

**Date:** July 15, 2020

**Prepared by:** Environmental Management Services (EMS)

**Current Land Owner:** Richard Hardy, since 1950s.

**Address:** 30 and 30 A Bear Rock Drive, Tulita, Northwest Territories

## SCREENING LEVEL REVIEW

### Description:

This screening level review was conducted by PCA EMS on behalf of the Southwestern Northwest Territories Field Unit in advance of a potential acquisition of the property. This review is designed to identify potentially contaminated sites, called a “suspect site” based on past or current activities that have occurred onsite or in the area of the site. The objective of the study is to ensure the lands included in the property acquisition are adequately assessed for environmental risk but does not constitute a formal Phase 1 Environmental Site Assessment in relation to standards developed by CSA Z768-01 (Phase 1 ESA), R2016. This document is to be used for internal informative planning purposes only and is not to be distributed external of Parks Canada Agency nor relied upon for deconstruction/abatement/remediation solely without further confirmatory intrusive investigations for characterization and delineation of the subject property.

### PART A: PROPERTY INFORMATION

#### **Property Name/Address:**

Municipal Address: 30 and 30A Bear Rock Drive, Tulita, Northwest Territories

Legal Description: Plan 1074, Lots, 9-1, 9-2, 9-3

Elevation: 213 FT/65 m (ASL)

#### **Current Land Use:**

Residential

#### **Property Description:**

The Site consists of three lots and is addressed as 30 and 30A Bear Rock Drive (the ‘Site’) and located in Tulita, Northwest Territories. The Site, having an area of approximately 1.09 hectares, is bordered by Bear Rock Drive to the north and the Mackenzie River to the south as shown in Figure 1. The property is currently owned by Mr. Richard Hardy and is developed with a main residence and four out buildings.

The nearest water body is the Mackenzie River located along the south border of the Site.

## Structures/Foundations on Property:

<b>Inventory of Structures / Foundations on Property: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>			
<b>If yes, please provide additional details:</b>			
#	Structure	Description	Comments/Concerns:
1	Main Residence	One-story structure of wood construction with metal-clad roofing. Heated by radiant heater fueled by heating oil and was constructed between 1987 and 1993. Power for the Site is provided via pole-mounted transmission lines located on the north side of the Site. The residence utilizes a cistern for water and septic tank for wastewater.	Surface soil samples were collected from the northwest corner outside the residence where the former aboveground storage tank (AST) containing heating oil tank previously resided. The former AST (which has since been removed from the site) once stood directly adjacent to the new and current AST. These surface soil samples were collected by PCA on May 28, 2020 and analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) and F1-F4 Petroleum Hydrocarbons (PHCs). An exceedance of the CCME Canada-Wide Standard (CWS) for PHCs was reported for the F2 fraction. Follow up surface soil sampling was carried out in an effort to provide greater horizontal delineation of PHC impacts and satisfied the CWS for PHCs. Vertical delineation of impacts is unknown.
2	Shop (large)	Approximately 6 m by 4 m structure of wood construction with peaked roof. No heating or power is provided to this structure	
3	Shop (small)	Approximately 4 m by 3 m structure of wood construction with peaked roof. No heating or power is provided to this structure.	
4	Cabin	Cabin style structure of wood construction with a peaked roof located near the main residence. The cabin is serviced with power, water and radiant heat.	
5	Storage Shed	Approximately 8 m by 3 m structure with boarded up windows, no power nor water. The structure was purchased off of Government Surplus. It originally contained roof shingles that contained asbestos, but these were removed and discarded by the current owner.	The structure is in poor condition and likely needs to be demolished. A full hazardous building materials assessment is needed to fully evaluate the extent of environmental concerns. Preliminary sampling by PCA confirmed that the paint on the building exceeds the 90 mg/kg criteria for lead of the Surface Coating Materials Regulations (SOR/2016-193). The paint flakes from this building are also of concern as they may impact the soils surrounding the building as they may have accumulated over time.

### Surface Water/ Wetlands on Property:

<b>Surface Water / Wetlands on Property:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
If yes, please provide additional details:		
<b>Description</b>	<b>Location</b>	<b>Comments/Concerns</b>
None.		

### Adjacent Properties:

Adjacent Properties and Land Use		
Direction	Description	Comments / Concerns
<b>North:</b>	Bear Rock Drive followed by vacant undeveloped property further north	No current apparent sources of potential environmental impact were identified during the Phase I Environmental Site Assessment (ESA) on the adjacent properties that would be likely to adversely affect the site
<b>East:</b>	Residential property	
<b>South:</b>	Mackenzie River borders the south end of the property.	
<b>West:</b>	Vacant undeveloped land	

## PART B: PREVIOUS ENVIRONMENTAL REPORTS

Report Title and Author	Report Date	Conclusions	Recommendations
Wood Environment & Infrastructure Solutions (2019) Phase I Environmental Site Assessment: 30 and 30A Bear Rock Drive, Tulita Northwest Territories	December 2019	Wood identified environmental concerns associated with historic land use, aboveground storage tanks, lead containing materials and asbestos containing materials.	<ul style="list-style-type: none"> <li>A Phase II ESA was not recommended for the site.</li> <li>No recommendations provided for aboveground storage tanks.</li> <li>Assessment and abatement by a qualified environmental health practitioner of flooring, drywall compounds or other suspect materials during any disturbance due to routine maintenance, renovations, alterations or demolition.</li> </ul>

Sampling Event	Medium (GW, Soil, Sediment, Surface Water)	Parameter	Analytical Result (ug/g)	Criteria used
				PHCs: CCME CWS, residential, fine grain soil. Lead: Surface coating materials Regulations
Surface soil samples from area around former aboveground storage tank collected by J. Robson on May 28, 2020.	Surface Soil	F2 PHC	1060	150
Paint chip samples from Storage Shed collected by J. Robson on May 28, 2020.	Paint Chips	Lead	6960	90

<b>Data Gaps / Follow-up Issues:</b>
<p><b>Historical Land Use:</b> it has been reported that the site has been used for a mix of residential and commercial purposes since the early 1900's. Specific on site uses have not been well documented prior to the 1950s, historical information collected by Wood indicated former structures including a trading post, windmill and blacksmith shop have been removed from the site. There is potential for undocumented spillages or leakages associated with the equipment, chemicals and wastes stored or disposed of on site that may have transpired in the past. While additional historical information on the site was provided by a local historian (A. Lennie) there are still data gaps pertaining to the operation of the Fort Norman Trading Post with regards to the types of operations and goods/materials that were sold/exchanged. Potential concerns associated with operations pertain to chemicals that could have been used in the tanning of pelts and lead based ammunitions.</p>
<p><b>Aboveground Storage Tank (AST):</b> an AST with capacity of 1000 L and containing heating oil was observed on site. The AST is elevated on a tank stand and was not provided with secondary containment. A second (former) 1000 L AST was also documented by wood during the Phase I ESA. The former AST was replaced in 2018 as it was non-compliant with applicable codes and the insurance provider requested that it be replaced with a code compliant tank. On May 28, 2020, surface soil samples were collected by PCA as a follow-up and an attempt to identify the potential for PHC impacts in the vicinity of the current and former ASTs. An additional sampling event was conducted in an attempt to provide further horizontal delineation of PHC impacts. The results of these sampling events provide additional information which confirms the presence of PHC impacts in surficial soils surrounding the former AST. However, the extent of PHC contamination has not been fully delineated for this area.</p>
<p><b>Lead and Asbestos Containing Materials:</b> based on the dates of construction of structures on site, there is a high likelihood of find asbestos-containing materials (ACMs) and lead-containing paints (LCPs). A follow-up interview with the current landowner on May 14, 2020, confirmed that ACMs were discovered on the original shingles on the Storage Shed (described above), but these were removed and abated and replaced. Given this information, it is possible that the Storage Shed contains other ACMs. Paint sampling conducted by PCA staff of the building exteriors confirmed that the storage shed exterior was coated with LCPs that exceed criteria. Additional investigation is recommended for soils surrounding the storage shed to evaluate whether the flaking paint as noted in the Wood Phase I ESA has accumulated and impacted surrounding soils in the storage shed.</p>

## PART C: AERIAL PHOTOGRAPH REVIEW

Please see Table 1: Summary of Aerial Photograph Review in Wood Phase I ESA.

### **Site Plan:**

See Appendix A.

## PART D: ECOLOG ERIS SUMMARY

Please see Table 2: Information Resources Contacted of Wood Phase I ESA for detailed list of databases and contacts

**Are any records listed within the Boundary to 0.25 km or on adjacent properties not included in the land transfer? Yes ☐ No ☒**

**If Yes, please indicate the Database, Map Key, Record Number and Description:**

<b>Database</b>	<b>Map Key / Record Number</b>	<b>Description</b>



PART E: LIST OF RISKS, RECOMMENDATIONS AND COST ESTIMATE

List of Risks	Level of Risk <sup>1</sup>				Recommendations	Cost Estimate
	No Risk	Low	Medium	High		
<i>Associated with Buildings:</i>						
Lead paint			X		Based on the records review and on the results from PCA sampling of paint chips on May 28, 2020 from the Storage Shed building, there are confirmed impacts of lead based paint for this building. Further investigation into the potential for soil contamination surrounding the Storage Shed should be conducted to further assess lead and mercury impacts to the area surrounding the building. Hazardous building materials assessment should also be conducted by a qualified environmental health practitioner prior any construction, demolition or renovations at any of the buildings on site.	\$30,000 (lead paint abatement for building alone) + \$20,000 (assessment of soils impacts) + \$70,000 (soils remediation <i>if required</i> ) <b>Total: \$120,000 +GST</b>
PCB Ballasts	X				Based on the records review and the photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there were no observations documented for the subject property that suggest PCB sources.	
Mercury in thermostat/fluorescent lights	X				Based on the records review and photos reviewed from the PCA visit on May 27, 2020 by Johanna Robson, there were no observations documented for the subject property for Mercury sources.	
Mould	X				Based on the records review and photos reviewed from the PCA visit on May 27,2020 by Johanna Robson, there were no observations documented for the subject property that suggest the presence of mould.	
Asbestos Containing Materials			X		Based on records review and interview conducted by PCA EM Program Coordinator – Trevor Shiomi, there is potential for ACMs at the subject property. Hazardous building materials assessment should also be conducted by a qualified environmental health practitioner prior to any construction, demolition or renovations at any of the buildings on site.	\$30,000 +GST (hazardous materials assessment and abatement)
UFFI (Urea-Formaldehyde Foam Insulation)	X				Based on the records review and photos reviewed from the PCA visit on May 27, 2020 by Johanna Robson, there were no observations documented for the subject property that suggest the presence of UFFI sources. A full hazardous building materials assessment would capture and confirm the presence of UFFI sources.	
Ozone Depleting Substances		X			Based on a records review and photos reviewed from the PCA visit on May 27, 2020 by Johanna Robson, a window mounted air conditioning unit was identified as potentially containing ozone-depleting substances. Testing of	

List of Risks	Level of Risk <sup>1</sup>				Recommendations	Cost Estimate
	No Risk	Low	Medium	High		
					this system would be necessary to confirm whether the system contains ozone-depleting substances.	
Aboveground and/or Underground Storage Tank(s) (In use or Abandoned)			X		Based on the records review and surface soil sampling results, it is recommended that additional intrusive investigations (Phase II ESA) be conducted at the subject property. Additional investigations would allow for the full delineate of PHC impacts horizontally and vertically in the area surrounding the former AST footprint.	\$60,000 +GST (Phase II ESA) \$50,000 - \$100,000 remediation
Other: Radon		X			Based on the records review, there were no observations documented for the subject property for radon issues within the building/structures on site. Radon testing could be completed to further evaluate risks. Radon testing kits are available at most major building supply stores.	\$40 + GST
<b><i>Associated with Remainder of Property:</i></b>						
No Information Available			X		Based on the records review and additional information obtained by PCA, there are still significant historical data gaps for the period prior to the 1950s when the site was operated as the Fort Norman Trading Post. Historical information on operations and types of good/materials sold or exchanged was unavailable to fully assess the environmental risks associated with historical land use. A follow-up interview with the local historian could prove valuable in gaining a better understanding of how the site was operated prior to the 1950s by focusing in on the Fort Norman Trading Post and its operations specifically.	
Miscellaneous non-hazardous waste (debris piles, wood, metal, tires, household waste, tin cans, plastic, etc.)		X			Based on the records review and the photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there were observations of debris piles of wood and machinery observed throughout the site.	
Hazardous Waste (railway ties, waste oil containers, paint cans, etc.)	X				Based on the records review and the photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there was no hazardous waste observed and/or documented for the subject property.	
Hazardous Material Storage (automotive (oil, lubricants, degreasers), paints, pesticides/herbicides)		X			Based on the records review and the photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there were limited quantities of household chemicals including paint, cleaners, and lubricants present within the buildings at the site. Site conditions and housekeeping were observed to be in generally good order.	
Aboveground and/or Underground Storage Tank(s) (In use or Abandoned)	X				Based on the records and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, no AST or UST were observed on site.	

List of Risks	Level of Risk <sup>1</sup>				Recommendations	Cost Estimate
	No Risk	Low	Medium	High		
Staining on Soil	X				Based on the records and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, no staining was observed on site.	
Derelict Equipment (vehicles, car parts, farm equipment)		X			Based on the records and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, machinery and equipment not currently being used was observed throughout the site. Please see photos from Phase I ESA.	
Fill material	X				Based on the records and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there were no observations at the subject property of fill material.	
Confirmed historical Soil, Groundwater, Surface Water or Sediment samples exceeding criteria			X		Based on the records review and surface soil sampling results, it is recommended that additional intrusive investigations be conducted at the subject property. Additional investigations would allow for the full delineation of PHC impacts in the area surrounding the former AST footprint. Please refer to the section above on ASTs associated with buildings for cost estimates.	
Remediated Contaminated Site	X				No observed or recorded contaminated sites related to the site.	
Long-Term Monitoring at Site	X				N/A	
Potential for Offsite Migration of Contaminants		X			No observed potential for offsite migration from sources on site.	
Presence of Historical/Current Orchards	X				N/A	
Use of Pesticides/Herbicides		X			Based on the records review and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there may have been pesticides or herbicides used for farming.	
Abandoned Well(s)	X				N/A	
History of Motor Vehicle Maintenance on site	X				N/A	
Fire Pit		X			Based on the records review and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, no burn pits were observed. However, prior to the construction of the municipal landfill (circa 1980s), wastes disposed of by using dedicated burn barrels.	
Private Landfill/Waste Disposal	X				No observed or recorded presence of private landfill/waste disposal on site was observed, based on records review and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson.	
Septic field/Tiling/Tank (Good Condition vs. Poor Condition (leaking))		X			Based on the records review and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there is no indication of the condition of	



List of Risks	Level of Risk <sup>1</sup>				Recommendations	Cost Estimate
	No Risk	Low	Medium	High		
					the septic tank used at the site. A detailed inspection would be required to adequately assess the overall condition of the current septic system at the site.	
Historical/Current use of property for commercial/industrial operations		X			Based on the records review and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there are no observed or recorded occurrences of industrial operations on site. However, prior to the 1950s, the site was operated commercially as the Fort Norman Trading Post. Limited historical information on commercial operations is available for this time period.	
<b><i>Associated with Adjacent Lands (refer to Section 3.1.1. of the Framework for definition of adjacent property):</i></b>						
Railway Right-of-Ways (CN and CP)	X					
Hydro Corridor	X					
Pipelines (Enbridge and Trans Northern)	X					
Major Roadways (Hwy 401, 407 and 7)	X					
Historical/Current use of property for commercial/industrial operations	X				Based on the records review and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, adjacent properties are either residential or vacant.	
Known or Suspected Contaminated Site (i.e. gas station, scrap yard)	X				Based on the records review and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there are no known or suspected contaminated sites adjacent to the site.	
Potential Offsite Migration On site	X				In 2018, a heating oil spill of unknown quantity was registered for a property located approximately 250 m North of the site. Risk for migration potential is estimated as low.	
Presence of Historical/Current Orchards	X				N/A	
Use of Pesticides/Herbicides	X				Based on the records review and photos reviewed from the PCA site visit on May 27, 2020 by Johanna Robson, there are no observed or recorded use of pesticides/herbicides near the site.	
Private Landfill/Waste Disposal	X				Based on an interview by PCA, there may have been a waste dump near 38 Bear Rock Drive, located approximately 200 m northwest of the site.	
<b>Total Overall Risk Associated with Property</b>	<b>No Risk</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>	<b>Comments/Recommendations</b>	<b>Total Cost Estimate</b>
Total Risks <sup>2</sup>	24	10	5	0	The following three aspects require further evaluation in order to accurately assess potential environmental risks associated with the site: <b>1) PHC contamination from former AST:</b> based on available information there are PHC impacts in area surrounding the former	1) \$160,000 + GST 2) \$150,000 + GST
Total Overall Risk <sup>3</sup>	medium					

List of Risks	Level of Risk <sup>1</sup>				Recommendations	Cost Estimate
	No Risk	Low	Medium	High		
Score/Risk Category <sup>4</sup>	(23x0)=0, (10x1)=10, (5x2)=10, (0x3)=0					
Total Overall Score <sup>5</sup>	20				<p>fuel tank. Preliminary sampling has been limited to horizontal delineation of surface soils and an intrusive investigation (Phase II ESA) is recommended in order to fully delineate PHC impacts.</p> <p><b>2) Lead and Asbestos Containing Materials:</b> based on the information available, it is expected that some of the buildings on the site may contain hazardous materials (specifically ACMs and LCPs). Paint sampling has confirmed the presence of lead paint on the storage shed building at the site. The soil surrounding the storage shed should also be assessed to determine whether there any associated lead impacts. A hazardous building materials assessment and abatement by a qualified environmental health practitioner is recommended.</p> <p><b>3) Historical Data Gaps:</b> further follow-up with the local historian could hopefully provide more information on the operations of the site as Fort Norman Trading Post. Activities of particular interest include whether tanning operations were carried out at the site and whether ammunition was sold, used and/or disposed of on site.</p> <p>Based on the information currently available, if the site were to be acquired by PCA, it would be my recommendation to register the site under the Federal Contaminated Sites Inventory (FCSI) as a “suspected contaminated site” requiring further assessment.</p>	

1. Assign a level of risk (based on professional judgment and ASTM E1527-13 definition of Recognized Environmental Conditions that *de minimis* conditions are likely considered no or low risk) and provide a description of the risk identified onsite (location, condition, etc.).

2. Add up total numbers of No Risk, Low Risk, Medium Risk and High Risk.

3. If one or more "Low" (no Medium or High) = Low Overall Risk; If one or more "Medium" (no High) = Medium Overall Risk; If one or more "High" = High Overall Risk. If same number of risks are identified, the Overall Risk is the highest risk identified (i.e. 3 Low, 5 Medium and 5 High = High Overall Risk).

4. No Risk = 0; Low Risk = 1; Medium Risk = 2; High Risk = 3 (i.e. 8 Low Risks = (8 x 1) = 8; 4 Medium Risks = (4 x 2) = 8; 1 High Risk = (1 x 3) = 3).

5. Add the scores/risk category together (i.e Low Risk = 8; Medium Risk = 8; High Risk = 3; Total Risk = (8 + 8 + 3) = 19. Note that because there has been at least one High Risk identified that the Total Overall Risk of the Site is considered High).

## PART F: REVIEWER SIGN-OFF

<b><i>To Be Completed by Reviewer Only:</i></b>			
<b>Information Entered into Database? Yes <input type="checkbox"/> No <input type="checkbox"/>, if No state reason:</b>			
<b>Filed Under:</b>			
<b>Stakeholder</b>	<b>PIN No.</b>	<b>Address</b>	<b>Risk Level</b>
<b>Reviewed By:</b>			
<b>Date:</b>			

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## **Appendix A**

### **Site Plan**

