

## Completion Report for Studies

<b>GMF number</b>	15145
<b>Name of lead applicant (municipality or other partner)</b>	Town of Smith Falls
<b>Name, title, full address, phone, fax and e-mail address of lead technical contact for this study</b>	David Hodgson, P.Eng. Malroz Engineering Inc. 308 Wellington St, Kingston, Ontario K7K 7A8 Phone: 613-548-3446 extension 25 Fax: 613-548-7975. <a href="mailto:Hodgson@malroz.com">Hodgson@malroz.com</a>
<b>Date of the report</b>	July 18, 2017

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### 1. Introduction

- a. Who was involved in doing the Feasibility Study, and what are their affiliations? Please include name, title and contact information. Those involved could include municipal staff, engineers and other consultants, a representative from a non-governmental organization, and others.

The Town of Smiths Falls was the lead applicant for the study. The Town’s contact for this project was the Director of Public Works and Utilities, Mr. Troy Dunlop:

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Malroz Engineering Inc. completed the Feasibility Study on behalf of the Town. The Malroz team was led by project manager, Mr. David Hodgson:

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XIE (Environmental) provided additional project management support during project initiation and selection of the environmental consultant. The contact for XIE is Mr. Max Christie:

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XIE (Environmental)  
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## 2. The Feasibility Study

- a. Describe the process that you undertook to make this feasibility study a reality, from concept, to council approval, to RFP, to final deliverable.

The project site, located at 25 Old Mill Road, is the location of a former water treatment plant and hydroelectric generating station, that was operated by The Town of Smith Falls until 2010. The site was first developed in the mid 1800s as a flour mill and was also used as a feed mill, a moulding shop, a machine shop, and a foundry, prior becoming a water works circa 1900.

After the water treatment plant was decommissioned, it was identified as a possible redevelopment site. Through public consultations and planning reviews, the site was designated as a strategic priority as the “West Signature Development Site” in the Downtown Revitalization and Waterfront Integration Master Plan and other planning documents.

The Town solicited proposals for private redevelopment of the property in 2013. However, the project site garnered limited interest from private developers, due to its history and unknown environmental conditions at the site. Related risks included potential soil and groundwater contamination from past property uses and potentially contaminating activities. The site was therefore considered a brownfield.

To encourage redevelopment of the site, the Town initiated the feasibility study to reduce environmental uncertainty and determine options for remediation of contamination identified at the site. With the support of XIE Environmental, the Town prepared a competitive Request for Proposals (RFP) to select a qualified environmental consultant to undertake the feasibility study, which would include Environmental Site Assessments (ESAs), a Designated Substance Survey, and a Remedial Action Plan and Cost Estimate. The scope of the feasibility study and related RFP received unanimous Council support in March 2016 based on its alignment with the Town’s strategic priorities.

Through the RFP process, Malroz Engineering Inc. was retained to undertake the feasibility study. The project was initiated with a kick-off meeting between the Town of Smiths Falls Public Works Department, XIE Environmental and Malroz in April 2016. Malroz subsequently initiated the preliminary phase of the feasibility study, which comprised of a Phase 1 ESA study of the property to identify current and historical potentially contaminating activities (PCAs) that may have contributed to on-site contamination. PCAs identified in the Phase 1 ESA included use of the site for electricity generation, gasoline and associated products stored in fixed tanks;

fueling and repair of equipment and vehicles; metal fabrication; and smelting, refining, and ore processing related to the former foundry.

In May, the preliminary findings of the Phase 1 ESA were reported and an updated scope of work for the Phase 2 ESA was recommended by Malroz. Based on these findings, Public Works staff summarized the recommendations in a report to Council, which provided unanimous support for the revised scope of the feasibility study on June 6, 2016.

Fieldwork for the feasibility study was subsequently completed by Malroz in July and related reports, including the remedial options review and cost estimate were completed by November.

b. What were the objectives of the Feasibility Study (what was it seeking to determine)?

The objectives of the feasibility study were:

- To evaluate the current environmental conditions at the site by assessing soil and groundwater quality at areas of potential environmental concern identified via the Phase 1 ESA;
- To conduct an initial delineation of the extent of contamination at the site, if identified;
- To identify potential remedial options that could be used to remediate and/or manage any contamination identified at the site to mitigate risk to human health and the environment in a manner that is compatible with site redevelopment;
- To evaluate potential designated substances within the building; and
- To provide a cost estimate to conduct necessary abatement of designated substances identified within the building.

The feasibility study work was conducted while taking into account provincial regulations defined by the MOECC, specifically O. Reg 153/04, which specifies the environmental requirements for redeveloping the property for residential use.

Data from the feasibility study will be used by the Town as it solicits proposals for redevelopment of the property from private developers. The data will inform the Town and potential developers about potential environmental risks related to the site that must be considered as it impacts future use of the property and its valuation.

c. What approach (or methodology) was used in the Feasibility Study to meet these objectives?

A Phase 1 ESA was completed prior to the Feasibility Study to identify current and historic PCAs and related areas of potential environmental concern. Based on the results of the Phase 1 ESA, Malroz undertook a Phase 2 ESA to assess for soil and groundwater contamination. The Phase 2 ESA included drilling 12 boreholes for soil sampling and installing 8 monitoring wells for groundwater sampling. Borehole and monitoring wells were advanced in specific locations to target areas of potential environmental concern identified in the Phase 1 ESA. Soil and groundwater samples collected from the boreholes and monitoring wells were submitted for analysis of potential contaminants of concern associated with the PCAs identified found during the Phase 1 ESA. Analytical results were compared to the appropriate MOECC soil and groundwater standards to evaluate potential risk to human health and the environment. Based on these results, the approximate extent of contamination was inferred and a remedial options analysis was conducted. The costs associated with two preferred remedial options were estimated.

In addition to soil and groundwater assessment, Malroz undertook a designated substance survey of the building, which comprised a site walkthrough to visually assess for potential designated

substances, as well as a building materials sampling program. Building materials sampling included paint, floor tiles, ceiling tiles, wallboards, and other materials, which were submitted for assessment of arsenic, lead, mercury, polychlorinated biphenyls and asbestos. Based on these results, Malroz prepared an estimate of the approximate cost to conduct necessary abatement of designated substances that would be expected for redevelopment of the building.

- d. Please describe any public consultations conducted as part of the Feasibility Study and their impact on the Study.

Public consultations were not completed as part of the feasibility. However, the Town undertook public consultations during development of its Downtown Revitalization and Waterfront Integration Master Plan, which identified redevelopment and improvement of the site as a strategic priority. The outcome of this Master Plan formed the basis for undertaking the feasibility study.

### **3. Feasibility Study Findings and Recommendations**

- a. What were the environmental findings related to the options explored in the Feasibility Study? Please provide quantitative results and summary tables of these results (or the page numbers from the Feasibility Study report).

The Phase 2 ESA identified that soil contamination was present at 8 of the 12 boreholes. Soil contaminants included petroleum hydrocarbons, metals, polycyclic aromatic hydrocarbons, and other inorganic parameters, as summarized in Table 7 and Figure 4 of the Phase 2 ESA report. Groundwater results indicated that contamination was identified at three monitoring wells, including the presence of a hydrocarbon sheen at one monitoring well. Groundwater contaminants included petroleum hydrocarbons and trichloroethylene, as summarized in Table 8 and Figure 5 of the Phase 2 ESA report.

Based on these findings, Malroz divided the site into nine risk management areas for the purpose of evaluating potential remediation or risk management options. Approximately 3,700 m<sup>2</sup> of the 5,400 m<sup>2</sup> site was identified as requiring remediation or risk management to support redevelopment of the site for residential use, as indicated in Table 1 of the Remedial Options and Cost Analysis Report. Two preferred options were considered for soil remediation or risk management to support residential property use, as described below.

- Option 1: Excavate and dispose of the contaminated soil for offsite disposal at a landfill. This will result in all contamination being removed from the site. Confirmatory sampling would be conducted to confirm contaminated soil was removed.
- Option 2: Cap the site. This option would involve covering the site with clean fill (having a minimum thickness of one metre). This clean fill cap would mitigate potential contaminant exposure pathways from the subsurface.

In addition, one preferred option was evaluated to remediate identified groundwater contamination. This option would include in situ remediation using injections of chemical amendments and extraction of contaminated groundwater. Groundwater remediation would also require further groundwater sampling conducted quarterly to confirm remediation was completed.

Results of the designated substance survey confirmed the presence of designated substances at the site, including: asbestos containing floor tiles and ceiling panels; lead, mercury and arsenic in paint; silica in various building materials, and benzene in petroleum products at the site. Results

were presented in the Designated Substances Survey report, and a cost estimate for the abatement of various substances as necessary for site redevelopment was summarized in a separate letter.

- b. What were the financial findings related to the options explored in the Feasibility Study (for example, results of a cost-benefit analysis, financial savings identified, and so on)? Please provide quantitative results and summary tables of these results (or the page numbers from the Feasibility Study report).

The cost to undertake the preferred remediation and risk management approaches was estimated based on the results of the Phase 2 ESA and the risk management areas. These estimates were summarized in the Remedial Options and Cost Analysis report.

The results of the cost analysis indicated that remediation (Option 1) would be significantly more expensive than undertaking a risk management approach (Option 2). The costs associated with remediation were primarily associated with excavation and disposal of contaminated soils at deeper soil depths, whereas the costs with a risk management approach were primarily attributed with importing fill material and the cost to design and implement the fill cap.

- c. Based on the environmental and financial findings above, what does the Feasibility Study recommend?

Based on the findings of the feasibility study, it was concluded that a risk management approach would be a more economical approach. However, due to the extent of the contamination both options had a high financial cost, which is expected to hinder private interest in redevelopment of the site. Therefore, it will be important for developers to be aware of financial incentives available through the Town's Community Improvement Plan and for the property to be marketed appropriately, given the known environmental conditions and associated risks.

#### 4. Lead Applicant's Next Steps

- a. Taking the Feasibility Study's recommendations into account, what next steps do you as the municipality plan to take? What potential benefits or internal municipal improvements would result from these next steps?

The Town is in the process of evaluating the next steps for this project. It is currently preparing a RFP that will be issued to the open market to solicit proposals for redevelopment of the site. Given the site's brownfields designation, private developers will have the opportunity to capitalize on the Town's Community Improvement Plan, which includes an ESA Grant Program and an Environmental Remediation Tax Assistance Program, if the developer undertakes further investigations and remediation as required under Ontario law to change the property use to residential. If developers do not intend to change the property use from commercial, further remediation or environmental risk management would not be required under Ontario law; however, the Town would preferentially consider proposals that include environmental remediation or risk management. Ultimately, the Town's objective is to return the property to active use, which will help revitalize the downtown area and waterfront areas adjacent to the Rideau Canal system.

The Town is also preparing to undertake minor improvements to the site that will repair on-site infrastructure and enhance its connectivity to the downtown area via pedestrian access to the Beckwith Street bridge. During this work, the Town will incorporate its knowledge of the environmental contamination at the site to ensure that these undertakings will include proper soil management practices and healthy and safety considerations to protect workers from risk of exposure to contaminants.

#### 5. Lessons Learned

In answering the questions in this section, please consider all aspects of undertaking the Study — from the initial planning through each essential task until the Final Study was prepared.

- a. What would you recommend to other municipalities interested in doing a similar Feasibility Study? What would you do differently if you were to do this again?

Municipalities should be aware that properties with a long history of industrial use are likely to be contaminated and may therefore be difficult to redevelop. Risks associated with contamination may represent significant liabilities as costs associated with remediation and risk management are not inconsequential.

Municipalities should also be aware that the scope and costs associated with a Phase 2 ESA typically cannot be determined until after undertaking the Phase 2 ESA. Due to the large number of potentially contaminating activities and areas of potential environmental concern associated with the site, it was necessary to increase the scope and budget of the Phase 2 ESA in this feasibility study after it was initially approved. This required further consent from Council after it initially approved the Phase 2 ESA prior to receiving results of the Phase 1 ESA.

- b. What barriers or challenges (if any) did you encounter in doing this Feasibility Study? How did you overcome them?

Due to the extensive history associated with this site and mixed historic property use, there was significant uncertainty regarding the environmental conditions at the property. In order to resolve

these uncertainties, a careful assessment of historic property use was undertaken as part of the Phase 1 ESA that preceded the feasibility study. When the Town originally went out to RFP with the Phase 1 and Phase 2 ESA, it had assumed that the soil/groundwater investigation program would include only a limited number of boreholes/wells however that number grew by almost double after the environmental risks were fully evaluated based on the results off the Phase 1 ESA. In the end, the Phase 2 ESA was diligently planned and undertaken to address the areas of concern identified in the Phase 1 ESA and appropriate budget increases were applied to achieve those goals.

## 6. Knowledge Sharing

- a. Is there a website where more information about the Feasibility Study can be found? If so, please provide the relevant URL.

Not at this time.

- b. In addition to the Feasibility Study results, has your Feasibility Study led to other activities that could be of interest to another municipality (for example, a new policy for sustainable community development, a series of model by-laws, the design of a new operating practice, a manual on public consultation or a measurement tool to assess progress in moving toward greater sustainability)? If so, please list these outcomes, and include copies of the relevant documents (or website links).

Not at this time.

## 7. Project Photographs

The following photographs are enclosed.

Photo #	Description	Credit
1	Front entrance of the former Smiths Falls water treatment plant	©2016, Town of Smiths Falls/ Malroz Engineering Inc.
2	The Rideau River east and rear of the former Smiths Falls water treatment plant (located at right of photo)	©2016, Town of Smiths Falls/ Malroz Engineering Inc.
3	Malroz Engineering Inc. employee collecting a building material sample from inside the former water treatment plant	©2016, Town of Smiths Falls/ Malroz Engineering Inc.
4	Drilling a borehole on the south side of the parking lot of the former water treatment plant	©2016, Town of Smiths Falls/ Malroz Engineering Inc.
5	Drilling a borehole in front of the former water treatment plant	©2016, Town of Smiths Falls/ Malroz Engineering Inc.
6	Well monitoring and development at the front of the former water treatment plant	©2016, Town of Smiths Falls/ Malroz Engineering Inc.