



Hatch Mott
MacDonald

APPENDIX “H”

RV Disposal Option Testing Letter



**CONESTOGA-ROVERS
& ASSOCIATES**

1118 Topsail Road., P.O. Box 8353, Station A
St. John's, Newfoundland, Canada A1B 3N7
Telephone: (709) 364-5353 Facsimile: (709) 364-5368
www.CRAworld.com

June 20, 2012

CRA Project No. 076605
HMM Project No. 299289

Ms. Susan Barfoot, P.Eng.
Environmental Engineer - Impacted Sites
Department of Environment and Conservation
Government of Newfoundland and Labrador
Pollution Prevention Division
4th Floor Confederation Building, West Block
P.O. Box 8700
St. John's, NL A1B 4J6

Dear Ms. Barfoot:

Re: Request for Approval to Dispose of Lead Impacted Soil - Year 1
Buchans Residential Lead in Soil Remediation, Buchans, NL

1.0 INTRODUCTION

Following an extensive assessment program for lead impacted soils on Residential and Public Areas in the Town of Buchans (Town), Newfoundland and Labrador (NL) that was conducted by Conestoga-Rovers and Associates (CRA) on behalf of the Government of NL, Department of Environment and Conservation (DOEC), a Risk Management Plan (RMP) was developed in 2011 to mitigate exposure by dermal contact and ingestion. The Site Location Map is attached as Figure 1. The RMP recommended a combined approach of placing clean imported fill over lead impacted soil at select properties and/or removal of lead impacted soil with vegetative surface covering (i.e. sod) and replacement with clean imported soil and finished landscaping, as required for reinstatement to pre-existing Site conditions for each property. The work is scheduled to be completed over a two year period with Year 1 commencing in June 2012 and the balance completed in Year 2 during the 2013 construction season.

2.0 BACGKROUND

Major operations at Buchans formerly included mining activities that collectively operated from 1906 until 1984, which included ore extraction and milling operations. Base metal ores, predominantly copper, lead, and zinc, were extracted from the five mines around the Town, transported to the mill located in Town, and refined. The main production area of the former mine was west of the Town, where the high-grade ore was processed and concentrated. The



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mining operations resulted in the extraction and milling of 16,247,100 tonnes of ore, the generation of approximately 10,473,000 tonnes of mine tailings that consisted of approximately 10 percent solids, and the generation of approximately 4,600,000 tonnes of waste rock (rock that was not rich in ore).

Tailings from the floatation refinement process were initially discharged through a wooden sluice to the Buchans River. Occasionally, mine tailings would overflow the wooden sluice at the Tailings Spill Area (TSA); during emergency mill shut downs, ore concentrates and tailings were discharged directly into the TSA area to prevent drying or freezing of the material in the mill equipment. In 1965, tailings and mine discharge water were diverted to a temporary tailings pond, which was located on the northern edge of the existing Tailings Pond.

Based on past mining operations and the lead rich area, higher background levels of lead are typical in the area.

3.0 LEAD IN SOIL CHARACTERISTICS

A composite soil sample was collected by CRA in February 2012 from the Tennis Court area where it was previously identified as having one of the highest lead in soil concentrations at 4,500 mg/kg. The sample was submitted for Toxicity Characteristic Leaching Procedure (TCLP) analysis for lead to assess potential environmental impacts to surrounding surface water bodies and groundwater. The analytical results for leachability of lead from soil reported 10 mg/L compared to the DOEC Guidance Document for Leachable Toxic Waste, Testing, and Disposal GD-PPD-26.1 (Revised November 2003) TCLP limit of 5 mg/L.

4.0 PROPOSED DISPOSAL LOCATION OF LEAD IMPACTED SOIL

Disposal options of the lead impacted soil were assessed with a goal to balance protection of the environment with fiscal efficiencies along with acceptance by the Town and its residents. The optimal solution presented by CRA to the Town Council and its residents in April 2012, which was accepted in principle following approval by DOEC, was to dispose of the lead impacted soil for Year 1 (estimated at approximately 9,500 m³) within the Town boundaries. The location is shown on Figure 2 of Attachment A.

The proposed disposal location was previously considered as an Industrial/Commercial area of the Town that was not intended to be remediated as part of the RMPs reserved for Residential and Public Areas. Existing lead in soil impacts were previously reported at 1,100 mg/kg



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compared to the Risk-Based Concentration developed for dermal contact and ingestion at 622 mg/kg.

In addition, the Town was considering the construction of an RV Park on a portion of the proposed disposal location. CRA recommended disposal of the lead impacted soil at the RV Park provided that a clean 300 mm fill cover material was placed, which followed the same mitigative measures being used for Town residents. This proposed disposal location offered a number of positive benefits to the Town and its residents along with DOEC, which are summarized as follows:

1. Redevelopment of a brownfield site that would otherwise remain unused
2. Considerably reduce dust generation from a known area to contain elevated lead levels
3. Provide a clean cover over a lead impacted soil Industrial/Commercial area that would not have been addressed
4. Assist in minimizing costs for the remediation program by reducing haul times from source to disposal location

Typical lead in soil concentrations from the Residential and Public areas to be excavated ranges from 660 to 4,500 mg/kg; however, the vast majority of the soil is anticipated to contain lead in soil concentrations of around 2,000 mg/kg or less.

5.0 REQUEST FOR DISPOSAL APPROVAL

Although the soils planned for removal from the Residential and Public areas are considered as hazardous waste under the Leachable Toxic Waste Guidance Document, the proposed soil disposal location at the RV Park has relatively similar concentrations of lead in soil compared to the planned soils for excavation. In addition, historical construction activities within the Town using waste rock with elevated lead levels combined with the added benefit of a brownfield redevelopment for the benefit of the Town and its residents demonstrate the environmentally and socially acceptable location for a disposal area that does not impact human health or the environment.

Consequently, CRA request DOEC approval for disposal of approximately 9,500 m³ of lead impacted soil at the proposed RV Park location during Year 1 remedial activities.



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Should you have any questions on the above or if any clarification is required before submission of the detailed report on Soil Disposal Options, please do not hesitate to contact the undersigned.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Brian Luffman, P.Eng.

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cc Dan Michielsen, M.A.Sc. – Manager of Industrial Projects, DOEC
Derm Corbett – Mayor, Town of Buchans
Doug Short, Project Manager, Hatch Mott MacDonald