

**FINAL REPORT**

**PHASE I  
ENVIRONMENTAL SITE ASSESSMENT**

**Zoht IR # 4,  
Lower Nicola Indian Band  
Merritt, British Columbia**

*Prepared for*

**Lower Nicola Indian Band**  
181 Nawishaskin Lane  
Merritt, B.C. V1K 0A7

*Submitted by*

**Columbia Environmental Consulting Ltd.**  
RR#2, Site 55, Compartment 10  
Penticton, B.C. V2A 6J7

**Project No: 10-0374**  
April, 2011



**COLUMBIA**  
ENVIRONMENTAL



RR#2, Site 55, Compartment 10  
Penticton, BC. V2A 6J7

April 30, 2011

**Lower Nicola Indian Band**  
181 Nawishaskin Lane  
Merritt, B.C. V1K 0A7

**Attention: John Keating and Sharon Parsons, LNIB Lands and Leasing Office**

**Subject: Final Phase I Environmental Site Assessment (ESA) of the Zoht Indian Reserve # 4, Lower Nicola Indian Band, Merritt, BC.**

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We trust that this final report meets your present needs. Two hard copies of the final report and a CD-ROM including the source files and an Adobe pdf version will be provided upon receipt of your review. Please do not hesitate to call if you have any questions or comments, or if you require anything further.

Yours truly,

**Columbia Environmental Consulting Ltd.**

Per: 

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Dwight Shanner, R.P.Bio  
Project Manager

## EXECUTIVE SUMMARY

Columbia Environmental Consulting Ltd. (Columbia) was contracted by the Lower Nicola Indian Band (LNIB) on behalf of Indian and Northern Affairs Canada (INAC) to conduct a Phase I Environmental Site Assessment (ESA) of the Zoht Indian Reserve #4, herein referred to as the “Site”.

The first step in site characterization is to conduct a Phase I ESA. During this phase, information is gathered about site layout and previous activities and/or operations that may have caused contamination at the Site.

The Phase I ESA consisted of the following:

- records review;
- interviews with regulatory officials and personnel knowledgeable about the Site;
- site reconnaissance; and
- information evaluation and preparation of the report provided herein.

The Phase I ESA was conducted as per the requirements of the CSA document *Z768-01 Phase I Environmental Site Assessment, April 2003*. The Phase 1 ESA focused on preliminary areas of interest identified through historical document review, and interviews. In general, all residential structures were excluded unless information was gathered to suggest contamination or external visual observations indicated potential contamination. Specific residential structures listed for inspection at the request of the First Nation or INAC require the permission from the First Nation and the Certificate of Possession holder.

Zoht IR #4 is rectangular in shape and 500 acres in size. Coordinates for the Site are zone 10 666425E, 5561483N on topographic NTS map sheet 092I02. The majority of land use in the area is residential and agricultural, one area on the southeast portion of the Reserve is utilized for industrial purposes (Sawmill). Clapperton Creek runs north to south through the Site, which eventually flows southwest to Nicola Lake. A right of way for a pipeline is located within the northern portion of the reserve. The oil pipeline was installed in 1950-1953. The post manufacturing mill (former sawmill) is located on CP lands, and details are provided in this report.

Four (4) on-reserve and two (2) off-reserve areas of potential environmental concern (APECs) were identified for the Site based on historical information, interviews, and on-site visual observations. The on-reserve APECs include the Plan 59794 Post Mill and AST, the Lot 2 AST, and the Lot 11 Dump. A summary table of the on reserve APECs and their associated contaminants of potential concern (COPC) is provided below.

**Table A. Areas of Potential Environmental Concern (APECs)**

| APEC                                     | Description of Contamination or Risk  | COPC  |
|--|---|---|
| <b>APEC 1</b><br>Plan 59794<br>Post Mill | Mill area contains 6 areas with scrap metals, automotive parts, abandoned ASTs and abandoned machinery. Post mill maintenance area also contains hydrocarbon product storage and mill machine maintenance with spotty soil staining and odor throughout the area. The new double walled 2200L diesel AST at the Site is on bare soil. | <ul style="list-style-type: none"> <li>• Metals</li> <li>• PAH</li> <li>• PHC</li> <li>• VOC</li> </ul> |
| <b>APEC 2</b><br>Plan 59794 AST          | Single walled 13300L diesel AST is no longer in use, but is in original location. Some weeping at the hose joints, small stain below hose with a faint odor. No secondary containment. Two adjacent 300L tidy tanks are empty with no stains or odors.  | <ul style="list-style-type: none"> <li>• PAH</li> <li>• PHC</li> <li>• VOC</li> </ul>                   |
| <b>APEC 3</b><br>Lot 2 AST               | One 4800L diesel AST is partially full. Tank is dented at hose inlet, weeping at joints, fuel meter is leaking, and a bucket is placed below to catch product. 0.8m diameter soil staining was observed below, and appears surficial.   | <ul style="list-style-type: none"> <li>• PAH</li> <li>• PHC</li> <li>• VOC</li> </ul>                   |
| <b>APEC 4</b><br>Lot 11 Dump             | Dump contains two areas of debris scattered down a steep ravine and embankment. Debris includes domestic waste, one appliance, occasional 20L pails, furniture, and dimensional wood waste.   | <ul style="list-style-type: none"> <li>• Metals</li> <li>• PAH</li> <li>• PHC</li> <li>• VOC</li> </ul> |

PAH = Polycyclic Aromatic Hydrocarbons

VOC = Volatile Organic Compounds

PHC = Petroleum Hydrocarbons including F1, F2, F3 and F4 fractions, Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).

Three (3) off-reserve APECs were identified as a concern during the records review and site reconnaissance which included the Kinder Morgan Oil pipeline Right of Way, Off-Reserve Dump #1 to the east, and the Off-Reserve Dump #2 to the south. Dump #1 is located immediately adjacent to the eastern border and cross-gradient from the reserve. Topography at this location is sloped to the southeast, away from the Reserve. It is reported to contain mostly domestic waste from the Lakeside Estates on Nicola Lake. Dump #1 is retained as an APEC with low potential for impacting the Site and is shown on Figure 6. Dump #2 is located immediately adjacent to the southern border of the Reserve. Limited surficial debris was noted at the Site and it is down-gradient from the reserve. As such, Dump #2 is not retained as an APEC. The oil pipeline right of way is an off-site APEC.

A Phase 2 ESA is recommended to determine the presence or absence of contaminated media at the APECs identified by this assessment.

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## **1.0 INTRODUCTION**

Columbia Environmental Consulting Ltd. (Columbia) was commissioned by the Lower Nicola Indian Band (LNIB) on behalf of Indian and Northern Affairs Canada (INAC) to conduct a Phase I Environmental Site Assessment (ESA) of the Zoht Indian Reserve #4, herein referred to as the “Site”.

The Site is located 0.5 km directly north of the township of Nicola B.C and 9 km northeast of Merritt B.C. Coordinates for the Site are zone 10 666425, 5561483N on topographic NTS map sheet 092I02. The Site’s geographic position relative to the surrounding features is shown on Figure 1 included in Appendix A.

The Phase I ESA follows procedures outlined in the Canadian Standards Association (CSA) document *Z768-01 Phase I Environmental Site Assessment, April 2003*. This report will be used in making decisions concerning whether further investigation and or remediation is necessary. John Keating and Sharon Parsons (LNIB Lands and Leasing Office) provided written authorization for the project.

### **1.1 OBJECTIVE**

The objective of this Phase I ESA is to identify and document any actual or potential human health or environmental risks associated with the Site and provide recommendations for further assessment and/or risk management. Such as the “Areas of Potential Environmental Concern” (APECs), with their associated “Contaminants of Potential Concern” (COPC), and the person(s) or agencies that may be responsible for causing the contamination.

### **1.2 SITE BACKGROUND**

The Zoht IR# 4 is comprised of approximately 500 acres on one reserve. The Reserve is rectangular in shape and occupies the valley and channel of Clapperton Creek. The creek flows from the north to the south through the center of the Reserve towards Nicola Lake. The Reserve contains an oil and gas pipeline right of way, road networks, residences, a post manufacturing mill and a dump site. Previous environmental investigations have identified a remediated residential heating oil storage tank, the off-reserve Nicola Ranch Feedlot, and Canford Sawmill as areas of potential environmental concern. Interviews with persons knowledgeable about the Site identified there were two off reserve dumps located immediately adjacent to the Reserve on the eastern and southern boundaries.

## **2.0 SCOPE OF WORK**

The first step in site characterization is to conduct a Phase I ESA. During this phase, information is gathered about site layout and previous activities and/or operations which may have caused contamination at the Site.

The Phase I ESA consisted of the following:

- records review;
- interviews with regulatory officials and personnel knowledgeable about the Site;
- site reconnaissance; and
- information evaluation and preparation of the report provided herein.

The Phase I ESA was conducted as per the requirements of the CSA document *Z768-01 Phase I Environmental Site Assessment, April 2003*.

The Phase 1 ESA focused on preliminary areas of interest identified prior to the Site visit, through historical document review, and interviews. A list of these areas is included in Section 5.1.1. It is the responsibility of the First Nation to provide the Assessor with access to the identified area of interest. In general, all residential structures were excluded unless information was gathered to suggest contamination or external visual observations indicated potential contamination. Specific residential structures listed for inspection at the request of the First Nation or INAC require the permission from the First Nation and the Certificate of Possession holder.

## **3.0 METHODOLOGY**

### **3.1 RECORDS REVIEW**

Records included a search for previous environmental reports, historical aerial photographs, city directories, fire insurance maps, federal and provincial agency review, Lower Nicola Indian Band records, and regional district records. The applicable search distance for the records review included properties immediately adjacent to the Site, and other properties (as identified by aerial photographs, etc.) where the potential for environmental contamination to impact the Site was apparent (i.e. petroleum product storage in the immediate area). A reference of personal communications is included at the end of this report in Section 11.0.

### **3.2 INTERVIEWS**

Interviews with persons knowledgeable about the Site were carried out to obtain or confirm information on the environmental characteristics of the property and historical use. Information provided by interviewees is detailed in Section 5, and included throughout the report. Interviews were conducted by Dwight Shanner and Carmen Marshall from Columbia Environmental on September 14, 2010.



### **3.3 SITE VISIT**

The site visit was conducted by Summer Zawacky, B.Sc., Carmen Marshall, B.Sc. from Columbia Environmental and Francis Shuter from LNIB on September 29<sup>th</sup>, 2010. A site inventory was completed and the subject property was examined for evidence of actual or potential environmental contamination. All areas of the Reserve and structures were accessible during the site visit, and GPS coordinates were taken at each point of interest using a hand held Garmin GPS Map 60Cx as UTM's in the NAD 83 datum. Physical limitations were not observed during the site visit, and all locations were accessible to Columbia personnel. Selected photographs are included in Appendix B.

## **4.0 HISTORICAL RECORDS REVIEW**

### **4.1 RECORDS REVIEW**

An outline of the history of land use on the subject property and adjacent properties was compiled through the review of the variety of information sources. These typically include historical records and a review of files retained by regulatory agencies, however, the following standard sources of information were not available:

- Fire insurance drawings;
- City/Business directories; and
- Historical Title search.

For the historical uses of the property, aerial photographs dating back to 1948, interviews, web searches, archives, and previous reports supplied by INAC and the provided important information. A list of sources and references for the records review is provided in Section 11. The BC online Site Registry search results are found in Appendix C. Correspondence can be found in Appendix D and examples of historical aerial photographs can be found in Appendix E. A list of Species at Risk potentially found in the Site area can be found in Appendix F. Previous Environmental Reports can be located in Appendix G.

#### **4.1.1 REVIEW OF AERIAL PHOTOGRAPHS**

Aerial photographs dated 1948, 1960, 1966, 1980, 1991 and 2000 from the University of British Columbia's Geographic Information Centre (UBC GIC) were reviewed for information about historical land use at the subject property and adjacent lands. Copies of representative aerial photographs are included in Appendix E. Site details from the aerial photograph interpretation are briefly described below in the following table:

**Table B. Air Photo Review Summary**

| Aerial photo Year | Description  |
|-------------------|--|
| 1948              | <i>Subject Property:</i> Agricultural land use is visible in the north section of the Reserve. The confluence and channels of Shuta Creek and Clapperton Creek run through the reserve. A dirt road currently known as Mill Creek road is visible.   |
|                   | <i>Adjacent Lands:</i> To the north, the Kamloops-Princeton Hwy and road networks are visible, agricultural and residential use of the land is also visible near the community of Nicola. The remaining adjacent lands appear undeveloped.   |
| 1960              | <i>Subject Property:</i> Cleared vegetation for a pipeline is visible through the north section of the reserve. Two dirt roads on the south portion are visible.   |
|                   | <i>Adjacent Lands:</i> Increased residential development in the community of Nicola is noted. A bridge of Kamloops-Princeton Hwy is over the inlet of Nicola lake. West of the Site, cleared vegetation is visible for the pipeline.   |
| 1966              | <i>Subject Property:</i> An unidentified square area of cleared vegetation is visible in the central portion of the Reserve. There is an increase in dirt road networks throughout the whole Site.   |
|                   | <i>Adjacent Lands:</i> Increase in agricultural usage at Nicola Ranch south of the reserve is visible. North of the reserve, two dirt roads run parallel to the pipeline. To the west networks of cut blocks and logging roads are visible. The east area depicts an increase in vegetation due to the irrigation of the land/crops. Vegetation is cleared along the gravel access road to the east border of the Reserve. |
| 1980              | <i>Subject Property:</i> Vegetation has been cleared on Mill Creek road for residential or agricultural use.   |
|                   | <i>Adjacent Lands:</i> A gravel pit and new buildings south of the Reserve are visible. The adjacent land west of the Site depicts two additional dirt roads. Roads and a disturbed area are defined on the eastern border of the reserve. The Kamloops-Princeton Hwy south of the reserve has two lanes.  |
| 1991              | <i>Subject Property:</i> Six additional buildings and joining roads to residences are on reserve.  |
|                   | <i>Adjacent Lands:</i> East and west of the reserve depict an increase in irrigation, buildings and road networks. To the south, an increase in agricultural and residential land use in the area of the community of Nicola. A dam is visible at the inlet to Nicola Lake.  |
| 2000              | <i>Subject Property:</i> The post manufacturing mill (buildings, lumber and sawdust piles) are visible. Eleven additional unidentifiable buildings are developed on Reserve.   |
|                   | <i>Adjacent Lands:</i> Nicola and Nicola ranch depict an increase in road networks and buildings. The disturbed area on the eastern border of the reserve is less distinct. To the east a barn is present and to the southeast Highway 5 is constructed.   |

#### **4.1.2 CITY DIRECTORIES**

The Merritt Public Library was contacted in regards to any business directories. They did not have records of City/Business directories for the Reserve.

#### **4.1.3 MERRITT FIRE DEPARTMENT**

The Merritt Fire Department was contacted regarding any historical information. No fire records are documented for the Zoht IR # 4.

#### **4.1.4 HISTORICAL TITLE SEARCH**

A historical title search was not considered relevant for this project, as the subject property has remained in the authority of the federal government since its inception.

### **4.2 AGENCY REVIEW**

Columbia contacted federal, provincial, regional, and municipal agencies to identify actual or potential environmental contamination issues on or near the subject Site. The following sections of the report present the findings of the regulatory review conducted for the subject property.

#### **4.2.1 LOWER NICOLA INDIAN BAND**

LNIB maintains a file with the original surveys of the lot boundaries and utilities serviced to each lot. Records and surveys were requested through the housing department, no reply at this time.

#### **4.2.2 FEDERAL GOVERNMENT**

The INAC Environmental Management System database, IEMS (formerly ESSIMS), had no records of APECs specifically for this reserve.

ESSIMS sheets were identified for the LNIB, ESSIMS sheet #7000086397 identifies 3 ASTs on IR#1, and one AST on Zoht IR#4 owned by Mary Shuter. The inventory identified the on-site AST as a nearly empty 1000L heating oil AST. Records indicate that 547L of oil were removed from the tank prior to its removal on October 26, 1999. The tank appeared intact, no signs of soil contamination associated with the tank were noted. A final report was received by First Nations Emergency Services Society (FNESS) of BC dated 2004, recommending that no further works were required and that the site be closed.

The Treasury Board of Canada Contaminated Sites Action Plan site registry did not have any registered sites within its database for this Reserve.

### **4.2.3 MINISTRY OF TOURISM**

The Ministry of Tourism's archeology branch was contacted regarding any archeological records for the Site. No archeological sites are recorded for the Site, a response from the Ministry of Tourism is included in Appendix D.

### **4.2.4 BC MINISTRY OF ENVIRONMENT – SITE REGISTRY**

The contaminated sites provisions under the *Environmental Management Act* (Formerly the *Waste Management Act*) and *Contaminated Sites Regulations*, effective April 1997, require the Province to provide public information about site investigations and cleanups. The Site Registry has been established to meet this requirement. The Site Registry documents milestones in the site assessment process and provides public access to this information. It contains information regarding which sites have been investigated and/or remediated since MoE began recording this activity. The Site Registry is not a registry of only contaminated sites; it also includes sites for which a Site Profile has been submitted.

The online version of the Site Registry database searches for records of sites within a 5.0 kilometer radius of the subject property. The Site Registry has been collecting data only since its inception in April 1997, and not all sites of known or potential contamination within the search area may have been captured. Therefore, the searches cannot be considered a definitive method of identifying all sites of potential contamination within the search area. The Site Registry search results are presented in Appendix B and are summarized below:

#### **Subject Property**

According to the BC Online search there were no records in the Site Registry for the subject property.

#### **Adjacent Properties**

According to the BC Online search there were no records in the Site Registry for the adjacent properties when one 5.0 km radius search was completed using the center of the reserve for the search center.

### **4.2.5 TOWN OF MERRITT**

Sean O'Flaherty of the City of Merritt was contacted requesting any information regarding environmental or contamination issues or building permits for the lands of LNIB. The city has no records regarding the subject property and adjacent lands, and does not maintain any such records for facilities operating on reserve lands.

### **4.2.6 MERRITT MUSEUM & ARCHIVES**

The Museum of Merritt was contacted by telephone. The Museum did a search within LNIB lands, and no records were found pertaining to Zoht IR # 4.

#### **4.2.7 THOMPSON NICOLA REGIONAL DISTRICT**

Peter Hughs of the environmental department with the Thompson Nicola Regional District (TNRD) was contacted requesting any information regarding environmental issues on or near LNIB. Mr Hughs stated that the district has no records regarding the subject property and do not maintain any such records for facilities operating on reserve lands.

#### **4.2.8 TERASEN (FORMERLY BC GAS)**

Toni Melliere of Terasen Gas was contacted regarding service connections to the subject property including any current or historical issues that are likely to have resulted in environmental impacts on the Reserve. Terasen has no record of environmental issues that may have occurred on the subject property or adjacent properties. Terasen does not keep records pertaining to service initiation and decommission as the companies standard policy.

#### **4.2.9 FORTIS BC (FORMERLY BC HYDRO)**

Louise Ouelett of Transmission Distribution and Environment at Fortis BC was contacted regarding the presence of service connections to the subject property including any current or historical issues that are likely to have resulted in environmental impacts on the reserve. Fortis has no record of environmental issues or transformer locations (possibly containing PCBs) that may have occurred on the subject property or adjacent properties.

### **4.3 PREVIOUS ENVIRONMENTAL INVESTIGATIONS**

In 1995 a Phase II Environmental Issues Inventory was completed by BOVAR-CONCORD Environmental (BCE) for the Lower Nicola Band on behalf of Indian and Northern Affairs Canada (INAC). The report involved completing an inventory and creating a compilation of known, existing and potential environmental issues on the reserves. Two (2) sites were identified for the Zoht IR#4 including the Nicola Ranch Feedlot and the Canford Sawmill. The Nicola Ranch Feedlot is located within 300m of the southern reserve boundary and Clapperton Creek, with manure stockpiles identified as a concern during band consultation. The feedlot was located off-reserve and was a concern due to the feedlot runoff water potentially contaminating nearby water sources. Following a site visit the environmental risk was considered low, with recommendations to test nearby water bodies for manure leachates. The Candford Sawmill, band member owned, was located on the southeast corner of the reserve and contained a trailer, AST, equipment storage area, wood pile area, and a wood product stock-pile area. The sawmill did not appear to involve wood preservation or maintenance operations that could be responsible for contamination at the Site. No evidence of soil contamination from the AST were observed. The potential risk was deemed low for the sawmill, and the environmental condition of the reserve was deemed good.

In 1999, Klohn-Crippen Consultants Ltd (Klohn-Crippen) completed a Phase I and II ESA for Mameet IR# 1, Joeyaska IR# 2, Pipseul IR # 3, Zoht IR #4 and Speous IR #8 on behalf of First Nations Emergency Services Society of BC (FNESS). The report focused on the assessment, removal and replacement of fuel storage tanks. Zoht IR #4 was found to have no

environmental concerns therefore a site visit was not found necessary. The report identified through conversation that a total of 15 residences occupied the Site with the majority containing wood/electric heating and three residences having oil heating sourced from small ASTs (<1365 liters). Based on assurances and no expressed environmental concerns from the band, the Reserve was not visited.

In 2004 Klohn-Crippen Consultants Ltd (Klohn-Crippen) completed a Phase III ESA for Mameet IR# 1 and Zoht IR #4 on behalf of First Nations Emergency Services Society of BC (FNESS). The report focused on the assessment, removal and replacement of fuel storage tanks that included Phase III work and follow up investigations. One (1) 1000L AST was removed from Mary Shuter’s residence. A reported 547L of oil was pumped out of the tank prior to removal. The tank appeared intact and no signs of soil contamination associated with the tank were noted. The tank was cleaned, cut, and disposed of at Kamloops recycling. Confirmatory sampling was not undertaken from the AST excavation as there were no signs of soil contamination. No further works were recommended for the site.

The previous environmental reports can be found in Appendix G.

#### 4.4 INTERVIEWS

Interviewees included: Marvin Shuter, Willie Basil, Francis Shuter, Delia Shuter, Ira Sterling, Maggie Shuter Harold Joe. Interviews with LNIB members identified the following concerns:

**Table C. Summary of Information Obtained from Interviewees**

| Area of Concern | Location                                | Description  |
|-----------------|---|--|
| Zoht #4         | 3km north of the Princeton-Kamloops Hwy | Post and Rail manufacturing mill with fuel delivered to the Site.  |
|                 |   | Off-reserve dump is immediately adjacent to the eastern portion of the reserve. Dump is buried and is approximately 40m x 80m.   |
|                 |   | Off-reserve dump is immediately adjacent to the southern border of the reserve within a former gravel pit. The dump is reportedly 2-3 acres in size, and deeper than the above mentioned dump. |

## 5.0 SITE DESCRIPTION

### 5.1 GENERAL PROPERTY DESCRIPTION

Zoht IR #4 is rectangular in shape and 500 acres in size. Coordinates for the Site are zone 10 666425E, 5561483N on topographic NTS map sheet 092I02. The majority of land use in the area is residential and agricultural, one area on the southeast portion of the Reserve is utilized for industrial purposes (Sawmill). Clapperton Creek runs north to south through the Site, which eventually flows southwest to Nicola Lake.

A right of way for a pipeline is located within the northern portion of the reserve. The liquid petroleum pipeline was installed in 1950-1953. The post manufacturing mill (former sawmill) is located on CP lands, and details are provided in section 5.1.1 and 5.1.2 of this report.

#### 5.1.1 SITE DETAILS

Bases on the information identified in the interviews and historical review, the Site was divided into the following areas which were the focus of the site visit:

- Zoht IR #4 Plan 59794 Post Mill
- Zoht IR #4 Plan 59794 AST
- Zoht IR #4 Lot 2 AST
- Zoht IR #4 Lot 11 Dump
- Zoht IR #4 Off Reserve Dump #1
- Zoht IR #4 Off reserve Dump #2

The following table summarizes the major features of the former and current land uses of each area, and any other relevant information that pertains to this study.

**Table D. Site Area Summary**

| Area ID<br>(UTM Zone<br>10)                        | Potential Environmental<br>Concerns   | Structures Present   | Historical<br>Land Use | Current land<br>Use |
|--|---|--|------------------------|---------------------|
| Plan 59794<br>Post Mill<br><br>666569E<br>5560556N | <ul style="list-style-type: none"> <li>• Post manufacturing Mill (0.5 km x 0.3 km)</li> <li>• Site has processing machines, fuel and chemical handling, materials storage, and wood storage.</li> <li>• Machine maintenance area</li> </ul> | <ul style="list-style-type: none"> <li>• De-barker</li> <li>• Post Grinder</li> <li>• Burner</li> <li>• 3 steel storage containers</li> <li>• 3 Travel trailers</li> <li>• Mill Building</li> <li>• Blower, Dryer &amp; Biomass Burner</li> <li>• Collapsed Office</li> <li>• Old Equipment Storage</li> <li>• AST (in use)</li> </ul> | Wildlands              | Industrial          |

| Area ID<br>(UTM Zone<br>10)                       | Potential Environmental<br>Concerns   | Structures Present  | Historical<br>Land Use   | Current land<br>Use        |
|---|---|---|--------------------------|----------------------------|
| Plan 59794<br>AST<br><br>666559E<br>5560442N      | <ul style="list-style-type: none"> <li>• 1 Diesel AST (1300L)</li> <li>• 2 empty tidy tanks (300 L) each</li> </ul>   | <ul style="list-style-type: none"> <li>• 1 AST</li> <li>• Residence</li> </ul>                                      | Residential              | Residential/<br>Industrial |
| Lot 2 AST<br><br>666297E<br>5560265N              | <ul style="list-style-type: none"> <li>• 1 Diesel AST (4800L) half full</li> </ul>  | <ul style="list-style-type: none"> <li>• 1 AST</li> <li>• Residence</li> </ul>                                      | Residential              | Residential                |
| Lot 11<br>Dump<br><br>666795E<br>5552196N         | <ul style="list-style-type: none"> <li>• 2 areas of scattered residential waste (15 m x 10m) and (25m x 4m)</li> <li>• Soil fill pile (2m diameter)</li> <li>• Couch and wood waste (2m diameter pile)</li> </ul>   | <ul style="list-style-type: none"> <li>• No structures</li> </ul>   | Wildlands                | Wildlands                  |
| Off Reserve<br>Dump #1<br><br>666884E<br>5560705N | <ul style="list-style-type: none"> <li>• Residential Dump (65m x 48m)</li> <li>• In use in 1980's</li> <li>• Up to 4 m in depth</li> <li>• Contains household debris from Nicola Lake Lakeside Estates</li> <li>• 2 m or less of fill is covered over the debris</li> </ul> | <ul style="list-style-type: none"> <li>• No Structures</li> </ul>   | Wildlands                | Wildlands                  |
| Off Reserve<br>Dump #2<br><br>666197E<br>5560105N | <ul style="list-style-type: none"> <li>• Former MOT Gravel Pit</li> <li>• Now Nicola Ranch Storage containing debris</li> <li>• Reported buried waste in Pit #1</li> </ul>  | <ul style="list-style-type: none"> <li>• 8 ASTs</li> <li>• Truck boxes</li> <li>• UST</li> <li>• Tractor</li> </ul> | Wildlands/<br>Industrial | Industrial                 |

### 5.1.2 STRUCTURES INVENTORY

Various structures and debris were noted throughout the areas visited during the Phase I ESA. Structures generally consisted of mill buildings, sheds, and large mill wood processing machines. As the focus of this investigation was on previous sites, ASTs, waste materials and potential contamination sources; residences and municipal structures were not within the scope of work and are not included in the structures inventory. A summary of the structures observed at the various sites is detailed in the table below.



**Table E. Summary of Structures at the Site**

| Area ID  | Structure Name   | Description/Contents  |
|--|--|---|
| <p><b>Post Mill Plant</b><br/>666569E<br/>5560556N</p> | <p>De-barker building<br/>(20m x 15m)</p>                  | <ul style="list-style-type: none"> <li>• Canvas &amp; metal frame Quonset</li> <li>• Conveyor belt</li> <li>• Electric powered (pers. comm. Francis Shuter)</li> <li>• Bark chipped off and into a pile</li> <li>• Wood chip piles adjacent to the north</li> </ul> |
|  | <p>Post Grinder building<br/>(15m x 10m)</p>               | <ul style="list-style-type: none"> <li>• Grinds posts to a point on one end</li> <li>• Old conveyor belt</li> <li>• Electric powered (pers. comm. Francis Shuter)</li> <li>• Metal roof with wood frame</li> <li>• Concrete footing</li> </ul>                      |
|  | <p>Semi Trailer<br/>(3m x 10m)</p>                         | <ul style="list-style-type: none"> <li>• Machine parts, electrical boxes, oil pails (20L)</li> <li>• Belt with water hoses</li> </ul>   |
|  | <p>Electrical Shed<br/>(3m x 10m)</p>                      | <ul style="list-style-type: none"> <li>• Wood frame and pressboard siding and roof</li> <li>• Houses breaker boxes and meters</li> <li>• Electric generator</li> </ul>  |
|  | <p>Steel Burning Container<br/>(4.5m x 2.5m)</p>           | <ul style="list-style-type: none"> <li>• Steel storage container (shipping container) converted to wood waste burner</li> <li>• No fuel lines were noted</li> <li>• Vent pipe noted on top</li> <li>• No longer in use</li> </ul>                                   |
|  | <p>Cardboard box storage<br/>(12.5m x 3.5m)</p>            | <ul style="list-style-type: none"> <li>• Steel storage container (semi trailer) used to store cardboard boxes</li> </ul>  |
|  | <p>Warehouse<br/>(9m x 12m)</p>                            | <ul style="list-style-type: none"> <li>• Wood frame and siding</li> <li>• Metal roof and garage door</li> <li>• Wood palettes stored inside</li> </ul>  |
|  | <p>Office</p>  | <ul style="list-style-type: none"> <li>• Construction office trailer on concrete blocks</li> </ul>  |
|  | <p>3 Travel Trailers<br/>(8m x 3m)</p>                     | <ul style="list-style-type: none"> <li>• Metal siding and roof</li> <li>• Stores mechanical pieces and tools</li> </ul>   |
|  | <p>AST<br/>2200L</p>                                       | <ul style="list-style-type: none"> <li>• New double walled AST</li> <li>• No secondary containment</li> <li>• No stains or odor</li> </ul>  |
|  | <p>Mill building<br/>(22 m x 25m)</p>                      | <ul style="list-style-type: none"> <li>• Canvas &amp; metal frame quonset,</li> <li>• concrete footings</li> <li>• Pallets and wood posts stored inside</li> <li>• BBQ</li> <li>• Wood heater</li> </ul>  |
|  | <p>Blower, Dryer and Biomass Burner<br/>(32.5m x 8.5m)</p> | <ul style="list-style-type: none"> <li>• Cylindrical steel biomass burner (pers. comm. Francis Shuter)</li> <li>• 2 Metal blowers/dryers</li> <li>• Converted steel storage containers hold sawdust</li> </ul>  |
|  | <p>Collapsed office<br/>(8m x 10m)</p>                     | <ul style="list-style-type: none"> <li>• Wood frame and metal siding and roof</li> <li>• Brown paint, spackle ceiling, fiberglass insulation, fridge, stove, tub, hot water tank, linoleum and gyproc.</li> </ul>   |

## 5.2 TOPOGRAPHY

The Site is situated in the Clapperton Creek river valley sloped to the southwest. Elevation at the Site is approximately 700m above sea level. The eastern portion of the Reserve is steeply sloped to the southwest and varies in elevation from 760m to 670m above sea level. On the west side of Clapperton Creek the Reserve is situated on a relatively flat highland that slopes gently to the south, and steeply to the east adjacent to the river valley. The southern portion of the reserve is situated on the relatively flat floodplain that slopes to the south and toward the Nicola River and Nicola Lake.

## 5.3 GEOLOGY

The Site is located within the Nicola Group Western Volcanic Facies and consists of the Quesnel Terrance within the intermontane belt. The Nicola Group consists of undivided volcanics including mafic to felsic pyroclastic rocks & flows, argillite, sandstone, and local carbonates. Surficial materials overlying the bedrock consist of a till veneer of varying thickness. These surficial materials are generally made up of unconsolidated compositions of silt, sand, gravel, and cobbles. Surface soils within the reserve are classified as eutric brunisols, which typically develop on coarse textured fluvioglacial deposits (Ministry of Energy, Mines, & Resources, 2010).

## 5.4 SURFACE DRAINAGE

Surface drainage at the Site is anticipated to be primarily infiltration into the underlying soils. Clapperton Creek flows south through the Site towards Nicola River located south of the reserve. Surface run-off is anticipated to flow down gradient toward the Clapperton Creek valley and south along Clapperton Creek.

## 5.5 CLIMATE DATA

The tables below provide climate values and monthly precipitation values as collected at Merritt B.C. Metrological Station, based on data from 1971 to 2000<sup>1</sup>. The average annual precipitation is 322.2 mm.

**Table F. Precipitation Values for 1971-2000**

|  |               |
|--|---------------|
| Meteorological Station Elevation:      | 609.0m        |
| Daily Mean Temperature:                | 7.4°C         |
| Annual Rainfall:                       | 238.9mm       |
| Annual Precipitation:                  | 322.2mm       |
| Highest Monthly Average Precipitation: | Dec, 39.6mm   |
| Lowest Monthly Average Precipitation:  | April, 14.5mm |

<sup>1</sup> [www.climate.weatheroffice.ec.gc.ca](http://www.climate.weatheroffice.ec.gc.ca)

**Table G. Precipitation Values for 1971-2000**

| Month    | Average Precipitation (mm) | Month  | Average Precipitation (mm) | Month     | Average Precipitation (mm) |
|----------|----------------------------|--------|----------------------------|-----------|----------------------------|
| January  | 37.2                       | May    | 26.8                       | September | 23.6                       |
| February | 23.6                       | June   | 34.1                       | October   | 23.5                       |
| March    | 16.6                       | July   | 25.8                       | November  | 34.7                       |
| April    | 14.5                       | August | 22.1                       | December  | 36.9                       |

**5.6 UTILITIES**

Residential properties along the Site are serviced by underground water and overhead electrical power. The Public and Capital Works Clerk at the LNIB provided the Site utility information. The Site has 16 houses all with individual septic systems, 4 houses using propane heat and all other houses are heated by electricity. The Site has 2 houses on individual well water systems. Residential properties have water and power lines adjacent to the roadways.

**5.7 ADJACENT PROPERTIES**

The adjacent lands to the south are utilized for agricultural purposes for the Nicola Ranch. The Off-Reserve Dump #2 is utilized as a storage area for Nicola Ranch. It contains two (2) pits, empty ASTs, metal irrigation pipes, burnt tires, a tractor, and other miscellaneous debris. The Nicola Ranch feedlot is also located south of the reserve boundary with manure storage. The Nicola Ranch’s potential impact on surrounding water quality was identified as a concern in previous investigations. Both the Off-Reserve Dump #1 and the Nicola Ranch feedlot are situated down gradient from the Site. No issues were noted with the manure storage in the previous investigations.

To the east, the Reserve is bordered by agricultural lands and undeveloped wild lands. Immediately adjacent to the eastern border of the Site north of the gravel access road to the post mill is a disturbed area measuring 65m x 48m and is reportedly a buried dump (active in the 1980’s).

The oil pipeline right of way through the reserve has been in operation since 1953 for the Trans Mountain Oil Pipe Line Company (Kinder-Morgan). The oil pipeline varies from 24-36’ diameter and transports heavy crude, light crude, distillates, and gasoline. The pipeline moves 48,000 m<sup>3</sup>/day<sup>2</sup>. The pipeline at the right of way section is 61 cm in diameter and has no scheduled maintenance in the future. Kinder Morgan was contacted to request environmental records for the oil pipeline right of way adjacent to the reserve. Kinder Morgan responded that the company has no spills or environmental records for the area adjacent to the Zoht IR #4.

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<sup>2</sup> Referenced from Kinder Morgan: <http://www.kne.com/business/canada/transmountain.cfm>

Highway 5 is located to the west and north of the Reserve, the remaining lands surrounding the Reserve to the north and west are undeveloped wild lands.

## 5.8 VALUED ECOSYSTEM COMPONENTS (VECs)

The Site is located on the floodplain of Nicola River, in Bunchgrass and Interior Douglas Fir (IDF) biogeoclimatic zones. Representative trees in this ecosystem include Douglas fir, trembling aspen, lodgepole pine, ponderosa pine, hybrid spruce, Rocky Mountain juniper. Shrubs for the area include species such as snowberry, common juniper, Saskatoon, Kinnikinnik, red osier dogwood, black gooseberry, prickly rose and false box. Herbs common to the area include bluebunch wheatgrass, pinegrass, wheatflower, bunchberry, yarrow, sedges (spp) and spike rushes to name a few (Ministry of Forests 1991).

A list of species from the BC Conservation Data Center (CDC) search, indicating species found within the area has been included in Appendix F. Characteristic wildlife in the region (CDC) include, but is not limited to, moose, mule deer, black bear, cougar, elk, grizzly, eagle, big horn sheep, badger, coyote, wolf, marmot, raven, spruce grouse, and various waterfowl.

A number of potential species on Site are considered Species at Risk by COSEWIC<sup>3</sup> and receive special protection for critical habitats. Provincially, red listed (being considered for designation as threatened or endangered) or blue listed (considered vulnerable) species, by the BC Ministry of the Environment, means that they require special management attention. The semi-pristine natural lands within the area of the Site are favorable for Species at Risk Act (SARA) listed species habitat. A biological inventory would be required to further investigate the potential presence of Species at Risk.

## 5.9 WATER WELLS

The BC MoE water well database<sup>4</sup> was searched in a 0.5 km radius from the center of the Site. Four (4) of the wells are located on reserve with unknown and private/domestic usage. Three (3) wells were located within the 0.5 km distance of the reserve boundary, generally located to the south of the reserve. The majority of off-site wells are of unknown and private/domestic usage. Well details for on-site wells are summarized in the table below.

**Table H. Water Well Search Results**

| Well Tag Number | Well Depth (m) | Drill Date    | Direction to Site | Distance from Site | Owner        | Major Geology Encountered (m) |                              |
|-----------------|----------------|---------------|-------------------|--------------------|--------------|-------------------------------|------------------------------|
| 49590           | 24.3           | November 1981 | SE of Post Mill   | 165m from Mill     | Lower Nicola | 0.0-3.0<br>3.0-4.6            | Boulders & Gravel<br>Hardpan |

<sup>3</sup> COSEWIC means the Committee on the Status of Endangered Wildlife in Canada

<sup>4</sup> Ministry of Environment. 2010. Water Resource Atlas Web Mapping Application [http://www.env.gov.bc.ca/wsd/data\\_searches/wrbc/index.html](http://www.env.gov.bc.ca/wsd/data_searches/wrbc/index.html)

| Well Tag Number | Well Depth (m) | Drill Date   | Direction to Site                | Distance from Site      | Owner                    | Major Geology Encountered (m)  |
|-----------------|----------------|--------------|----------------------------------|-------------------------|--------------------------|--|
|                 |                |              |                                  | Building                | Indian Band              | 4.6-9.1 Gravel<br>9.1-15.2 Hardpan<br>15.2-24.3 Loose Gravel   |
| 57635           | 36.2           | October 1987 | SW of Post Mill , E of Residence | 40m east of residence   | Francis Shuter           | 0.0-12.2 Gravel/Sand /Boulder<br>12.2-24.4 Gravel & Sand<br>24.4-27.4 Clay<br>27.4-36.2 Not Reported |
| 18577           | Unknown        | January 1964 | NW of Post Mill                  | 200m from Mill Building | Lower Nicola Reserve     | Unknown  |
| 55168           | Unknown        | August 1985  | W of Post Mill and N of Lot 2    | 300m from Mill Building | Lower Nicola Indian Band | Unknown  |

## 5.10 HISTORICAL LAND USE

Historically, Zoht IR #4 has been utilized for residential and agricultural land use. Residences have been historically present in the southwestern portion of the Site as well as limited industrial usage for lumber milling. Hunting, fishing and gathering were and are traditional uses of the Reserve lands.

## 5.11 REGULATORY HISTORY

Three (3) previous environmental reports were identified for the subject property from regulatory agencies that have been detailed in Section 4.3 above.

## 6.0 FINDINGS

### 6.1 FUEL / CHEMICAL HANDLING AND STORAGE

Numerous 205L and 45L drums were observed at the Post Mill Plant on Zoht IR#4. Smaller, approximately 20L and 4L pails and containers were also observed at the Post Mill. All drums and 20L containers at the Post Mill were observed to contain various oils, grease, and petroleum hydrocarbon products. Many of the containers were open, overflowing, situated over unpaved surfaces and lacked secondary containment. Open drums and petroleum product storage at the Site was limited to the maintenance area of the mill, with some limited hydrocarbon storage occurring in some of the steel containers. Small quantities of paints and solvents were also noted within the maintenance area and in the steel storage containers. An occasional empty 1L oil container was noted within the Lot 11 dump. Open petroleum hydrocarbon storage and open containers may pose an environmental contamination risk in localized areas.

No evidence of current or former underground storage tanks (USTs) were identified during this assessment. Three (3) active ASTs are present at the Site, along with two (2) tidy tanks noted at the Plan 59794 AST. Details of the tanks are provided in the table below.

**Table I. Fuel and Chemical Details**

| AST # | Location (Site ID)                    | Capacity       | Contents         | Active         | Condition  |
|-------|---------------------------------------|----------------|------------------|----------------|--|
| 1     | Plan 59794 Post Mill AST              | 2200L          | Unknown          | Yes            | New tank, double walled in excellent condition with no stains or odor.   |
| 2     | Plan 59794 AST<br>666559E<br>5560442N | 1300L          | Diesel           | Not since 2003 | Single walled. Some weeping at the hose joints, small stain below hose with a faint odor, vent and fill pipes in good condition, no secondary containment  |
| N/A   |                                       | 300L Tidy Tank | Regular Gasoline | No             | Single walled tidy tank. No signs of leakage, empty, and placed on wood  |
| N/A   |                                       | 300L Tidy Tank | Diesel           | No             | Single walled tidy tank. No signs of leakage, empty, and placed on wood.   |
| 3     | Lot 2 AST<br>666297E<br>5560265N      | 4800L          | Diesel           | Yes            | Tank is dented at hose inlet, hose is in good condition, weeping at joints, vent and fill pipe in good condition, tank partially full, fuel meter leaking, bucket placed below to catch product. |

Three (3) inactive ASTs were noted in the scrap metals area of the post mill, however were not included in the AST log as they are abandoned, empty, and not in their original service location. Abandoned ASTs have been included in the solid waste inventory in Section 6.2.

## 6.2 SOLID WASTE MATERIALS

Currently the municipal solid waste generated within residences at the Site is disposed of off-site. Solid waste was observed in the Lot 11 Dump, two off-reserve dumps, and within the Post Mill. Waste found within the Lot 11 dump site generally included domestic waste, limited empty oil containers, wood waste, and furniture. Wastes observed at the mill were generally old pieces of mill equipment and scrap metals that are no longer in use. A detailed inventory of the solid wastes observed at the Site is included in table below. Debris within the Off-Reserve Dump #1 was reported to include all types of waste, but mostly domestic, generated at the Nicola Lake Lakeside Estates. Off-Reserve Dump #2 was reported to contain buried wastes from farming operations at the Nicola Ranch. Wastes observed at the Off-Reserve Dump #2 included 8 abandoned ASTs, 1 abandoned UST, 2 compressors, tractor, pesticide sprayer, and a truck box. As the two dumps are off-reserve, their contents were not inspected in detail and have not been included in the solid waste summary below.

**Table J. Solid Waste Summary for the Site**

| Location<br>(Site ID)         | Description of Hazardous Materials  |
|-------------------------------|---|
| <b>Plan 59794 Post Mill</b>   | <ul style="list-style-type: none"> <li>• 10m diameter area with 3 abandoned trucks, empty 205L drum, stove, 10 tires, and dimensional wood waste on NE corner of mill property</li> <li>• 12m x 18m hydrocarbon storage in maintenance area with open 205L drums, 20L pails, and spotty soil staining throughout.</li> <li>• 25m x 30m (including petroleum storage area) mill part storage with former mill machine pieces, forklift, conveyor belts and parts, generator, large metal tumbler, 2 commercial lead acid batteries, rubber hoses, 3 air compressors, backhoe, abandoned AST, radiator, lawn mower, dimensional wood waste, tires, chains, axles, paint sprayer, and miscellaneous metal debris.</li> <li>• 30m x 4m scrap metals area northwest of the mechanical area contains conveyor belts and frames, sheet metal, rubber hoses, concrete blocks, and dimensional wood waste.</li> <li>• 35m x 50m scrap metals area west of mill building contains scrap metals, conveyor belts, 2 empty abandoned ASTs, metal frames, 25 rubber tires, engine and engine pieces, dimensional wood waste, 4 empty 205L drums, axle, skill saw, plastic siding, galvanized pipe, motor pieces, metal chains, fuel pump and nozzle, dump truck, 2 woodstoves, chip board, transmission, 2 trucks, and metal signs.</li> <li>• Collapsed office building contains fridge, stove, tub, hot water tank, linoleum, gyproc, and pressboard siding.</li> <li>• Occasional scattered metal mill machine parts are noted along eastern edge of property (40m x 10m)</li> </ul> |
| <b>Zoht IR #4 Lot 11 Dump</b> | <ul style="list-style-type: none"> <li>• 25m x 4m occasional debris dumped down ravine slope including domestic waste, cooler, tv, carpet, and toys.</li> <li>• 2m diameter soil fill pile.</li> <li>• 15m x 30m debris dumped down ravine slope including empty 20L oil pails, domestic waste, and fence posts</li> <li>• An abandoned couch and wooden chicken coop remain at the top of bank.</li> </ul>   |

### 6.3 SPILLS AND STAIN AREAS

Minor spills and stains associated with the diesel ASTs, drums, 20L oil pails, hydrocarbon storage, and machine maintenance are assumed. Spotty soil staining was observed within soils below the Zoht IR4 Lot 2 AST and was 0.8m in diameter, and appeared surficial. No stains or odors were observed at the Zoht IR4 Plan 59794 AST or tidy tanks. A 12m by 18m hydrocarbon storage area was noted in the maintenance area of the post mill. Spotty soil staining was observed throughout the storage area, and appeared to be surficial. No other spill or stain areas were noted at the Site, or in either of the off reserve dump sites.



## **6.4 WASTEWATER DISCHARGE**

Wastewater produced at the Site is limited to domestic effluent discharged via local septic systems. No concerns with regard to wastewater discharge were noted at the Site during this investigation.

## **6.5 AIR DISCHARGES**

Sources of air emissions included gasoline and diesel fueled vehicles emissions, propane fueled forklift, dust generated by vehicles on unpaved areas, dust from wood saw/milling use, and emissions from the biomass burner on the west edge of the mill building. No other sources of air emissions were noted at the time of the investigation. Air emissions were not anticipated to impact the Site.

## **6.6 POLYCHLORINATED BIPHENYLS (PCB)**

There were no records of PCB containing transformers or capacitors on-site. No environmental concerns regarding PCBs were determined during this investigation. BC Hydro has an inventory of transformers that have >50 ppm and are in the process of decommissioning these transformers within their network.

## **6.7 ASBESTOS**

The use of friable asbestos as a building material was banned in the U.S. in the mid 1970s. The manufacture of building materials containing asbestos was generally phased out in North America by the mid 1980s. The current residence is fairly new, therefore the potential for asbestos is low.

The presence of asbestos has not been confirmed, but it is possible that asbestos may be present in such materials as insulation, cement products, grouts, plaster, compressed papers and boards, linoleum, floor tiles, duct tapes, sealants and protective coatings. Asbestos within the private residence is unlikely but not confirmed, otherwise material resembling friable asbestos was not observed during the site reconnaissance. If demolition or renovation of structures is considered, the identification and safe removal or containment of asbestos is regulated under Section 20.112 of the OHSR. When these materials are in use they are not waste materials; however, following removal it is recommended that they be managed in accordance with the *Hazardous Waste Regulation* and the *Environmental Management Act*.

## **6.8 HEAVY METALS**

Some accumulation of metals debris was observed on-site. Figures 2 and 5 show major stockpiles of metal equipment and debris at the Post Mill and Lot 11 Dump respectively. Since the Post Mill is an active industrial site with continuing operations and moving storage components, currently observed debris may have been moved from different locations many times prior to the 2010 site reconnaissance. Since the observed metal debris piles and domestic wastes are surficial in nature and composed largely of scrap metal and old



machinery equipment, the potential for large-scale metals impacts are considered low at this time, however, there is the potential for localized metals impacts to surface soils.

## 6.9 OZONE DEPLETING SUBSTANCES (ODS)

No evidence to suggest environmental contamination by ODS were identified.

## 6.10 NOISE

Sources of noise observed at the Site were limited to local traffic, and mill equipment. No environmental issues concerning noise were noted during this investigation.

## 7.0 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

Four (4) on-reserve and two (2) off-reserve areas of potential environmental concern (APECs) were identified for the Site based on historical information, interviews, and on-site visual observations. The on-reserve APECs include the Plan 59794 Post Mill and AST, the Lot 2 AST, and the Lot 11 Dump. A summary table of the on reserve APECs and their associated contaminants of potential concern (COPC) is provided below.

**Table K. Areas of Potential Environmental Concern (APECs)**

| APEC                                     | Description of Contamination or Risk  | COPC  |
|--|---|---|
| <b>APEC 1</b><br>Plan 59794<br>Post Mill | Mill area contains 6 areas with scrap metals, automotive parts, abandoned ASTs and abandoned machinery. Post mill maintenance area also contains hydrocarbon product storage and mill machine maintenance with spotty soil staining and odor throughout the area. The new double walled 2200L diesel AST at the Site is on bare soil. | <ul style="list-style-type: none"> <li>• Metals</li> <li>• PAH</li> <li>• PHC</li> <li>• VOC</li> </ul> |
| <b>APEC 2</b><br>Plan 59794 AST          | Single walled 13300L diesel AST is no longer in use, but is in original location. Some weeping at the hose joints, small stain below hose with a faint odor. No secondary containment. Two adjacent 300L tidy tanks are empty with no stains or odors.  | <ul style="list-style-type: none"> <li>• PAH</li> <li>• PHC</li> <li>• VOC</li> </ul>                   |
| <b>APEC 3</b><br>Lot 2 AST               | One 4800L diesel AST is partially full. Tank is dented at hose inlet, weeping at joints, fuel meter is leaking, and a bucket is placed below to catch product. 0.8m diameter soil staining was observed below, and appears surficial.   | <ul style="list-style-type: none"> <li>• PAH</li> <li>• PHC</li> <li>• VOC</li> </ul>                   |
| <b>APEC 4</b><br>Lot 11 Dump             | Dump contains two areas of debris scattered down a steep ravine and embankment. Debris includes domestic waste, one appliance, occasional 20L pails, furniture, and dimensional wood waste.   | <ul style="list-style-type: none"> <li>• Metals</li> <li>• PAH</li> <li>• PHC</li> <li>• VOC</li> </ul> |

PAH = Polycyclic Aromatic Hydrocarbons

VOC = Volatile Organic Compounds

PHC = Petroleum Hydrocarbons including F1, F2, F3 and F4 fractions, Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).

Three (3) off-reserve APECs were identified as a concern during the records review and site reconnaissance which included the Kinder Morgan Oil pipeline Right of Way, Off-Reserve Dump #1 to the east, and the Off-Reserve Dump #2 to the south. Dump #1 is located immediately adjacent to the eastern border and cross-gradient from the reserve Topography

at this location is sloped to the southeast, away from the Reserve. . It is reported to contain mostly domestic waste from the Lakeside Estates on Nicola Lake. Dump #1 is retained as an APEC with low potential for impacting the Site and is shown on Figure 6. Dump #2 is located immediately adjacent to the southern border of the Reserve. Limited surficial debris was noted at the Site and it is down-gradient from the reserve. As such, Dump #2 is not retained as an APEC. The oil pipeline right of way is an off-site APEC.

## **8.0 RECOMMENDATIONS**

A Phase 2 ESA is recommended to determine the presence or absence of contaminated media at the APECs identified by this assessment.

## 9.0 REPORT USE AND LIMITATIONS

This Phase I ESA report has been prepared for the exclusive use of Indian and Northern Affairs Canada (INAC), and it is intended to provide INAC with an understanding of the potential for environmental contamination by hazardous materials at the property assessed. The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of said user. The findings and recommendations in this report are based upon data and information obtained during Site visits by Columbia and INAC personnel to the Site identified herein and the condition of the Site on the dates of such visits, supplemented by information and data obtained by Columbia described herein.

The findings and recommendations contained in this report are based on the expertise and experience of Columbia in conducting similar site assessments. In assessing the Site, Columbia has also relied upon representations and information furnished by individuals noted in the report with respect to existing operations and property conditions and the historical uses of the properties to the extent that the information obtained has not been contradicted by data obtained from other sources. Accordingly, Columbia accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this report as a result of misstatements, omissions, misrepresentations or fraudulent information provided by others.

It should be recognized that this study was not intended to be a definitive investigation of contamination at the Site. Given that the limited scope of services for this assessment as stated in the Terms of Reference for the Phase I ESA, it is possible that currently unrecognized contamination may exist at the Site and, if present, that the levels of contamination may vary across the Site. Opinions and recommendations presented herein apply to site conditions existing at the time of our assessment and those reasonably foreseeable. Should environmentally significant changes to the Site or additional information become available, Columbia should be provided the opportunity to review this information/data and amend our opinions, as appropriate. Fungi, mycotoxins, bioaerosols and other indoor air quality issues were not included in the scope of work.

Columbia's objective is to perform our work with care, exercising the customary thoroughness and competence of earth science, environmental, and engineering consulting professionals, in accordance with the standard for professional services at the time and location those services are rendered. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liability on a particular site. Therefore, Columbia cannot act as insurers and cannot "certify" or "underwrite" that a site is free of environmental contamination, and no expressed or implied representation or warranty is included or intended in our reports, except that our work was performed, within the limits prescribed by our client, with the customary thoroughness and competence of our profession.

## 10.0 PROFESSIONAL STATEMENT

The information compiled for this document has been prepared in accordance with the requirements of the INAC Scope of Work.

Columbia certifies that the persons signing this document have demonstrable experience in the assessment of commercial and industrial sites. The work has been performed by Columbia staff under the guidance and supervision of the signatories below.

Report prepared by:

**COLUMBIA ENVIRONMENTAL CONSULTING LTD.**

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Summer Zawacky, B.Sc.  
Field Supervisor

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Carmen Marshall, B.Sc.  
Field Assessor

---

Dave Diplock, P.Eng.  
Report Review

---

Dwight Shanner, R.P.Bio.  
Project Manager

## 11.0 REFERENCES

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### **Personal Communications**

Bob Alexanruck. Division Manager. Ministry of Transportation. Merritt B.C. Regarding Diesel spill and gravel pit on Highway 5.

Dave Shlepee. Ministry of Transportation. Kamloops B.C. Requested the salt investigation report.

Francis Shuter. LNIB Site CP holder. Provided historical and current information on the Sites visited.

Jason Turner. Environmental Division. Kinder Morgan. Requesting pipeline details through the site.

Louise Ouelett. Environmental and Transmission and Distribution Department. Fortis BC. Vancouver B.C. Regarding records and locations of transformers and service dates.

Peter Hughs. Director of Environmental Services. Thompson Nicola Regional District. Regarding Environmental Records.

Sean O'Flaherty. Development Services Officer. City of Merritt. Merritt B.C. Regarding building permits on reserve or environmental issues.

Toni Melliere. Environmental Division. Terasen Gas. Vancouver B.C. Requesting Environmental records and service dates for LNIB.

**APPENDIX A**

**FIGURES**





**LEGEND**

- RESERVE FOOTPRINT
- RESERVE BOUNDARY

**NOTES:**

Airphoto taken from Google Earth, December 2010

| No. | Revision/Issue | Date |
|-----|----------------|------|
|     |                |      |



**Figure 1  
Site Location**

LNIB / INAC  
Phase I  
Environmental Site Assessment  
Zoht IR #4

|           |               |             |
|-----------|---------------|-------------|
| Project   | 10-0374       | Sheet       |
| Date      | January, 2011 |             |
| Drawn By: | SZ            | Checked By: |
|           |               | DS/DD       |









**LEGEND**

- AST
- FENCE
- - - GRAVEL ROAD
- ↙ SURFACE / GROUNDWATER FLOW DIRECTION

**NOTES:**

All elevations in metres (m)

Locations of site features were taken from:

1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

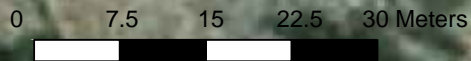
| No. | Revision/Issue | Date |
|-----|----------------|------|
|     |                |      |

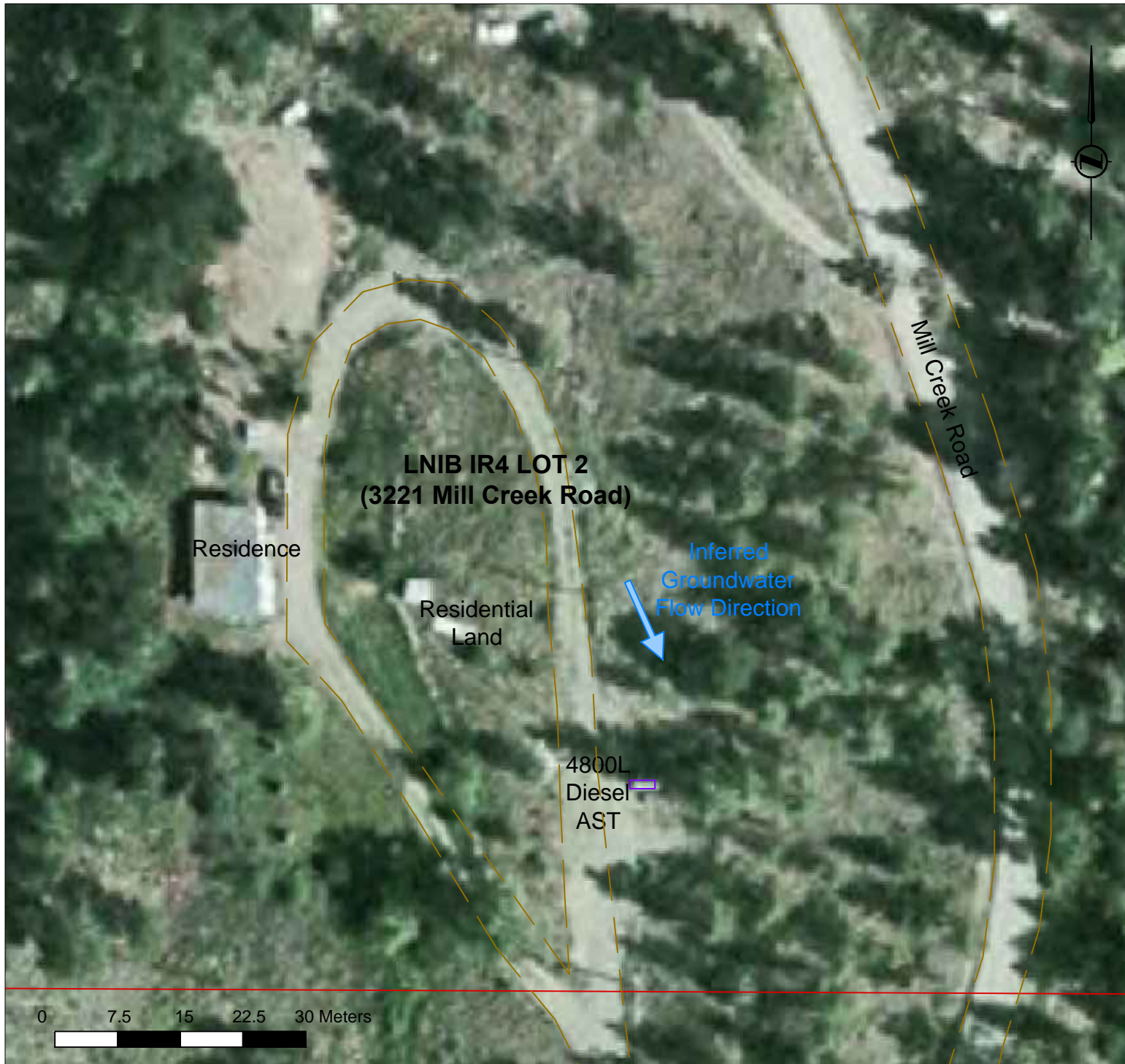


**Figure 3**  
Zoht IR#4  
Plan 59794 AST

LNIB / INAC  
Phase I  
Environmental Site Assessment  
Zoht IR #4

|           |               |       |
|-----------|---------------|-------|
| Project   | 10-0374       | Sheet |
| Date      | January, 2011 |       |
| Drawn By: | Checked By:   |       |
| SZ        | DS/DD         |       |





**LEGEND**

- AST
- RESERVE BOUNDARY
- - - GRAVEL ROAD
- ↘ SURFACE / GROUNDWATER FLOW DIRECTION

**NOTES:**

All elevations in metres (m)

Locations of site features were taken from:

1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

| No. | Revision/Issue | Date |
|-----|----------------|------|
|     |                |      |



**Figure 4**  
Zoht IR#4  
Lot 2 AST

LNIB / INAC  
Phase I  
Environmental Site Assessment  
Zoht IR #4

|                              |                             |
|------------------------------|-----------------------------|
| <b>Project</b><br>10-0374    | <b>Sheet</b>                |
| <b>Date</b><br>January, 2011 |                             |
| <b>Drawn By:</b><br>SZ       | <b>Checked By:</b><br>DS/DD |

0 7.5 15 22.5 30 Meters







| LEGEND |                                      |
|--------|--------------------------------------|
|        | SURFACE DEBRIS                       |
|        | HILL CREST                           |
|        | GRAVEL ROAD                          |
|        | RESERVE BOUNDARY                     |
|        | SURFACE / GROUNDWATER FLOW DIRECTION |

**NOTES:**

All elevations in metres (m)

Locations of site features were taken from:

1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

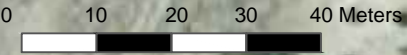
| No. | Revision/Issue | Date |
|-----|----------------|------|
|     |                |      |



**Figure 5**  
Zoht IR#4  
Lot 11 Dump

LNIB / INAC  
Phase I  
Environmental Site Assessment  
Zoht IR #4

|           |               |             |
|-----------|---------------|-------------|
| Project   | 10-0374       | Sheet       |
| Date      | January, 2011 |             |
| Drawn By: | SZ            | Checked By: |
|           |               | DS/DD       |







**LEGEND**

- SURFACE DEBRIS
- BURIED DEBRIS
- FENCE
- - - GRAVEL ROAD
- RESERVE BOUNDARY
- ↙ SURFACE / GROUNDWATER FLOW DIRECTION

**NOTES:**

All elevations in metres (m)

Locations of site features were taken from:

1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

| No. | Revision/Issue | Date |
|-----|----------------|------|
|     |                |      |



**Figure 6**  
Zoht IR#4  
Off Reserve Dump#1

LNIB / INAC  
Phase I  
Environmental Site Assessment  
Zoht IR #4

|                              |                             |
|------------------------------|-----------------------------|
| <b>Project</b><br>10-0374    | <b>Sheet</b>                |
| <b>Date</b><br>January, 2011 |                             |
| <b>Drawn By:</b><br>SZ       | <b>Checked By:</b><br>DS/DD |





| LEGEND |                                      |  |
|--------|--------------------------------------|--|
|        | SURFACE DEBRIS                       |  |
|        | EXCAVATED PIT                        |  |
|        | HILL CREST                           |  |
|        | GRAVEL ROAD                          |  |
|        | RESERVE BOUNDARY                     |  |
|        | SURFACE / GROUNDWATER FLOW DIRECTION |  |

NOTES:

All elevations in metres (m)

Locations of site features were taken from:

1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

| No. | Revision/Issue | Date |
|-----|----------------|------|
|     |                |      |

**Figure 7**  
Zoht IR#4  
Off Reserve Dump #2

LNIB / INAC  
Phase I  
Environmental Site Assessment  
Zoht IR #4

|           |               |             |        |
|-----------|---------------|-------------|--------|
| Project   | 10-0374       | Sheet       |        |
| Date      | January, 2010 |             |        |
| Drawn By: | SZ            | Checked By: | DS, DD |



**APPENDIX B**  
**PHOTOGRAPHIC DOCUMENTATION**



**Photo 1.** Overview of the Zoht IR4 Plan 59794 Post Mill looking west from Monck Park Road.



**Photo 2.** Overview of the post processing area (de-barkers, post point areas) on the northern portion of the Site (Plan 59794 Post Mill) facing west. Note the canvas covered buildings hold machinery for cutting, shaping, and trimming posts.





**Photo 3.** View of the hydrocarbon storage on the west side of the of the travel trailers in the northwest portion of the Site (Plan 59794 Post Mill) facing northeast. Note that many containers are open, overflowing, and the entire area contains spotty soil staining.



**Photo 4.** View of the new AST at the Plan 59794 Post Mill facing southeast. Note the travel trailer and oil storage area in the top right.



**Photo 5.** View of the metal and mechanical debris stored adjacent to the travel trailers at the Site (Plan 59794 Post Mill) facing south. Note the hydrocarbon storage area to the south.



**Photo 6.** View of the scrap metals stored on the western portion of the Plan 59794 Post Mill facing southwest.





**Photo 7.** View of the biomass burner, dryer, and blower on the west side of the mill building at the Plan 59794 Post Mill facing northeast.



**Photo 8.** View of the collapsed office building and abandoned conveyor belts on the southwest portion of the Plan 59794 Post Mill facing south.



**Photo 9.** View of the southern portion of the Plan 59794 Post Mill wood stacking area facing east.



**Photo 10.** View of a buncher located on the southern portion of the Plan 59794 Post Mill facing northwest. Note the leaking hydraulic oil and soil staining.





**Photo 11.** View of the Plan 59794 AST located at the residence southwest of the Post Mill, facing south. Note the two empty tidy tanks adjacent to the AST.



**Photo 12.** View of the Lot 2 AST (3221 Mill Creek Road) facing east. Note the soil staining below the tank, weeping valve, and adjacent hydrocarbon storage.





**Photo 13.** View of the occasional scattered domestic waste on the western portion of the Zoht IR4 Lot 11 Dump facing southeast.



**Photo 14.** View of the scattered fence posts and domestic waste on the southern portion fo the Zoht IR4 Lot 11 Dump facing southwest.





**Photo 15.** View of the Zoht IR4 Off Reserve Dump 1 facing northeast. Note the disturbed footprint of the reported buried dumpsite.



**Photo 16.** View of the Zoht IR4 Off Reserve Dump 1 facing southwest. Note the reserve boundary to the east marked by a wooden post and rail fence.





**Photo 17.** View of the Zoht IR4 Off Reserve Dump 2 Pit #1 facing north. Note the reserve boundary to the north on the top of the northern pit wall.



**Photo 18.** View of the Zoht IR4 Off Reserve Dump 2 Pit #2 facing south. Note the limited surface debris within the pit.





**Photo 19.** View of the abandoned ASTs and compressors on the southwestern portion of the Zoht IR4 Off Reserve Dump 2 facing west.



**Photo 20.** View of the abandoned truck boxes, AST, and UST in the central portion of the Zoht IR4 Off Reserve Dump 2 facing east.

**APPENDIX C**

**BC ONLINE SITE REGISTRY RESULTS**

Zoh't's

## Site Registry

For: [ PA95213 ] [ COLUMBIA ENVIRONMENTAL CONSULTING LTD ]

As Of: JAN 02, 2011

Check for Prints

## Nil Search

Jan 04, 2011

04:40:35 PM

Main Menu

Return

Print

Help?

Folio:

## Area Nil Search

---

As of JAN 02, 2011, no records from Site Registry fall within 5.0 kilometers of coordinates  
Latitude 50 degrees, 12 minutes, 10.7 seconds, and  
Longitude 120 degrees, 38 minutes, 18.4 seconds.

You have been charged for this information.

Sites may be revealed by searching with alternate search methods. For example, a site not revealed in an Area search may be revealed by searching with another piece of information such as PID, PIN, Address or Crown Lands File Number.

**APPENDIX D**  
**CORRESPONDANCE**

Hi Carmen,

Zoht 4 has no archaeological sites recorded in it or near it. There isn't any provincial modelling data for the area I'm afraid, so I can't tell you what the likelihood of finding unrecorded sites within the reserve is.

Hope this helps.

Diana

Diana Cooper  
Archaeological Site Inventory Info & Data Administrator  
Archaeology Branch  
Ministry of Natural Resource Operations  
Tel: (250) 953-3343  
Fax: (250) 953-3340  
e-mail: [diana.cooper@gov.bc.ca](mailto:diana.cooper@gov.bc.ca)  
Visit our website at: <http://www.tti.gov.bc.ca/archaeology/>

**APPENDIX E**  
**AERIAL PHOTOGRAPHS**

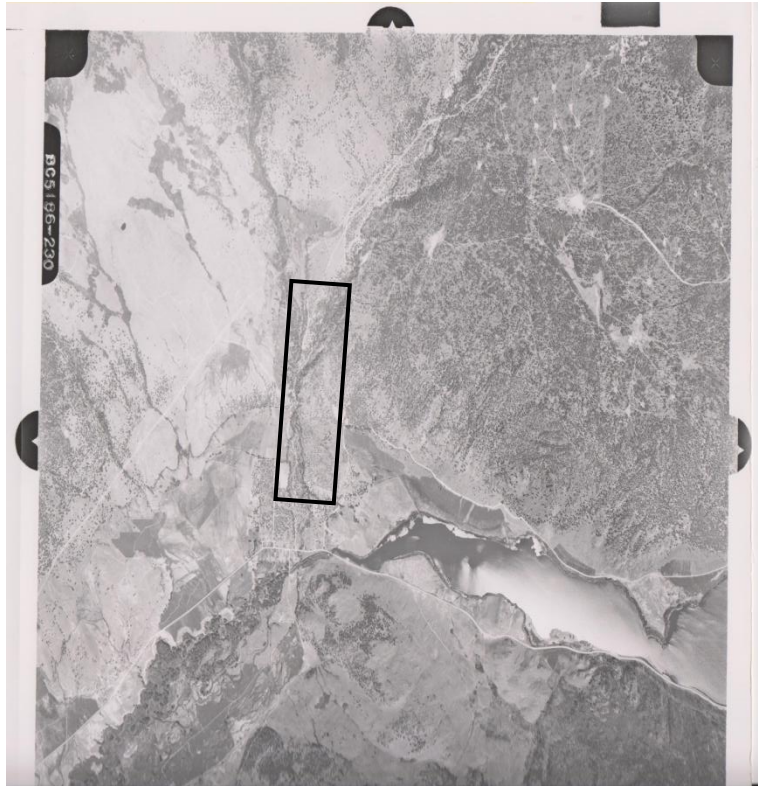




**Photograph 1.** 1948 Aerial Photograph BC 620-54 001



**Photograph 2.** 1960 Aerial Photograph A17246-203



**Photograph 3.** 1966 Aerial Photograph BC5186-230

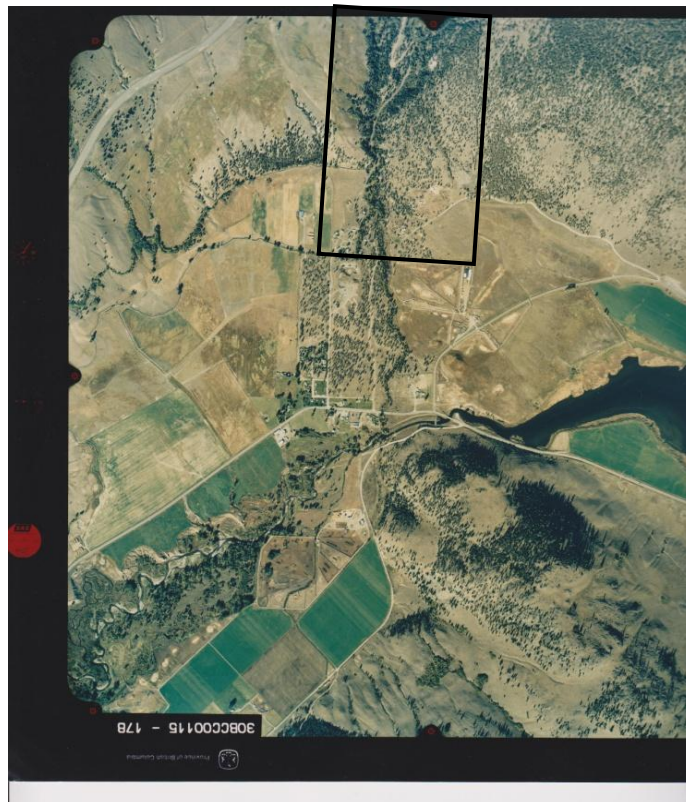


**Photograph 4.** 1980 Aerial Photograph 15BC 80142-229





**Photograph 5.** 1991 Aerial Photograph 30BC91051-17



**Photograph 6.** 2000 Aerial Photograph 30BCC 00115-178

**APPENDIX F**  
**POTENTIAL SPECIES AT RISK**

**Table B: BC CDC Search Results for Species within the Bunchgrass Ecosystem (CDC, 2010)<sup>1</sup>**

| Scientific Name                          | English Name   | COSEWIC*       | BC List** |
|--|--|----------------|-----------|
| <b>Amphibians</b>                        |  |                |           |
| <i>Spea intermontana</i>                 | Great Basin Spadefoot  | T (Apr 2007)   | Blue      |
| <i>Chrysemys picta pop. 2</i>            | Western Painted Turtle - Intermountain - Rocky Mountain Population | SC (Apr 2006)  | Blue      |
| <b>Fish</b>                              |  |                |           |
| <i>Acrocheilus alutaceus</i>             | Chiselmouth  | NAR (May 2003) | Blue      |
| <i>Catostomus platyrhynchus</i>          | Mountain Sucker  | NAR (May 1991) | Blue      |
| <i>Salvelinus confluentus</i>            | Bull Trout   |                | Blue      |
| <b>Reptiles</b>                          |  |                |           |
| <i>Coluber constrictor</i>               | Racer  | SC (Nov 2004)  | Blue      |
| <i>Pituophis catenifer deserticola</i>   | Gopher Snake, <i>deserticola</i> subspecies                        | T (May 2002)   | Blue      |
| <i>Crotalus oreganus</i>                 | Western Rattlesnake  | T (May 2004)   | Blue      |
| <b>Birds</b>                             |  |                |           |
| <i>Ardea herodias herodias</i>           | Great Blue Heron, <i>herodias</i> subspecies                       |                | Blue      |
| <i>Buteo swainsoni</i>                   | Swainson's Hawk  |                | Red       |
| <i>Falco mexicanus</i>                   | Prairie Falcon   | NAR (May 1996) | Red       |
| <i>Falco peregrinus anatum</i>           | Peregrine Falcon, <i>anatum</i> subspecies                         | SC (Apr 2007)  | Red       |
| <i>Grus canadensis</i>                   | Sandhill Crane   | NAR (May 1979) | Yellow    |
| <i>Numenius americanus</i>               | Long-billed Curlew   | SC (Nov 2002)  | Blue      |
| <i>Asio flammeus</i>                     | Short-eared Owl  | SC (Mar 2008)  | Blue      |
| <i>Athene cunicularia</i>                | Burrowing Owl  | E (Apr 2006)   | Red       |
| <i>Megascops kennicottii macfarlanei</i> | Western Screech-Owl, <i>macfarlanei</i> subspecies                 | E (May 2002)   | Red       |
| <i>Otus flammeolus</i>                   | Flammulated Owl  | SC (Apr 2010)  | Blue      |
| <i>Melanerpes lewis</i>                  | Lewis's Woodpecker   | T (Apr 2010)   | Red       |
| <i>Sphyrapicus thyroideus thyroideus</i> | Williamson's Sapsucker, <i>thyroideus</i> subspecies               | E (May 2005)   | Red       |

| Scientific Name                      | English Name                                | COSEWIC*       | BC List** |
|--------------------------------------|---|----------------|-----------|
| <i>Contopus cooperi</i>              | Olive-sided Flycatcher                      | T (Nov 2007)   | Blue      |
| <i>Eremophila alpestris merrilli</i> | Horned Lark, <i>merrilli</i> subspecies     |                | Blue      |
| <i>Hirundo rustica</i>               | Barn Swallow                                |                | Blue      |
| <i>Catherpes mexicanus</i>           | Canyon Wren                                 | NAR (May 1992) | Blue      |
| <i>Oreoscoptes montanus</i>          | Sage Thrasher                               | E (Nov 2000)   | Red       |
| <i>Chondestes grammacus</i>          | Lark Sparrow                                |                | Red       |
| <i>Spizella breweri breweri</i>      | Brewer's Sparrow, <i>breweri</i> subspecies |                | Red       |
| <i>Dolichonyx oryzivorus</i>         | Bobolink                                    | T (Apr 2010)   | Blue      |
| <i>Euphagus carolinus</i>            | Rusty Blackbird                             | SC (Apr 2006)  | Blue      |
| <b>Mammals</b>                       |   |                |           |
| <i>Perognathus parvus</i>            | Great Basin Pocket Mouse                    |                | Red       |
| <i>Corynorhinus townsendii</i>       | Townsend's Big-eared Bat                    |                | Blue      |
| <i>Euderma maculatum</i>             | Spotted Bat                                 | SC (May 2004)  | Blue      |
| <i>Myotis ciliolabrum</i>            | Western Small-footed Myotis                 |                | Blue      |
| <i>Myotis thysanodes</i>             | Fringed Myotis                              | DD (May 2004)  | Blue      |
| <i>Gulo gulo luscus</i>              | Wolverine, <i>luscus</i> subspecies         | SC (May 2003)  | Blue      |
| <i>Martes pennanti</i>               | Fisher                                      |                | Blue      |
| <i>Taxidea taxus</i>                 | American Badger                             | E (May 2000)   | Red       |
| <i>Ursus arctos</i>                  | Grizzly Bear                                | SC (May 2002)  | Blue      |
| <i>Ovis canadensis</i>               | Bighorn Sheep                               |                | Blue      |
| <b>Invertebrates</b>                 |   |                |           |
| <i>Stylurus olivaceus</i>            | Olive Clubtail                              |                | Red       |
| <i>Hesperia nevada</i>               | Nevada Skipper                              |                | Blue      |
| <i>Pholisora catullus</i>            | Common Sootywing                            |                | Blue      |
| <i>Satyrium californica</i>          | California Hairstreak                       |                | Blue      |
| <i>Danaus plexippus</i>              | Monarch                                     | SC (Apr 2010)  | Blue      |
| <i>Prometheus umbilicatellus</i>     | Umbilicate Sprite                           |                | Blue      |
| <i>Vallonia cyclophorella</i>        | Silky Vallonia                              |                | Blue      |
| <i>Hemphillia camelus</i>            | Pale Jumping-slug                           |                | Blue      |
| <b>Vascular Plants</b>               |   |                |           |
| <i>Azolla mexicana</i>               | Mexican mosquito fern                       | T (Nov 2008)   | Red       |

| Scientific Name  | English Name             | COSEWIC* | BC List** |
|--|--------------------------|----------|-----------|
| <i>Dryopteris cristata</i>                                   | crested wood fern        |          | Blue      |
| <i>Ophioglossum pusillum</i>                                 | northern adder's-tongue  |          | Blue      |
| <i>Agoseris lackschewitzii</i>                               | pink agoseris            |          | Blue      |
| <i>Arabis lignifera</i>                                      | woody-branched rockcress |          | Blue      |
| <i>Arabis sparsiflora</i>                                    | sickle-pod rockcress     |          | Red       |
| <i>Astragalus lentiginosus</i>                               | freckled milk-vetch      |          | Blue      |
| <i>Atriplex argentea</i> ssp.<br><i>argentea</i>             | silvery orache           |          | Red       |
| <i>Atriplex truncata</i>                                     | wedgescale orache        |          | Red       |
| <i>Castilleja cusickii</i>                                   | Cusick's paintbrush      |          | Red       |
| <i>Centaurium exaltatum</i>                                  | western centaury         |          | Red       |
| <i>Chamaerhodos erecta</i> ssp.<br><i>nuttallii</i>          | American chamaerhodos    |          | Blue      |
| <i>Chamaesyce serpyllifolia</i> ssp.<br><i>serpyllifolia</i> | thyme-leaved spurge      |          | Blue      |
| <i>Chenopodium atrovirens</i>                                | dark lamb's-quarters     |          | Red       |
| <i>Crepis atribarba</i> ssp.<br><i>atribarba</i>             | slender hawksbeard       |          | Red       |
| <i>Crepis modocensis</i> ssp.<br><i>modocensis</i>           | low hawksbeard           |          | Red       |
| <i>Crepis modocensis</i> ssp.<br><i>rostrata</i>             | western low hawksbeard   |          | Red       |
| <i>Epilobium halleanum</i>                                   | Hall's willowherb        |          | Blue      |
| <i>Gaura coccinea</i>  | scarlet gaura            |          | Red       |
| <i>Gayophytum humile</i>                                     | dwarf groundsmoke        |          | Blue      |
| <i>Hackelia diffusa</i>                                      | spreading stickseed      |          | Blue      |
| <i>Hedeoma hispida</i>                                       | mock-pennyroyal          |          | Red       |
| <i>Hutchinsia procumbens</i>                                 | hutchinsia               |          | Blue      |
| <i>Hypericum scouleri</i> ssp.<br><i>nortoniae</i>           | western St. John's-wort  |          | Blue      |
| <i>Iva axillaris</i>   | poverty-weed             |          | Red       |



| Scientific Name  | English Name                 | COSEWIC*      | BC List** |
|--|------------------------------|---------------|-----------|
| <i>Leptosiphon septentrionalis</i>                     | northern linanthus           |               | Blue      |
| <i>Lupinus argenteus</i> var.<br><i>laxiflorus</i>     | silvery lupine               |               | Red       |
| <i>Lupinus bingenensis</i> var.<br><i>subsaccatus</i>  | Suksdorf's lupine            |               | Red       |
| <i>Mimulus breviflorus</i>                             | short-flowered monkey-flower |               | Red       |
| <i>Myriophyllum ussuriense</i>                         | Ussurian water-milfoil       |               | Blue      |
| <i>Navarretia intertexta</i>                           | needle-leaved navarretia     |               | Red       |
| <i>Polygonum polygaloides</i> ssp.<br><i>kelloggii</i> | Kellogg's knotweed           |               | Blue      |
| <i>Pyrola elliptica</i>                                | white wintergreen            |               | Blue      |
| <i>Salix boothii</i>                                   | Booth's willow               |               | Blue      |
| <i>Salix tweedyi</i>                                   | Tweedy's willow              |               | Blue      |
| <i>Sidalcea oregana</i> var. <i>procera</i>            | Oregon checker-mallow        |               | Red       |
| <i>Sphaeralcea coccinea</i>                            | scarlet globe-mallow         |               | Red       |
| <i>Allium geyeri</i> var. <i>tenerum</i>               | Geyer's onion                |               | Blue      |
| <i>Carex hystericina</i>                               | porcupine sedge              |               | Blue      |
| <i>Carex sychnocephala</i>                             | many-headed sedge            |               | Blue      |
| <i>Cyperus squarrosus</i>                              | awned cyperus                |               | Blue      |
| <i>Epipactis gigantea</i>                              | giant helleborine            | SC (May 1998) | Blue      |
| <i>Hesperostipa spartea</i>                            | porcupinegrass               |               | Red       |
| <i>Juncus confusus</i>                                 | Colorado rush                |               | Red       |
| <i>Melica spectabilis</i>                              | purple oniongrass            |               | Blue      |
| <i>Olsynium douglasii</i> var.<br><i>inflatum</i>      | satinflower                  |               | Red       |
| <i>Poa fendleriana</i> ssp.<br><i>fendleriana</i>      | mutton grass                 |               | Red       |
| <i>Sphenopholis obtusata</i>                           | prairie wedgegrass           |               | Red       |
| <i>Sporobolus compositus</i> var.<br><i>compositus</i> | rough dropseed               |               | Blue      |

| Scientific Name                       | English Name              | COSEWIC*      | BC List** |
|---------------------------------------|---------------------------|---------------|-----------|
| <i>Stuckenia vaginata</i>             | sheathing pondweed        |               | Blue      |
| <b>Non Vascular Plants</b>            |                           |               |           |
| <i>Bryoerythrophyllum columbianum</i> | Columbian carpet moss     | SC (May 2004) | Blue      |
| <i>Microbryum vlassovii</i>           | nugget moss               | E (Nov 2006)  | Red       |
| <i>Pterygoneurum kozlovii</i>         | alkaline wing-nerved moss | T (Nov 2004)  | Red       |

\* SC=Special Concern; T=Threatened; E=Endangered; XT=extirpated

\*\* Blue= of special concern, Red= extirpated, endangered or threatened in British Columbia

**APPENDIX G**  
**HISTORICAL REPORTS**

**APPENDIX H**

**AST LOGS**



**CHECKLIST FOR ROUTINE INSPECTIONS OF ABOVEGROUND STORAGE TANKS**

Location: \_\_\_\_\_ CP \_\_\_\_\_ Po \_\_\_\_\_ M \_\_\_\_\_ AST \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Tank Size: \_\_\_\_\_ L \_\_\_\_\_

\_\_\_\_\_ o \_\_\_\_\_ o \_\_\_\_\_

Serial #: \_\_\_\_\_ A \_\_\_\_\_

Tank ID: \_\_\_\_\_

| _____  | _____                         | _____ | _____ | _____ | _____                                    |
|--|-------------------------------|-------|-------|-------|--|
| Tanks, pipes and dispensing stations are appropriately labeled, with labels in good condition.                               |                               |       |       | Y     | "Tank is new and in excellent condition" |
| Tank support structure and vents are free of rust, weeps, wet spots, or excessive dents on the tank's surface.               |                               |       |       | Y     |  |
| Tank is free of drips or signs of leakage around valves, piping and gauges.  |                               |       |       | Y     |  |
| Tank gauges are in good repair, with no evidence of cracking, sticking or freezing.  |                               |       |       | Y     |  |
| Tank fill pipe is free of blockage and in good condition.  |                               |       |       | Y     |  |
| Tank vents are in good repair and free of obstructions (e.g.: ice or snow)   |                               |       |       | Y     |  |
| Automatic shutoff devices, overfill alarms, float valves and similar spill prevention equipment operating are in good repair |                               |       |       | Y     | No alarms                                |
| Tank and pipe coating is in good condition.  |                               |       |       | Y     |  |
| Corrosion protection and grounding systems are functioning properly and in good repair.                                      |                               |       |       | Y     |  |
| Vehicular impact protection measures are in good repair.   |                               |       |       | N     | No vehicular impact protection           |
| Secondary containment dikes, bunkers and berms are in good repair and free of cracks.  |                               |       |       | N     | No secondary containment                 |
| Drainage valves and pumps are locked in the closed/off position.   |                               |       |       | N     | No locks                                 |
| Secondary containment dikes, bunkers and berms are free from debris accumulated water or snow and cracks and corrosion.      |                               |       |       | N     | No secondary containment                 |
| Precautionary signs (e.g.: emergency response requirements, "No Smoking" signs) are present and in good repair.              |                               |       |       | N     | No signs                                 |
| Spill prevention measures (i.e.: spill kits) are available and in close proximity?   |                               |       |       | N     | No spill kit visible                     |
| Inventory control records are maintained in accordance with established procedures.  |                               |       |       | N     | Records not collected                    |
| Additional Notes:  | Tank is less than 1 week old. |       |       |       |  |

Inspector: \_\_\_\_\_ Co: \_\_\_\_\_ S: \_\_\_\_\_ C: \_\_\_\_\_ M: \_\_\_\_\_

**CHECKLIST FOR ROUTINE INSPECTIONS OF ABOVEGROUND STORAGE TANKS**

Location: **CP AST**

Inspected on: \_\_\_\_\_

Tank ID: **S L**

Inspected by: **o o o**

Site: **A**

Tank ID: **I**

| Inspection Item  | Y   | N | - | Comments                                       |
|--|---|---|---|--|
| Tanks, pipes and dispensing stations are appropriately labeled, with labels in good condition.                               |   |   | N | "Diesel fuel" only label                       |
| Tank support structure and vents are free of rust, weeps, wet spots, or excessive dents on the tank's surface.               |   |   | Y | Some rust on the pipes                         |
| Tank is free of drips or signs of leakage around valves, piping and gauges.  |   |   | Y |  |
| Tank gauges are in good repair, with no evidence of cracking, sticking or freezing.  |   |   | - | No gauges                                      |
| Tank fill pipe is free of blockage and in good condition.  |   |   | Y | Rusted Intact fill pipes                       |
| Tank vents are in good repair and free of obstructions (e.g.: ice or snow)   |   |   | Y |  |
| Automatic shutoff devices, overfill alarms, float valves and similar spill prevention equipment operating are in good repair |   |   | - | No alarms                                      |
| Tank and pipe coating is in good condition.  |   |   | Y |  |
| Corrosion protection and grounding systems are functioning properly and in good repair.                                      |   |   | Y | No corrosion protection and grounding in place |
| Vehicular impact protection measures are in good repair.   |   |   | N | No vehicular impact protection                 |
| Secondary containment dikes, bunkers and berms are in good repair and free of cracks.  |   |   | N | No secondary containment                       |
| Drainage valves and pumps are locked in the closed/off position.   |   |   | N | No locks                                       |
| Secondary containment dikes, bunkers and berms are free from debris accumulated water or snow and cracks and corrosion.      |   |   | N | No secondary containment                       |
| Precautionary signs (e.g.: emergency response requirements, "No Smoking" signs) are present and in good repair.              |   |   | N | No signs                                       |
| Spill prevention measures (i.e.: spill kits) are available and in close proximity?   |   |   | N | No spill kit not visible- may be on machines   |
| Inventory control records are maintained in accordance with established procedures.  |   |   | N | Records not collected                          |
| Additional Notes:  | Francis Shuter Residence located south west of Post and Rail manufacturing Empty since 2003 |   |   |  |

Inspected by: **Co S C M**

**CHECKLIST FOR ROUTINE INSPECTIONS OF ABOVEGROUND STORAGE TANKS**

Location: \_\_\_\_\_ IR: \_\_\_\_\_ Lo: \_\_\_\_\_ AST \_\_\_\_\_

Tank Size: \_\_\_\_\_ L \_\_\_\_\_

Serial #: \_\_\_\_\_

Tank ID: \_\_\_\_\_

| Inspection Item  | Y                   | N | Comments                          |
|--|---------------------|---|-----------------------------------|
| Tanks, pipes and dispensing stations are appropriately labeled, with labels in good condition.                               | Y                   |   |                                   |
| Tank support structure and vents are free of rust, weeps, wet spots, or excessive dents on the tank's surface.               | N                   |   | Vents have some rust              |
| Tank is free of drips or signs of leakage around valves, piping and gauges.  | N                   |   | Weeping at joints and hose        |
| Tank gauges are in good repair, with no evidence of cracking, sticking or freezing.  | N                   |   | fuel meter leaking                |
| Tank fill pipe is free of blockage and in good condition.  | Y                   |   |                                   |
| Tank vents are in good repair and free of obstructions (e.g.: ice or snow)   | Y                   |   |                                   |
| Automatic shutoff devices, overfill alarms, float valves and similar spill prevention equipment operating are in good repair | N                   |   | No alarms                         |
| Tank and pipe coating is in good condition.  | N                   |   | Tank is dented                    |
| Corrosion protection and grounding systems are functioning properly and in good repair.                                      | Y                   |   | Bucket below tank to catch leaks  |
| Vehicular impact protection measures are in good repair.   | N                   |   | No protection from vehicles       |
| Secondary containment dikes, bunkers and berms are in good repair and free of cracks.  | Y                   |   | Bucket below tank for containment |
| Drainage valves and pumps are locked in the closed/off position.   | N                   |   | No locks on AST                   |
| Secondary containment dikes, bunkers and berms are free from debris accumulated water or snow and cracks and corrosion.      | Y                   |   |                                   |
| Precautionary signs (e.g.: emergency response requirements, "No Smoking" signs) are present and in good repair.              | N                   |   | No signs                          |
| Spill prevention measures (i.e.: spill kits) are available and in close proximity?   | N                   |   | Not visible                       |
| Inventory control records are maintained in accordance with established procedures.  | N                   |   | Not recorded                      |
| Additional Notes:  | Tank is Partly Full |   |                                   |

Inspector: \_\_\_\_\_ Co: \_\_\_\_\_ S: \_\_\_\_\_ C: \_\_\_\_\_ M: \_\_\_\_\_