE AND FOR ILLUSTRATION ONLY. THIS DRAWING IS NOT FOR CONSTRUCTION.

PROJECT TITLE  
**MARSH CREEK WASTEWATER  
TREATMENT PLANT  
DECOMMISSIONING**

DRAWING TITLE  
**AERIAL SITE PLAN**





0511-1-5

## **REPORT**

**Phase I  
Environmental Site Assessment  
Marsh Creek Wastewater  
Treatment Plant  
160 Thorne Avenue  
Saint John, New Brunswick**

**Crandall Engineering Ltd.**

**PROJECT NO. 1015367**





---

**PROJECT NO. 1015367**

**REPORT TO**

**Mr. Richard F. Gabbey, M. Eng., P.Eng  
Crandall Engineering Ltd.  
1077 St. George Blvd., Suite 400  
Moncton, NB  
E1E 4C9**

**FOR**

**Phase I Environmental Site Assessment**

**ON**

**Marsh Creek Wastewater Treatment Plant  
160 Thorne Avenue  
Saint John, New Brunswick**

---

**July 28 2006**

**Jacques Whitford  
20 Broadview Avenue, South  
Saint John, New Brunswick  
E2L 5E8**

**Phone: 506-634-2185**

**Fax: 506-634-8104**

**[www.jacqueswhitford.com](http://www.jacqueswhitford.com)**





## EXECUTIVE SUMMARY

Jacques Whitford Limited conducted a Phase I Environmental Site Assessment ("Phase I ESA") of the Marsh Creek Wastewater Treatment Plant located at 160 Thorne Avenue in Saint John, New Brunswick, herein referred to as the "Site". The purpose of the Phase I ESA was to determine if evidence of potential or actual environmental contamination exists in connection with the Site, which may be present as a result of current or past activities on the Site or neighbouring properties.

### Background

The Site is located in a commercial area in central Saint John, New Brunswick. Based on information gathered during the historical review, it appears that the Site was originally developed for municipal use in 1971.

### Conclusions and Recommendations

Based on information gathered and observations made, the Phase I ESA has revealed evidence of potential environmental contamination associated with the Site. The following environmental concerns were identified:

**Historic Underground Petroleum Storage on Site:** According to NBDENV, the subject property is registered and licensed under the Petroleum Storage and Handling Regulation. The NBDENV reported that two underground tanks (1 x 45,460 litre and 1 x 4,546 litre) were removed from the property in 1989. The NBDENV had no other information on the tank removals. Jacques Whitford recommends that a subsurface investigation be conducted in the area of the former USTs to determine if soil and/or groundwater have been impacted by the historical presence of these tanks.

**Active/Historic Underground Petroleum Storage on adjacent properties:** According to the NBDENV files, historic underground petroleum storage was identified on neighbouring properties to the east and west, and to the north across Thorne Avenue. In addition, NBDENV reported that remediation has occurred on one property to the east and northeast across Thorne Avenue. Jacques Whitford recommends that a subsurface investigation be conducted on the northern, eastern and western property boundaries to determine if soil and/or groundwater have been impacted by active/historic presence of USTs on these adjacent properties.

**Active/Historic Hydro Pole Storage on Site:** The eastern portion of the Site is used for the temporary storage of treated hydro poles. There is a potential for hazardous substances (pentachlorophenol (PCP) or creosote) to leach into soils and groundwater in the vicinity of these hydro poles. As such, the storage of treated hydro poles represents a potential environmental concern to the Site. Jacques Whitford recommends that a subsurface investigation be conducted on the eastern portion of the Site to determine if soil and/or groundwater have been impacted by active/historic storage of treated hydro poles.





Potential minor environmental concerns associated with asbestos-containing materials (drywall compound), PCBs in fluorescent light ballasts and suspected lead in paint were noted. These concerns should be addressed prior to any renovations or demolition.

The statements made in this Executive Summary are subject to the same limitations included in the Closure (Section 9.0), and are to be read in conjunction with the remainder of this report.



## Summary of Phase I ESA Findings and Recommendations

Potential Source of Contamination	Findings	Recommended Action
Current Site Operations	The Site is currently occupied by a wastewater treatment plant. The plant discharges up to 4,000,000 litres of treated effluent per day to the municipal system.	Continue operations according to Approval to Operate and maintain equipment according to manufacture's specifications.
	The eastern portion of the Site is used for the temporary storage of treated hydro poles. There is a potential for hazardous substances (pentachlorophenol (PCP) or creosote) to leach into soils and groundwater in the vicinity of these hydro poles.	Conduct a subsurface soil and groundwater investigation (Phase II ESA) on the Site.
Fuels, Chemicals and Waste Generation	The NBDENV reported that two underground storage tanks (USTs, 1 x 45,460 litre and 1 x 4,546 litre) were removed from the property in 1989.	Conduct a subsurface soil and groundwater investigation (Phase II ESA) on the Site.
Building Systems and Equipment	No potential environmental concerns were identified.	None
Hazardous Building Materials	The following potential environmental concerns were identified:	
	Based on the age of the building, lead-based paints may be present. No flaking or peeling paint was observed on the Site building.	Sample and analyse suspect paints for lead prior to demolition or any activity that may produce lead dust or fumes (e.g. sandblasting, torch cutting).
	Suspected ACMs (wall board and drywall compound) were observed during the site visit.	Sample suspected ACMs prior to any renovation or demolition. If asbestos is confirmed, handle ACMs in accordance to <i>New Brunswick Reg. 92-106</i> .
	PCBs may be present in fluorescent light ballasts.	Should PCBs be identified in light ballasts when taken out of service, handle the ballasts in accordance with <i>New Brunswick Policy on the Storage of PCB Light Ballasts</i> .
Hazardous Building Materials	The following potential environmental concerns were identified:	
Special Attention Items	No potential environmental concerns related to radon gas, mold, noise and vibration, electromagnetic fields (EMFs) or odours were identified.	None
Historical Site Use	No other potential environmental concerns related to historical activities, operations or tenants on the Site were identified.	None

## Summary of Phase I ESA Findings and Recommendations

Potential Source of Contamination	Findings	Recommended Action
Adjacent Properties	Several neighbouring properties (PID Nos. 00019836, 00019760, 00019778 and 00019786) are registered petroleum storage sites. Fire insurance plans from 1957 and 1967 indicate the presence of a former 180,000 litre aboveground fuel oil tank located to the north across Thorne Avenue (PID No. 00019760), a former gasoline service station and UST to the northwest (PID No. 00019836), a former automobile dealership/service garage and USTs to the northeast (PID No. 00019794), and a former UST on the commercial property to the east (PID No. 00019786).	Conduct a subsurface soil and groundwater investigation (Phase II ESA) on the Site.

---

# Table of Contents

<b>EXECUTIVE SUMMARY</b> .....	<b>1</b>
<b>PHASE I ENVIRONMENTAL SITE ASSESSMENT</b> .....	<b>1</b>
<b>1.0 INTRODUCTION</b> .....	<b>1</b>
<b>2.0 SCOPE AND METHODOLOGY</b> .....	<b>1</b>
2.1 Scope of Work .....	1
2.2 Methodology .....	2
2.2.1 Records Review .....	2
2.2.2 Site visit.....	3
2.2.3 Interviews .....	3
<b>3.0 REGULATORY FRAMEWORK</b> .....	<b>3</b>
<b>4.0 SITE DESCRIPTION</b> .....	<b>4</b>
4.1 Property Description.....	4
4.2 On-Site Buildings and Structures .....	4
4.3 Physical Setting .....	5
4.3.1 Surficial Geology .....	5
4.3.2 Bedrock Geology.....	5
4.3.3 Topography and Regional Drainage.....	5
4.3.4 Surface Water Drainage.....	5
<b>5.0 PREVIOUS ENVIRONMENTAL REPORTS</b> .....	<b>6</b>
<b>6.0 ENVIRONMENTAL DATABASE/RECORDS REVIEW</b> .....	<b>6</b>
6.1 Regulatory Information.....	6
<b>7.0 FINDINGS</b> .....	<b>7</b>
7.1 Current Site Operations.....	7
7.2 Historical Land Use .....	8
7.3 Waste Generation .....	8
7.3.1 Solid and Liquid Wastes.....	8
7.3.2 Wastewater Discharges, Drains and Sumps .....	8
7.3.3 Air Discharges.....	9
7.4 Fuel, Chemical and Waste Storage.....	9
7.4.1 Storage Tanks.....	9
7.4.2 Storage Containers .....	9
7.5 Building Systems and Equipment.....	9
7.5.1 Heating and Cooling Systems .....	9
7.5.2 Hydraulic Equipment .....	10
7.6 Exterior Site Observations.....	10
7.6.1 Surface Features.....	10
7.6.2 Fill Materials.....	10
7.6.3 Wells .....	10
7.7 Hazardous Building Materials.....	10



7.7.1	Asbestos-Containing Materials (ACMs)	10
7.7.2	Polychlorinated Biphenyls (PCBs)	11
7.7.3	Lead-Based Paints	11
7.7.4	Urea Formaldehyde Foam Insulation (UFFI)	11
7.7.5	Ozone-Depleting Substances (ODSs)	12
7.8	Special Attention Items	12
7.8.1	Radon Gas	12
7.8.2	Mold	12
7.8.3	Electromagnetic Fields (EMFs)	12
7.8.4	Noise and Vibration	13
7.9	Neighbouring Properties	13
7.9.1	North	13
7.9.2	South	13
7.9.3	East	14
7.9.4	West	14
<b>8.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS</b>	<b>15</b>
<b>9.0</b>	<b>CLOSURE</b>	<b>16</b>

---

## List of Figures

Figure 1	Site Location Map	Appendix A
Figure 2	Site Plan and Adjoining Properties	Appendix A

---

## List of Appendices

- APPENDIX A Figures
- APPENDIX B Photographs
- APPENDIX C Assessor Qualifications
- APPENDIX D Supporting Information



# PHASE I ENVIRONMENTAL SITE ASSESSMENT

## 1.0 INTRODUCTION

Jacques Whitford was retained by Crandall Engineering Ltd. to conduct a Phase I Environmental Site Assessment ("Phase I ESA") of the Marsh Creek Wastewater Treatment Plant located at 160 Thorne Avenue in Saint John, New Brunswick, herein referred to as the "Site". The purpose of the Phase I ESA was to determine if evidence of potential or actual environmental contamination exists in connection with the Site, which may be present as a result of current or past activities on the Site or neighbouring properties.

Figures of the Site (Figures 1 and 2) are included in Appendix A. Selected photographs of the Site are included in Appendix B.

## 2.0 SCOPE AND METHODOLOGY

### 2.1 Scope of Work

The Phase I ESA carried out by Jacques Whitford on this property is based on the requirements of the Canadian Standards Association (CSA) Phase I Environmental Site Assessment Standard (Z768-01) and consisted of the following:

- Records review including, but not limited to, publicly available city directories, aerial photographs, fire insurance plans, geological and topographic maps;
- Request to the New Brunswick Department of Environment (NBDENV) for records on the Site and adjoining properties;
- Review of available environmental databases and records;
- Review of previous environmental reports, if made available;
- Interviews with persons associated with the Site;
- A Site visit; and
- Evaluation of information and preparation of the report provided herein.

A Phase I ESA does not include sampling or testing of air, soil, groundwater, surface water or building materials. For this Phase I ESA, no enhancements to the CSA standard were made.



It should be noted that a Phase I ESA does not include a review or audit of operational environmental compliance issues or of any environmental management systems (EMS) which may exist for the property.

The assessment of the Site for the potential presence of hazardous building materials was based on the age of the building and its components. A Phase I ESA does not constitute a hazardous materials survey or a Designated Substances Survey.

---

## 2.2 Methodology

---

### 2.2.1 Records Review

The applicable search distance for the records review included the Site, properties immediately adjoining the Site and other neighbouring properties where activities considered to be potential sources of environmental contamination were apparent. Information sources obtained and reviewed as part of the records review are listed below:

#### Summary of Records Reviewed

Source	Information/Contact
Aerial Photographs	1994, 1984, 1976, 1962, 1953
City Directories	1950, 1955, 1969, 1974, 1984, 1991, 2000
Fire Insurance Plans	1957, 1967
Insurance Inspection Reports	None provided
Topographic Maps	New Brunswick Property-Topo Map, Sheet 21G/08-T2, Saint John New Brunswick.
Geological and Soil Maps	Quaternary Geology of New Brunswick, Geological Survey of Canada, 1984. Bedrock Geology of Southeastern New Brunswick, Map NR-6, Department of Natural Resources and Energy, New Brunswick, 1994.
Existing Title Searches	None provided
Company Records	None provided
Previous Reports	None provided

Previous environmental reports reviewed by Jacques Whitford are discussed in Section 5.0. Available environmental databases and records were searched to determine if the Site, adjacent or neighbouring properties are listed. The databases and search results are presented in Section 6.0.

---

### 2.2.2 Site visit

The Site visit was conducted by Mr. Barry Leger, M.Eng.,P.Eng., of Jacques Whitford, on July 21, 2006 (refer to the professional qualifications of the Site assessors provided in Appendix C). Mr. Bruce Slovitt, plant operator, accompanied Jacques Whitford at the time of the site visit.

---

### 2.2.3 Interviews

Interviews were conducted with the following persons:

#### Persons Interviewed

---

<b>Property Owner</b>	Mr. Bruce Slovitt, plant operator
-----------------------	-----------------------------------

---

	Ms. Tracey Arsenault, Environment Management Division, NBDENV
--	---

---

<b>Government Officials</b>	Mr. Patrick Stull, Saint John Office, NBDENV
-----------------------------	--

---

---

## 3.0 REGULATORY FRAMEWORK

In New Brunswick, the roles and powers of the New Brunswick Department of the Environment (NBDENV) when dealing with contaminated Sites are outlined primarily in the Guideline for the Management of Contaminated Sites (NBDENV, 2003). The NBDENV has a mandate to deal with situations where there is the presence or discharge of a contaminant into the environment. The Guideline for the Management of Contaminated Sites (September 2003) provides advice and information to property owners and consultants to use when assessing the environmental condition of a property, when determining whether or not restoration is required, and in determining the kind of restoration needed to allow continued use or reuse of the Site. A Phase I ESA is an initial step in the Site assessment process, which may lead to the requirement for restoration work if actual or potential sources of environmental contamination are identified.

During a Phase I ESA, samples are not collected, however if there are previous soil or groundwater samples available the results are compared to applicable federal and provincial regulations and guidelines.

A Phase I ESA also involves a review of the Site building for the potential presence of hazardous materials related to building components and materials. Specific federal or provincial regulations, guidelines or codes of practice exist for these individual hazardous materials. Where required, this documentation was utilized to determine appropriate conclusions and formulate appropriate recommendations. These are outlined within the respective subsection within Section 7.7.



---

## 4.0 SITE DESCRIPTION

---

### 4.1 Property Description

The Site consists of three parcels of land located in a commercial area in central Saint John, New Brunswick. A summary of the property information is presented below.

**Property Information:**

---

**160 Thome Avenue**

---

**Current Site Owner** City of Saint John

---

**Legal Description** PID Nos. 00411710, 55153746 and 55147565

---

**Property Area** 13,906 m<sup>2</sup>

---

**Utility Providers** Water and sanitary sewer provided to Site by municipal system.  
Electricity – Saint John Energy

---

---

### 4.2 On-Site Buildings and Structures

On-site buildings and structures included the one-storey Marsh Creek Wastewater Treatment Plant constructed in 1971. The building is a concrete-block structure with a flat tar & gravel covered roof and concrete foundation. The exterior walls are covered with brick. Attached to the western end of the Site building is the concrete treatment lagoon. In addition, three small wood-framed storage sheds are present on site. The remainder of the Site is covered with asphalt or lawn areas. The following is a summary of the site building information.

**Site Building Information**

---

<b>Dimensions</b>	Building - Approximately 9 m x 6 m Treatment Lagoon – Approximately 20 m x 15 m
<b>Number of Storeys</b>	one
<b>Foundation</b>	Concrete
<b>Basement</b>	Concrete
<b>Roof</b>	Flat, tar & gravel
<b>HVAC</b>	Electric baseboards

---

---

## 4.3 Physical Setting

---

### 4.3.1 Surficial Geology

The texture of overburden in the Saint John area can vary from clay to gravel, possibly due to frequent and diverse changes in sediment depositional environments. Till deposits, glacial outwash, marine deposits and tidal deposits have been reported. According to New Brunswick surficial and bedrock geology maps, overburden in the area generally consists of a discontinuous veneer of morainal sediments (less than 0.5 m thick) comprised primarily of stoney till deposited directly by ice or with minor reworking by water. A site-specific determination would be required in order to obtain detailed soil profile and permeability information.

---

### 4.3.2 Bedrock Geology

Bedrock geology mapping indicates that the area consists of early Cambrian to early Ordovician aged sedimentary rock locally referred to as the Saint John Group. Sandstone, siltstone, shale and limestone may be present. A large outcropping was evident immediately along the southern and eastern boundaries of the Site. A site specific determination would be required to obtain more detailed bedrock information for the site.

---

### 4.3.3 Topography and Regional Drainage

The majority of the ground surface on the Site is covered with the Site building, concrete lagoon, asphalt covered parking areas and light landscaping. The Site is generally flat. The southern and eastern boundaries of the Site are bordered by a steep inclined rock face.

Regional surface drainage (apparent groundwater flow direction) appears to be south to southwest toward Courtenay Bay, located approximately 1 km south of the Site.

---

### 4.3.4 Surface Water Drainage

Surface drainage at the Site appears to follow the general slope of the property, which is slightly east to west. A catch basin is located immediately north of the Site building. The catch basin reportedly discharges to the municipal sewer system.

No evidence of pits, standing water, natural lagoons, stressed vegetation, or watercourses was observed on the Site.

---

## 5.0 PREVIOUS ENVIRONMENTAL REPORTS

No previous environmental reports were received by Jacques Whitford with respect to the Site.

---

## 6.0 ENVIRONMENTAL DATABASE/RECORDS REVIEW

---

### 6.1 Regulatory Information

An information request was submitted to the New Brunswick Department of Environment (NBDENV) with regards to the Site and adjoining properties. NBDENV records date back to 1987. A copy of the NBDENV information is included in Appendix D of this report.

A summary of information obtained from NBDENV is provided below:

- **Minister's Orders:** The NBDENV reported that no Minister's Orders are in effect for the Site. A minister's order was served on one neighbouring property (see below).
- **Petroleum Storage:** The NBDENV reported that there were petroleum storage tanks registered for the Site and neighbouring properties (see below).
- **Remediation Records:** According to the NBDENV Remediation Site Management System, remedial activities have occurred on one adjacent property (see below).
- **PCB Storage:** The NBDENV reported that there are no PCB storage sites registered for the Site or adjoining properties.
- **Waste Disposal Site:** The NBDENV reported that there were no waste disposal sites registered for the Site or adjoining properties.

The subject property (PID No. 00411710) is registered and licensed under the Petroleum Storage and Handling Regulation. The NBDENV reported that two underground tanks (1 x 45,460 litre and 1 x 4,546 litre) were removed from the property in 1989. The NBDENV has no other information on these tank removals.

The NBDENV reported that the two aboveground storage tanks (2 x 1,125 litre) are registered for the multi-tenant commercial building property (PID No. 00019786) located approximately 50 m to the east. The NBDENV reported that a Minister's Order regarding the registering of an on-site storage tank, was served for this neighbouring property on March 26, 2003, then rescinded on April 16, 2003. In addition, and according to a fire insurance plan from 1967, one underground petroleum storage tank was present on this neighbouring property. The UST was also located approximately 50 metres from the subject property. The NBDENV had no information with respect to the UST on this property. Based on the close proximity of this adjacent property (<30 m) to the subject property, current and historic petroleum storage on this adjacent property may represent an environmental concern with respect to the subject property.



The NBDENV reported that two underground tanks (2 x 25,000 litres) are registered for the former Metro Gas property (PID No. 00019778) located northeast across Thorne Avenue. Two underground tanks (22,700 and 31,800 litres) were removed from this neighbouring property in 1990. The NBDENV indicated that contamination was encountered at the time of these tank removals and subsequently contaminated soil was removed. According to the NBDENV, the assessment of this neighbouring property is ongoing. Based on the close proximity of this adjacent property (<50 m) to the subject property, current and historic petroleum storage on this adjacent property may represent an environmental concern with respect to the subject property.

The NBDENV reported that two aboveground tanks are registered for the Chandler Sales (PID No. 00019760) property located to the north across Throne Avenue. Five underground tanks were removed from this commercial property during the late 1980's and early 1990's. The NBDENV did not report any concerns associated with petroleum storage at this site. The NBDENV reported that three underground petroleum storage tanks (2 x 9,092 litre and 1 x 2,270 litre) were removed from this neighbouring property in 1989 and three underground tanks (2 x 13,620 litre and 1 x 4,540 litre) were removed in the early 1990's. Based on the close proximity of this adjacent property (<30 m) to the subject property, historic petroleum storage on this adjacent property may represent an environmental concern with respect to the subject property.

The NBDENV reported that three USTs (2 x 9,092 litre and 1 x 2,270 litre) were removed from the former service station property (PID No. 00019836) in 1989 and three USTs (2 x 13,620 litre and 1 x 4,540 litre) were removed in the early 1990's. According to the NBDENV the status of contamination on this neighbouring property is unknown. Based on the close proximity of this adjacent property (<30 m) to the subject property, historic petroleum storage on this adjacent property may represent an environmental concern with respect to the subject property.

The NBDENV records indicate that remediation activity has occurred on the CN Rail property (PID No. 00317024) located approximately 25 m and greater to the east. According to the NBDENV, this site achieved the 1999 cleanup criteria and is considered closed. Based on this, this neighbouring property does not likely represent an environmental concern with respect to the Site.

---

## 7.0 FINDINGS

The following is a summary of observations made during the Site visit, interviews conducted, and information gathered from the records review and any other pertinent documents.

---

### 7.1 Current Site Operations

The Site is located at 160 Thorne Avenue in a commercial area in central Saint John, New Brunswick. At the time of the site visit, the subject property was occupied by the Marsh Creek Wastewater Treatment Plant. The Site is comprised of the operations building and the attached concrete treatment lagoon. Three storage sheds are present on the Site. The facility treats wastewater received from east Saint John. After treatment, liquid effluent is discharged to the municipal sewer system. Sludge is



removed from the Site and transported to the Lancaster Wastewater Treatment Plant for further treatment.

In addition to the wastewater treatment operations, the eastern portion of the Site is used for the temporary storage of treated hydro poles. There is a potential for hazardous substances (pentachlorophenol (PCP) or creosote) to leach into soils and groundwater in the vicinity of these hydro poles. As such, the storage of treated hydro poles represents a potential environmental concern to the Site.

No other potential sources of environmental contamination originating from the current activities on the Site were identified.

---

## 7.2 Historical Land Use

Historical land use for the Site was determined through historical records listed in Section 2.2.1. A summary of the historical information is presented below.

### Summary of Historical Information

Period/Date	Land Use
From prior to the mid 1940s to 1971	Vacant commercial land.
From 1971 to present	Municipal – Existing building

Based on information gathered during the historical review, it appears that the Site was originally developed for use as a waste water treatment plant in 1971. Prior to this, and according to fire insurance plans, a small structure was present on the Site. This structure was likely a storage shed associated with the slaughter house formerly located on the adjacent property to the north.

---

## 7.3 Waste Generation

### 7.3.1 Solid and Liquid Wastes

No hazardous waste generation was identified on the Site.

Solid wastes generated at the Site are limited to a minor quantity of typical office wastes. The wastes are collected and removed from the Site by site personnel on an as-needed basis.

---

### 7.3.2 Wastewater Discharges, Drains and Sumps

Wastewater discharges associated with the treatment plant operations were identified. An approval to operate has been issued for the facility operations. Wastewater entering the plant is first screened to remove larger solids before entering a multi-cambered, concrete lagoon where it is biologically

degraded. Sludge that accumulates at the bottom of the lagoons is removed approximately once per month by vacuum trucks. This sludge is transported to the Lancaster Wastewater Treatment Plant for further treatment. Treated liquid effluent from the plant is discharged to the municipal sewer system which discharges it to Marsh Creek and / or Dutchman's Creek and eventually, to Courtenay Bay. According to Mr. Slovitt, approximately 4 million liters per day are treated at the facility. The facility can not cope with the extra flow associated with runoff from heavy rain events. During heavy rain, much of the effluent received by the facility is discharged directly to the municipal system without being treated. The operation of this equipment is not suspected to result in residual contamination to the Site property.

---

### 7.3.3 Air Discharges

No sources of air emissions that are suspected to result in residual contamination to the property were identified on the Site.

A strong, pungent odour was evident in the areas immediately surrounding the treatment lagoon. However, the odour dissipated rapidly with increased distance from the lagoon.

---

## 7.4 Fuel, Chemical and Waste Storage

---

### 7.4.1 Storage Tanks

No chemical or fuel storage in underground storage tanks (USTs) or aboveground tanks (ASTs) was identified at the Site. Further, no vent or fill pipes indicating the potential presence of an abandoned or decommissioned storage tank was observed at this location during the site visit. As discussed in Section 6.1, two USTs (1 x 45,460 litre and 1 x 4,546 litre) were removed from the property in 1989.

---

### 7.4.2 Storage Containers

Chemical storage at the Site included consumer quantities of cleaning and general maintenance chemicals. Also, a minor quantity of fuel was stored in a vented storage shed located south of the Site building. No concerns were identified with respect to the storage of these chemicals.

---

## 7.5 Building Systems and Equipment

---

### 7.5.1 Heating and Cooling Systems

Heating is provided to the building by electric baseboard heaters. No cooling is provided to the building.





---

## 7.5.2 Hydraulic Equipment

No hydraulic equipment related to building systems were identified in the site building.

---

## 7.6 Exterior Site Observations

---

### 7.6.1 Surface Features

No stained surficial materials or stressed vegetation was observed on the Site. No watercourses, ditches, pits or natural lagoons were identified on the Site and no standing water was observed.

---

### 7.6.2 Fill Materials

As the Site is generally at grade with the adjacent roadways and neighbouring properties, it is unlikely that a significant quantity of fill materials were placed on the Site.

---

### 7.6.3 Wells

No abandoned or existing wells (water, oil, gas or disposal) were identified on the Site.

---

## 7.7 Hazardous Building Materials

Jacques Whitford reviewed the Site for the potential presence of the following hazardous materials during the Site visit. These substances are regulated through federal or provincial regulations and may represent a health concern, and/or require proper handling, storage and disposal. A description of the history of each material and the applicable governing regulations is provided in each of the following subsections.

---

### 7.7.1 Asbestos-Containing Materials (ACMs)

The inhalation of asbestos fibres can cause serious diseases of the lungs and other organs that may not appear until years after the exposure has occurred. The common use of asbestos-containing materials (ACMs) in construction generally ceased voluntarily in the mid 1970s. However, ACMs are known to be present in buildings constructed up to the late 1980's. Further, asbestos is still utilized in the manufacturing of some vinyl floor tile and cement products.

Friable ACMs (breakable by hand) are a potential health concern as asbestos fibres can be easily exposed and become airborne. Further, non-friable ACMs can be considered friable if disturbed. However, if identified to be present, friable ACMs can remain in a building provided that they are in good condition or encapsulated, and a management plan is implemented.

Based on the age of the building, the presence of ACMs is possible. Drywall compound observed in the Site building may contain asbestos. Based upon the age of the site building, the presence of other ACMs is possible.

---

#### 7.7.2 Polychlorinated Biphenyls (PCBs)

From the 1930s to the 1970s, PCBs were widely used in a number of industrial materials, including sealing and caulking compounds, inks and paint additives. They were also used to make coolants and lubricants for certain kinds of electrical equipment, including transformers and capacitors. PCBs are an environmental concern as they do not readily degrade and have been identified to bioaccumulate. In Canada, the federal Environmental Contaminants Act (1976), prohibited the use of PCBs in heat transfer and electrical equipment installed after September 1, 1977, and in transformers and capacitors installed after July 1, 1980. In addition, the storage and disposal of PCB waste materials is regulated.

Based on the age of the Site building, the presence of PCB-containing electrical equipment is possible. A pad-mounted transformer was observed on the southeast corner of the Site property. This transformer is owned and operated by Saint John Energy. An undetermined number of fluorescent light fixtures were observed in the Site building. Based on the age of the building, the fluorescent lamp ballasts in the fixtures may contain PCBs.

---

#### 7.7.3 Lead-Based Paints

In 1976, the lead content in interior paint was limited to 0.5% by weight under the federal Hazardous Products Act. Lead is also associated with plumbing solder and old pipes as well as other lead-based products such as wall shielding (x-ray rooms). Lead occurs naturally in the environment and has many industrial uses. Lead, particularly lead dust, can be hazardous to human health depending on the amount and type of exposure.

Based on the age of the building, lead-based paints may be present. No flaking or peeling paint was observed on the Site building.

---

#### 7.7.4 Urea Formaldehyde Foam Insulation (UFFI)

During the 1970s, when concerns about energy efficiency led to efforts to improve home insulation in Canada, UFFI became an important insulation product for existing houses. Most installations occurred between 1977 and its ban in Canada in 1980 under the federal Hazardous Products Act.

Based on the age of the subject buildings, the presence of UFFI is possible. Evidence of UFFI was not observed in the buildings during the site visit; however, intrusive inspection of wall cavities for UFFI was not performed.



---

### 7.7.5 Ozone-Depleting Substances (ODSs)

In 1994, the federal government filed the Ozone-depleting Substances Regulations to amend controls on production and consumption of chlorofluorocarbons (CFCs), Halons, carbon tetrachloride and methyl chloroform.

Sources of ozone depleting substances (ODSs) on the subject property included two domestic refrigerators. One was located inside the Site building, while a second was located outside, near the treatment lagoon. The type and quantity of refrigerant present in this equipment was not determined.

---

## 7.8 Special Attention Items

Jacques Whitford reviewed the Site for the potential presence of the following items during the Site visit. These materials are not regulated. However, through limited research and heightened awareness, these items have been identified to potentially pose an environmental concern with respect to adverse effects on human health.

---

### 7.8.1 Radon Gas

Radon gas is a product of the decay series that begins with uranium. Radon is produced directly from radium, which can be commonly found in bedrock that contains black shale and/or granite. Radon emits alpha particles and produces several solid radioactive products called radon daughters. Harmful levels of radon and radon daughters can accumulate in confined air spaces, such as basements and crawl spaces.

No testing for radon gas products has reportedly been completed for the Site. Based on information contained on regional geological maps and construction of the site building (i.e. no basement levels, slab-on grade floor), significant levels of radon gas products are not expected to be present on the Site.

---

### 7.8.2 Mold

The growth of mold in indoor environments is typically due to a moisture problem related to building envelope or mechanical systems deficiencies or design, and can produce adverse health effects.

No visual evidence of suspected mold growth was observed in the accessed areas of the Site building at the time of the Site visit.

---

### 7.8.3 Electromagnetic Fields (EMFs)

Electrical currents cause electromagnetic fields. Common household current is alternating current, which reverses its direction (its charge) then switches back. This cycle creates electric and magnetic fields at the same frequency. No scientific data supports definitive answers to questions about the existence or non-existence of health risks related to electromagnetic fields.



No high voltage transmission lines or electrical substations, which could generate significant electromagnetic fields, were identified on the Site.

---

#### 7.8.4 Noise and Vibration

The effects of noise and vibration on human health vary according to the susceptibility of the individual exposed, the nature of the noise/vibration and whether exposure occurs in the working environment or in the home.

No major or persistent sources of noise or vibration were identified on the Site at the time of the site visit.

---

#### 7.9 Neighbouring Properties

The current activities on neighbouring properties observed at the time of the site visit and a summary of historic information gathered through the records review are presented in the following sections.

---

##### 7.9.1 North

Based on the historical records reviewed, the following is a summary of the historical activities on the neighbouring properties to the north.

###### North (adjoining and across Thorne Avenue)

---

<b>Current</b>	Commercial/Institutional – multi tenant commercial building (adjoining) and a cemetery, commercial equipment supply retail business and vacant commercial lot (across Thorne Avenue).
<b>Historic</b>	Commercial – slaughterhouse (Canada Packers Ltd.), multi tenant commercial building since prior to the mid 1940's to present (adjoining). A cemetery, truck maintenance facility, commercial equipment supply retail business and gasoline service station since prior to the mid 1954's to present (across Thorne Avenue).

---

Prior to Chandler Sales (PID No. 00019760), the adjacent property to the north across Thorne Avenue was utilized as a truck maintenance facility. Fire insurance plans from 1957 and 1967 indicate the presence of a 180,000 litre aboveground fuel oil tank located on this neighbouring property. The NBDENV had no information with respect to this tank. With the exception of this former AST and petroleum storage discussed in Section 6.1, no other current or historic activities, operations or tenants on the neighbouring properties to the north were identified that would be considered a potential environmental concern to the Site.

---

##### 7.9.2 South

Based on the historical records reviewed, the following is a summary of the historical activities on the neighbouring properties to the south.

---

**South (adjoining)**

---

**Current** Commercial – Railway and marshland

**Historic** Commercial – Railway and marshland since prior to the mid 1940s to present.

---

No current or historic activities, operations or tenants on the neighbouring properties to the south were identified that would be considered a potential environmental concern to the Site.

---

**7.9.3 East**

Based on the historical records reviewed, the following is a summary of the historical activities on the neighbouring properties to the east.

**East (adjoining)**

---

**Current** Commercial – Railway and Multi-tenant commercial buildings

**Historic** Commercial – Railway, former automotive dealership / service garage, New Brunswick Provincial Government Building, a tile, brick and concrete construction company, offices and a sheet metal warehouse, various commercial retail business since prior to the mid-1940s to the present.

---

A former automobile dealership/service garage was present on the neighbouring property to the northeast from the 1950's to the 1960's. Fire insurance plans from 1957 and 1967 indicate the presence of three underground petroleum storage tanks on this property (PID No. 00019794). These tanks were located approximately 50 metres from the subject property. NBDENV had no information with respect to the former USTs on this property.

According to a fire insurance plan from 1967, one underground petroleum storage tank was present on the neighbouring property to the east (PID No. 00019786). The tank was also located approximately 50 metres from the subject property. The NBDENV had no information with respect to the UST on this property.

The former presence of these underground tanks may pose a potential environmental concern for the subject property. With the exception of these USTs and petroleum storage / remedial activities discussed in Section 6.1, no other current or historic activities, operations or tenants on the neighbouring properties to the east were identified that would be considered a potential environmental concern to the Site.

---

**7.9.4 West**

Based on the historical records reviewed, the following is a summary of the historical activities on the neighbouring properties to the west.

## West (adjoining)

---

- Current** Commercial / Institutional – Used car dealership, paint supply store, bottle recycling depot, commercial vehicle service garages, natural gas pipeline valve station and cemetery.
- Historic** Commercial - Gasoline service station from the 1950s to the early 1990's. Paint supply store, used car dealership, bottle recycling depot and commercial vehicle service garages from the early or mid 1990s to the present. Natural gas pipeline valve station from the early 2000's to the present. Institutional (graveyard) since prior to the mid 1940s to present.
- 

A commercial vehicle service garage is present on the adjoining property to the west (PID No. 55153761). A former service station was present on the neighbouring property to the northwest (PID No. 00019836) from the 1950's to the early 1990's. With the exception of operations at the commercial vehicle service garage and former gasoline service station, and petroleum storage discussed in Section 6.0, no other current or historic activities, operations or tenants on the neighbouring properties to the west were identified that would be considered a potential environmental concern to the Site.

---

## 8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on information gathered and observations made, the Phase I ESA has revealed evidence of potential environmental contamination associated with the Site. The following environmental concerns were identified:

**Historic Underground Petroleum Storage on Site:** According to NBDENV, the subject property is registered and licensed under the Petroleum Storage and Handling Regulation. The NBDENV reported that two underground tanks (1 x 45,460 litre and 1 x 4,546 litre) were removed from the property in 1989. The NBDENV had no other information on the tank removals. Jacques Whitford recommends that a subsurface investigation be conducted in the area of the former USTs to determine if soil and/or groundwater have been impacted by the historical presence of these tanks.

**Active/Historic Underground Petroleum Storage on adjacent properties:** According to the NBDENV files, historic underground petroleum storage was identified on neighbouring properties to the east and west, and to the north across Thorne Avenue. In addition, NBDENV reported that remediation has occurred on one property to the east and northeast across Thorne Avenue. Jacques Whitford recommends that a subsurface investigation be conducted on the northern, eastern and western property boundaries to determine if soil and/or groundwater have been impacted by active/historic presence of USTs on these adjacent properties.

**Active/Historic Hydro Pole Storage on Site:** The eastern portion of the Site is used for the temporary storage of treated hydro poles. There is a potential for hazardous substances (pentachlorophenol (PCP) or creosote) to leach into soils and groundwater in the vicinity of these hydro poles. As such, the storage of treated hydro poles represents a potential environmental concern to the Site. Jacques Whitford recommends that a subsurface investigation be conducted on the eastern portion of the Site to determine if soil and/or groundwater have been impacted by active/historic storage of treated hydro poles.

Potential minor environmental concerns associated with asbestos-containing materials (drywall compound), PCBs in fluorescent light ballasts and suspected lead in paint were noted. These concerns should be addressed prior to any renovations or demolition.

---

## 9.0 CLOSURE

This report has been prepared for the sole benefit of the Crandall Engineering Ltd. on behalf of their client, the City of Saint John. The report may not be used by any other person or entity without the express written consent of the Crandall Engineering Ltd. and Jacques Whitford. Any use which a third party makes of this report, or any reliance on decisions made based on it, are the responsibility of such third parties. Jacques Whitford accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

Some of the information presented in this report was provided through existing documents and interviews. Although attempts were made, whenever possible, to obtain a minimum of two confirmatory sources of information, Jacques Whitford in certain instances has been required to assume that the information provided is accurate.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted engineering and scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Jacques Whitford based on the data obtained during the assessment. Due to the nature of the assessment and the limited data available, Jacques Whitford cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be construed as legal advice.

Since the purpose of a Phase I ESA is to identify evidence of potential or actual contamination, the identification of Site conditions which may pose a non-environmental risk to buildings or people on the Site is beyond the scope of this assessment. (Examples include but are not limited to underground mine workings, volcanic or earthquake activities, severe weather, and/or flood plains in the area.) Jacques Whitford accepts no responsibility for damages, if any, suffered as a result of any non-environmental risk.



Should additional information become available which differs significantly from our understanding of conditions presented in this report, we request that this information be brought to our attention so that we may reassess the conclusions provided herein. This report was prepared by Mr. Barry Leger, M.Eng., P.Eng., and reviewed by Mr. David Rae, Ph.D., P.Geo

Respectfully submitted,

**JACQUES WHITFORD LIMITED**



Barry F. Leger, M. Eng., P.Eng.  
Environmental Site Assessor



FOR : David Rae, Ph.D., P.Geo  
Senior Reviewer

P:\1015XXX\1015367\1015367\_Marsh Creek Wastewater Treatment Plant PHI ESA.doc

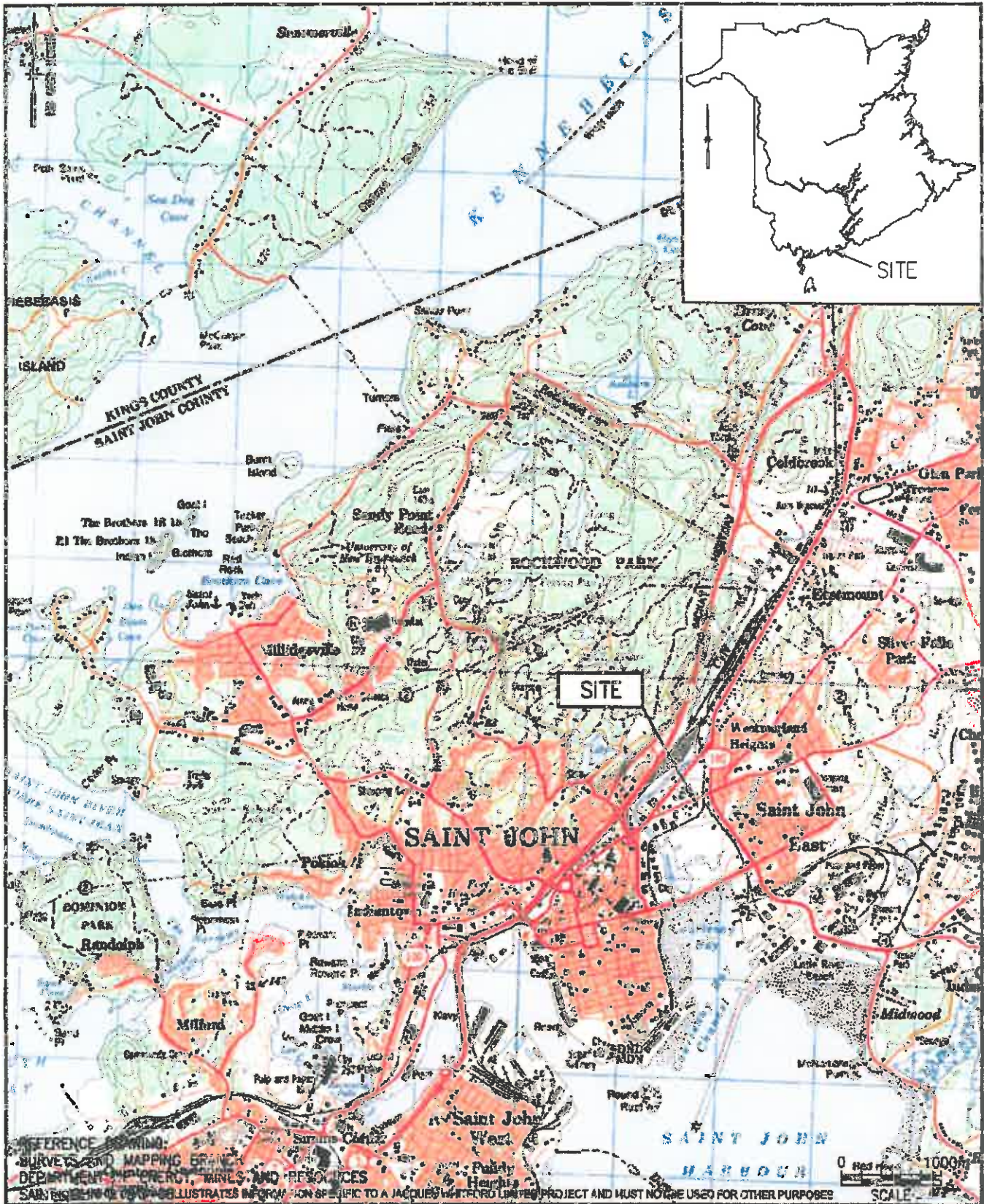


# APPENDIX A

## Figures







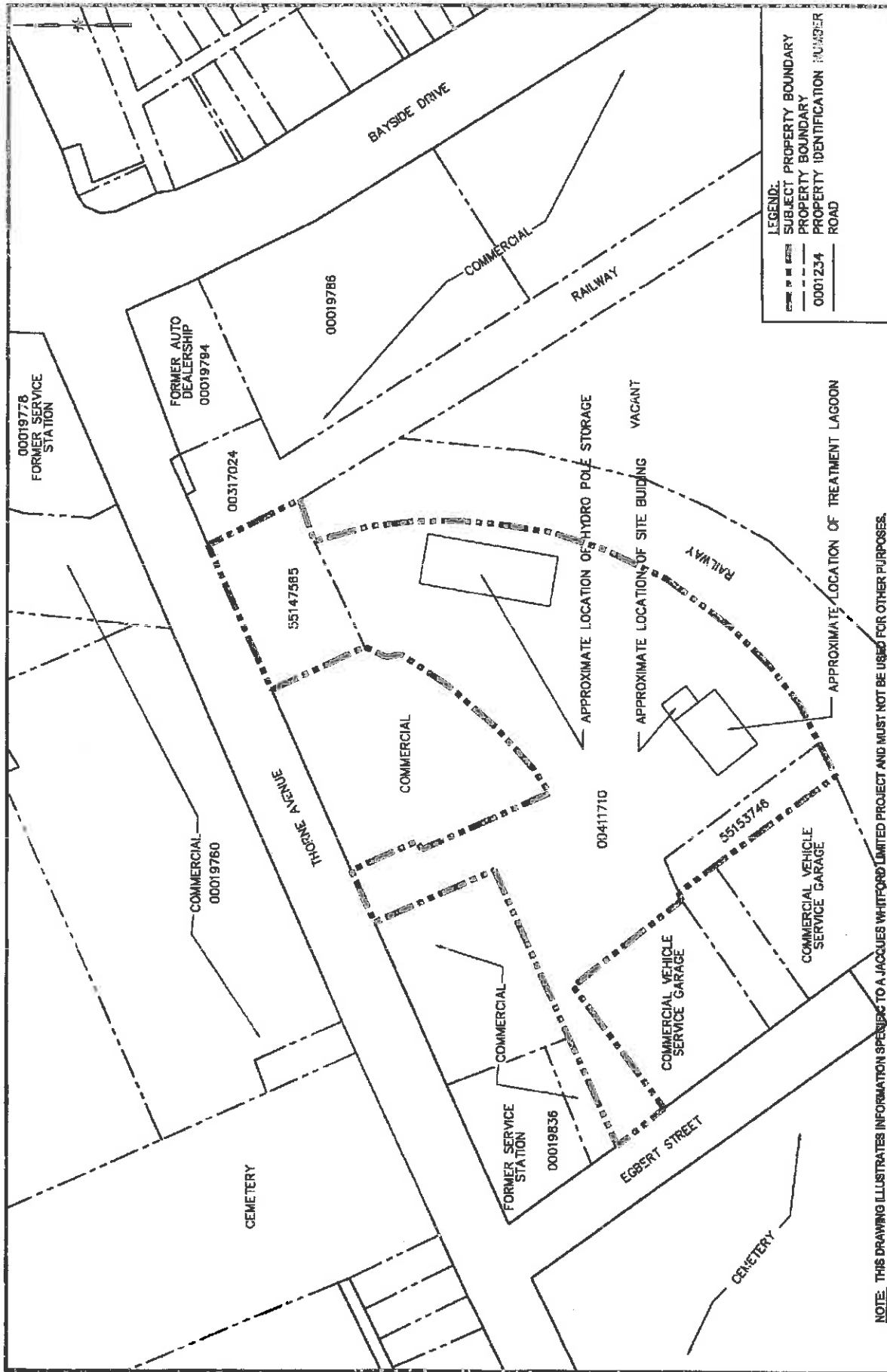
**SITE LOCATION PLAN**  
 PHASE I ENVIRONMENTAL SITE ASSESMENT  
 MARSH CREEK WASTEWATER TREATMENT PLANT  
 160 THORNE AVENUE, SAINT JOHN, NB

Client: **CRANDALL ENGINEERING LTD.**

Scale:	Job No.:	Dwg. No.:
1:50000	1015367.01	01
Date:	Dwn. By:	Appd. By:
06.07.24	RLG	-

**Jacques Whitford**  
 20 Broadview Ave. S.  
 Saint John, NB E2L 5C5





**LEGEND:**  
 - - - - - SUBJECT PROPERTY BOUNDARY  
 - - - - - PROPERTY BOUNDARY  
 0001234 PROPERTY IDENTIFICATION NUMBER  
 ——— ROAD

NOTE: THIS DRAWING ILLUSTRATES INFORMATION SPECIFIC TO A JACQUES WHITFORD LIMITED PROJECT AND MUST NOT BE USED FOR OTHER PURPOSES.

<b>Jacques Whitford</b> 20 Broadview Ave. S. Saint John, NB E2L 5G5		<b>Dwg. No.:</b> <b>02</b>
<b>Scale:</b> 1:3000	<b>Job No.:</b> 1015367.01	<b>Appd. By:</b> -
<b>Date:</b> 06/07/24	<b>Divn. By:</b> RLG	<b>Appd. By:</b> -

**SUBJECT AND ADJOINING PROPERTIES**  
 PHASE I ENVIRONMENTAL SITE ASSESSMENT  
 MARSH CREEK WASTEWATER TREATMENT PLANT  
 160 THORNE AVENUE, SAINT JOHN, NB

**Client:**  
CRANDALL ENGINEERING LTD.

**CSent:**  
Jacques Whitford © 2006



# APPENDIX B

## Photographs

---







**Figure 1** Looking west toward the Site building.



**Figure 2** Looking west toward across the treatment lagoon.





# APPENDIX C

## Assessor Qualifications



**BARRY F. LEGER, M.Eng, P.Eng**

**Position:**

Site Assessor

**Education:**

BSc. Eng. (Mechanical Engineering), University of New Brunswick, 1993.

Masters of Engineering. Civil Engineering (specializing in Environmental Studies), University of New Brunswick, 1997.

Phase I Training Course, Jacques Whitford, 2005

**Phase I and II Experience:**

Participated in over 50 Phase I and Phase II Environmental Site Assessments for industrial, commercial, residential, and undeveloped sites in New Brunswick and the United States including Irving, Teacher's Insurance, AT&T, Canada Post Corporation, Brookville LePage Johnson Controls, Public Works, Business Development Bank of Canada and many other clients.





# **APPENDIX D**

## **Supporting Information**



July 21, 2006  
File No.: 205-02-R4



2006-07-25 08:06

Jacques Whitford  
20 Broadview Ave. South  
St. John, NB  
E2L 5C5  
Attention: Barry Eger  
Your file ref#: 1015367

*Barry Eger*

**RE:**           **Owner:**       **City of Saint John**  
                  **Location:**   **Thorne Ave., Egbert St., Saint John**  
                  **PID #s:**       **00411710, 55153746**

In response to your request for information regarding the above noted properties, please be advised that a search of departmental electronic databases has been conducted *with the information provided*, and the following information was found.

There is no record of Ministerial Orders or Remediation Orders related to these PID numbers.

Petroleum storage tank information related to PID # 00411710 is attached. With respect to the remaining PID number, our records indicate that there are no petroleum storage tanks registered with the Department, under the Petroleum Product Storage and Handling Regulation

We have no records in our database of any remedial activity or contamination for these PID numbers.

These PID numbers are not registered with the Department as PCB Storage sites.

We have no records of landfill sites located near these PID numbers.

The absence of departmental records in this search does not necessarily indicate that the sites have not been subject to environmental incidents. The information is accurate in that it provides a factual reflection of what is contained in departmental databases. The files themselves may or may not be complete. As an example, in the case of underground petroleum storage tanks, the files accurately reflect all those that were registered with the program; there may be underground storage tanks that were not registered and of which the Department has no knowledge. Likewise, there may be incidents of spills of which the Department was not informed or which pre-date Departmental records. The "Remediation Site Management System" was recently established and does not contain a complete history of past spills or remediation efforts. Furthermore, if the properties have been recently subdivided, the PID #s provided may not correspond with those contained in departmental files and thus on the databases.

Any persons intending to purchase or occupy the property should make their own independent determination of the environmental condition of the property and the extent of responsibility and liability, if any, that may arise from taking ownership or occupancy.

Remediation Branch- Environmental Management Division

Enclosures: 1

/ta

2006-07-25 08:06





PETROLEUM STORAGE TANK INFORMATION

**PID # 00411710**

**SITE #: 5026**

**ADDRESS: Saint John Appetoire  
176 Thorne Ave.  
Saint John, NB**

**Tank Information:**

**CURRENT STATUS:** Removed  
**DATE OUT OF SERVICE:** 89.09.01  
**INSTALLATION DATE:** Unknown  
**TANK SIZE:** 4546 L  
**SUBSTANCE STORED:** Unknown  
**LOCATION:** Under Ground  
**CONSTRUCTED OF:** Single Wall Steel

**CURRENT STATUS:** Removed  
**DATE OUT OF SERVICE:** 89.09.01  
**INSTALLATION DATE:** Unknown  
**TANK SIZE:** 45160 L  
**SUBSTANCE STORED:** Unknown  
**LOCATION:** Under Ground  
**CONSTRUCTED OF:** Single Wall Steel