



March 4, 2014

KITSUMKALUM FIRST NATION BRITISH COLUMBIA

Phase I Environmental Site Assessment

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REPORT



Report Number: 1314750024-001-R-Rev0

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Executive Summary

As requested by Kitsumkalum First Nation (KFN), this report presents the results of a Phase I Environmental Site Assessment (Phase I ESA) conducted by Golder Associates Ltd. (Golder) for the Kitsumkalum Indian Reserves (IR). The IRs included in this assessment included Kitsumkaylum (IR#1), Dalk-Ka-Gila-Quoeux (IR#2), Zimagord (IR#3), and Port Essington.

The objective of the Phase I ESA was to assess and document the environmental condition of the reserve lands of the KFN prior to transferring ownership of the lands and resources from the Government of Canada to the KFN as part of the Treaty process. As such, the purpose of the Phase I ESA was to identify areas of potential environmental concern (APECs) associated with former and current operations at the reserve lands and neighbouring properties and associated potential environmental contaminants of concern (PCOCs).

The scope of work for the Phase I ESA included:

- Meetings with the Project Management Committee to gain background knowledge on Reserves land uses;
- Reviewing readily available records to collect data on past and present activities on the Reserves lands to assess any potential environmental concerns;
- Conducting Site reconnaissance visits to IR#1, IR#2 and IR#3 to observe current Reserves conditions and uses, and assess APECs identified by the records review;
- Evaluating the information from the records review, interviews and Site visits; and
- Preparing the Phase I ESA report.

Based on the results of the Phase I ESA, a total of seven on-site APECs from two Reserves (IR #1 and IR #3) and one off-site APEC were identified. A description of the APECs, PCOCs and recommended actions is provided in the table below.



KITSUMKALUM PHASE I ESA

Phase I ESA: Summary of APECs and Recommendations

Site/Area	Classification of Risk		Contaminants of Potential Concern	Description of Contamination or Risk	Recommended Action	PMC Decision
	Contamination					
	Potential	Actual				
APEC 1 – Historic Log Sorting and Re-loading Area		X	Hydrocarbons, metals, possible fire suppression related contaminants	Located on IR #1. Gravel fill at surface, placed over thick layers of wood waste. Metal waste (old train parts) present in several areas on-Site. Former storage of fire suppression equipment.	Delineate extent of wood waste (slag) and assess impacts to soil and groundwater through test pitting and drilling program. Sample existing observation wells. Install additional monitoring wells as needed to evaluate groundwater quality. Collect and analyze surface water and sediment samples east of waste vehicle piles. Complete additional review to identify types of fire suppression equipment and chemical formerly stored in re-load area.	
APEC 2 – Historic Diesel USTs on Valard Construction Ltd. Site	X		Hydrocarbons, metals	Located on IR #1. Southern portion of Valard site historically contained two diesel USTs. No longer present.	Determine if contaminant present in soil through test pitting. If contamination is encountered, borehole drilling should be completed to assess its extent and groundwater quality should be evaluated through installation and sampling from monitoring wells where colored discharge noted.	
APEC 3 – Maintenance Shed		X	Hydrocarbons, metals	Located on IR #1. Hydrocarbon-like odour observed at entrance to shed. Historically two ASTs were used for fuel storage adjacent to the shed. Fuel saturated soil was excavated post-removal of ASTs.	Test pit assessment near entrance of shed, and area of reported residual soil impacts. If contamination is encountered, complete borehole drilling to assess extent and evaluate groundwater quality through monitoring well installation and sampling. Coordinate assessment timing with Band plans for shed removal.	



KITSUMKALUM PHASE I ESA

Site/Area	Classification of Risk		Contaminants of Potential Concern	Description of Contamination or Risk	Recommended Action	PMC Decision
	Contamination					
	Potential	Actual				
APEC 4 – West Kalum Road Ditch	X		Hydrocarbons, metals	Reported dumping area for used motor oil from cars.	Test pit assessment and analysis of soil samples. If contamination is encountered, complete borehole drilling to assess extent and evaluate groundwater quality through monitoring well installation and sampling.	
APEC 5 – Current and Historical ASTs in a Residential Area	X		Hydrocarbons, metals	Located on IR #1. A 50 L empty AST and many historic ASTs were used as heat oil tanks on the residential properties.	Evaluate condition of each AST reported by residences. Determine further assessments based on observations, location and history.	
APEC 6 – Old Quarry Road Dumpsite	X		Metals	Located on IR #1. Several piles of garbage (including propane tanks, metal, and wood) in the area.	Complete test pit or drilling assessment of soil in the area. If contamination is encountered, borehole drilling should be completed to determine its extent and groundwater contamination should be evaluated through installation and sampling from monitoring wells.	
APEC 7 – Tempo Gas Station	X		Hydrocarbons, metals	Fuel storage and dispensing since late 1990s.	Complete a soil vapour survey to assess subsurface conditions in the fuel storage and dispensing areas. If contamination is encountered, complete additional investigation work to evaluate possible impacts to groundwater.	
APEC 8 – Offsite: Former Kalum Forest Products Mill Site	X		Hydrocarbons, metals, tanins, lignins	A total of 10 APECs were previously identified in 2010 at the former mill site located north of IR#1. Potential for migration of impacts from offsite APEC 8 to IR#1.	Soil and groundwater investigation along northern edge of IR#1 adjacent to former mill site. Assess soil and groundwater conditions and determine local direction of groundwater flow to assess possible impacts to IR#1 from off-site APEC.	



KITSUMKALUM PHASE I ESA

Site/Area	Classification of Risk		Contaminants of Potential Concern	Description of Contamination or Risk	Recommended Action	PMC Decision
	Contamination					
	Potential	Actual				
APEC 9 – Zymagord Dumpsite	X		Metals	Located on IR #3. Various wastes in the area, including abandoned vehicles and home appliances.	Complete test pit or drilling assessment in the area. If contamination is encountered, borehole drilling should be completed to determine its extent and groundwater contamination should be evaluated through installation and sampling from monitoring wells.	



Environmental concerns or housekeeping issues were also noted during the field reconnaissance visits or interviews. The information and concerns were provided by Mr. Richard Inkster, Mr. Steve Roberts and Mr. Alex Bolton.

- IR#1 Historic CN Reject Pile: A reject pile of CN debris/ballast reportedly blocked the flow of a creek near the rock quarry and damaged the riparian area. Removal of remaining debris and rehabilitation of the riparian buffer zone are required to address this concern.
- IR#1 Shallow Drinking Water Wells: Mr. Richard Inkster and Mr. Steve Roberts expressed concerns about two shallow drinking water wells supplying IR#1. The concerns are that these wells as installed may be under unconfined aquifer conditions, and the potential for surface water infiltration into the well capture zone that may occur. Mr. Inkster also noted that the wells are influenced by the nearby Skeena River water levels, indicating a hydraulic connection between the wells and the river. Their preference was reclassification of the wells as unconfined, if appropriate, and replacement with deeper wells screened within a confined aquifer zone.
- IR#1 Drinking Water Well #2: Discolored water has been noted recently.
- IR#1 Sewer Line: Older sewer lines on West Kalum Road are reportedly out of level, and sewer backup has occurred. Portions of the line are located within 150 feet of drinking water wells. The Band has reportedly held prior discussions with INAC about possible line repair.
- IR#1 Site Drainage: Site drainage in the area west of the Administration Building is reportedly problematic, with surface water ponding. In the area a creek flows from the IR through a culvert, crossing under the highway and rail line and into the Kalum River. Surface A flap gate was installed in 2007 to address backflow, which has been helpful, but ponding of surface water continues.
- IR#1 Kitsumkalum Cemetery: Mr. Steve Roberts relayed concerns that the cemetery is being impacted by altered stream flow that has resulted from logging roads constructed in the 1940s and 1950s. The Kitsumkalum Band Council proposes deactivation of the old logging roads and return of mountain streams back to their original water course. A copy of the email correspondence from Mr. Roberts to AANDC expressing this concern is provided in Appendix G.
- IR#3 Drinking Water Well: Coliforms have reportedly been detected.
- IR#4 Erosion: Mr. Roberts noted concern about ongoing erosion at Port Essington.



Study Limitations

This report has been prepared and the work referred to in this report has been undertaken by Golder Associates Ltd. for Kitsumkalum First Nation. It is intended for the sole and exclusive use of Kitsumkalum First Nation. Any use, reliance on or decision made by any person other than Kitsumkalum First Nation based on this report is the sole responsibility of such other person. Kitsumkalum First Nation and Golder Associates Ltd. make no representation or warranty to any other person with regard to this report and the work referred to in this report and they accept no duty of care to any other person or any liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made or any action taken based on this report or the work referred to in this report. This report must be read in its entirety as some sections could be falsely interpreted when taken individually or out-of-context. As well, the text of the final version of this report supersedes any other text, opinion or preliminary version produced by Golder Associates Ltd.

The investigation undertaken by Golder Associates Ltd. with respect to this report and any conclusions or recommendations made in this report reflect Golder Associates Ltd.'s judgement based on the Site conditions observed at the time of the Site inspection on the date(s) set out in this report and on information available at the time of preparation of this report. Except where specifically stated to the contrary, the information contained in this report was provided to Golder by others, and has not been independently verified or otherwise examined by Golder to determine its accuracy or completeness. Golder has relied in good faith on this information and does not accept responsibility for any deficiency, misstatements or inaccuracies contained in the report as a result of omissions, misinterpretation and/or fraudulent acts of the person interviewed or contacted, or errors or omissions in the reviewed documentation.

It should be noted that no soil, water, liquid, gas, product or chemical sampling and testing on or in the vicinity of the subject Site was conducted as part of this investigation. In addition, it should be noted that the Phase I ESA does not include a review of the Site's insurance coverage and insurance claims history. This report has been prepared for specific application to this Site and it is based, in part, upon visual observation of the site.

If Site conditions or applicable standards change, or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

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The services performed as described in this report were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.



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Acronyms

°C	degree Celsius
AANDC	Aboriginal Affairs and Northern Development Canada
ACM	asbestos-containing materials
AEC	area of environmental concern
APEC	area of potential environmental concern
asl	above sea level
AST	above-ground storage tank
ATV	all-terrain vehicle
bgs	below ground surface
cm	centimetre
ESA	environmental site assessment
FCS	Federal contaminated site
FSR	forest service road
ft ²	square feet
GPS	global positioning system
ha	hectare
IR	Indian Reserve
KFN	Kitsumkalum First Nation
km	kilometre
L	litre
m	metre
m ²	square metre
mm	millimetre
MoE	Ministry of Environment
PCB	polychlorinated biphenyl
PGL	Pottinger Gaherty Environmental Consultants
PMC	Project Management Committee



KITSUMKALUM PHASE I ESA

PWGSC	Public Works and Government Services Canada
SCI	Skeena Cellulose Incorporation
UST	underground storage tank
WWIS	water wells inventory system



1.0 INTRODUCTION

This report presents the results of a Phase I Environmental Site Assessment (ESA) conducted by Golder Associates Ltd. (Golder) for the Kitsumkalum First Nation (KFN) and Aboriginal Affairs and Northern Development Canada (AANDC). The Phase I ESA was focused on three reserves located near Terrace, BC and one reserve located near Port Essington, BC. Authorization to proceed with the Phase I ESA was provided by Mr. Alex Bolton of the KFN. The four reserves cover an area of approximately 561 hectares (ha). These reserves' areas were outlined in the Statement of Work from the KFN (KFN 2012) and are as follows:

- Kitsumkalum Indian Reserve (IR) #1 (IR #1) – approximately 455.4 ha;
- Dalk-Ka-Gila-Quoeux IR #2 (IR #2) – approximately 73.6 ha;
- Zimagord IR #3 (IR #3) – approximately 30.0 ha; and
- Port Essington – approximately 2.0 ha.

These four reserves will herein be collectively referred to as “the Reserves” and shown on Figure 1 – Key Plan. Authorization to proceed with the Phase I ESA was provided by KFN and AANDC. Golder understands that the Phase I ESA was requested by the KFN to facilitate transfer of management of the land and resources from the Government of Canada to the KFN. The purpose of the Phase I ESA was to assess the presence of areas of environmental concern (APECs) from historical or current activities on the Reserves and surrounding properties, and if warranted, recommendations to conduct a Phase II ESA (e.g., subsurface investigations) to assess identified APECs to determine if they should be considered areas of environmental concern (AECs).



2.0 SCOPE OF WORK

A Phase I ESA provides a preliminary assessment of potential environmental concerns associated with present and historical activities at a property and its immediate surroundings. The scope of a Phase I ESA is sufficient only to identify environmental liabilities that are apparent based on visual examination of surface features at a property, and/or from available sources of historical information reviewed.

The scope of work for this investigation was described in Golder's proposal "*Proposed Scope of Work and Cost Estimate for a Phase I Environmental Site Assessment (ESA) for Kitsumkalum First Nation, British Columbia*" dated September 27, 2013. The terms and conditions outlined in Golder's proposal P3-1475-0024 apply to this report.

The Phase I ESA was conducted in general accordance with the Canadian Standards Associations Z768-01 (reaffirmed 2012), which provides a standard of practice for conducting Phase I ESAs.

As part of the Phase I ESA, the following tasks were undertaken.

2.1 Reserve History, Background Data Collection and Evaluation

Golder reviewed and evaluated pertinent available data to investigate historical uses of the Reserves and properties immediately surrounding the Reserves, and to identify known and potential sources of contamination at the Reserves and on adjacent properties. Where warranted and available, Golder used the following sources of information:

- Information provided by the Project Management Committee (PMC) and other Band members;
- Reserve maps, previous environmental reports and other plans or documents obtained by Golder or provided by the AANDC;
- A selection of historical aerial photographs provided by the University of British Columbia's Geographic Information Centre;
- A search and review of available database records provided by EcoLog ERIS, an environmental risk information service provider;
- Geological maps;
- BC Water Well Registry; and
- BC Ministry of Environment (MoE) Site Registry database.

2.2 Reserve Reconnaissance and Interviews

The second task of the Phase I ESA was to conduct interview(s) with a person(s) knowledgeable about the activities at or adjacent to the Reserves along with a reconnaissance of the relevant sections of the Reserves, and surrounding areas, to corroborate indications of potential environmental concern identified during the review of historical information and interviews. Based on the reconnaissance, Golder gathered visual evidence of other



potential environmental issues that may exist at the Reserves and, where applicable, on accessible adjacent properties. The reconnaissance included observations of a defined portion of the Reserve completed by Damian Kusiak of Golder on November 6 and 7, 2013. The assessment included cursory observations of the neighbouring land uses, but did not constitute a rigorous evaluation of the inside of buildings or the adjacent properties.

2.3 Report Preparation

The final task of the Phase I ESA was the preparation of this report, documenting the results of the investigation.



3.0 PHYSICAL RESERVE DESCRIPTIONS

The Reserves are located on Federal Crown lands, which have been set aside for the benefit and use of the KFN, near Terrace in northwestern BC (Figure 1). The climate, regional setting and geology for the Kitsumkalum IR #1, Dalk-Ka-Gila-Quoeux IR #2 and Zimagord IR #3 are presented as one section because of their geographic proximity. Port Essington is approximately 45 kilometres (km) southeast of Prince Rupert (approximately 100 km west of Terrace, BC).

Based on the information provided by the KFM, the Reserves compromise approximately 561 ha of land. According to the British Columbia Geological Survey IR #1, IR #2, and IR #3 are underlain by volcanic bedrock from the Triassic period, while Port Essington is underlain by intrusive bedrock from the Triassic period.

The historical climate averages were obtained from Government of Canada Weather Office Canadian Climate Normals, 1971 – 2000 database (Appendix A). The regional climate is generally temperate with cold wet winters (averaging approximately minus four degrees Celsius [°C]) to warm dry summers (averaging approximately 17°C) (Canadian Climate Normals 1971-2000, Environment Canada). The climate in IR #1, #2, and #3 was inferred to be similar to that of Terrace PCC weather station (Environment Canada ID 1068131). The Terrace weather station is located adjacent to the city of Terrace. IR #1 is approximately three km northwest of the weather station, IR #2 is approximately 10 km north, and IR #3 is approximately seven km west southwest. According to the Environment Canada Canadian Climate Normals (Canadian Climate Normals 1971-2000, Environment Canada), average monthly precipitation at the Terrace weather station ranged from approximately 47 millimetres (mm) in June to 174 mm in October. The average annual precipitation reported was approximately 1,161 mm, including 204 centimetres (cm) of snow.

Port Essington is located approximately 30 km southeast of the nearest weather station, Prince Rupert A (Environment Canada ID 1066481), which generally has a more oceanic climatic with cold wet winters (averaging approximately 2°C) to mild wet summers (average 14°C). According to Environment Canada (Canadian Climate Normals 1971-2000, Environment Canada), average monthly precipitation at the Prince Rupert weather station ranged from approximately 114 mm in July to 379 mm in October. The average annual precipitation reported was approximately 2,593 mm, including 126 cm of snow.

3.1 Kitsumkalum IR #1

IR #1

Approximate Centre of Reserve (Latitude/Longitude)	54°31'31.1" N / 128°40'25.7" W
Approximate Area (Total)	455.4 ha
Approximate Elevations	60 to 580 m above sea level (asl)

- IR #1 located to the west of the City of Terrace (Figure 2). The southernmost boundaries of the Reserve are along the Yellowhead Highway. The Kitsumkalum River borders the east side of the Reserve, which enters the Skeena River near the south east corner. The north and west sides of the Reserve are bounded by forested land.



- IR #1 varied in elevation, from 60 metres above sea level (m asl) along the south and east, to 580 m asl towards the northwest corner (BCGov Base Mapping WMS). The majority of the developed reserve is approximately 60 m asl.
- The local groundwater flow at IR #1 was inferred to be influenced by the Skeena River and the Kitsumkalum River, and the higher elevation in the northwest, with groundwater flow towards the south and southeast of the Reserve.
- Groundwater levels at IR #1 were expected to vary seasonally because of the seasonal variation of rainfall, spring snow melt, and proximity to a large water source.
- An on-line search of the BC Flood Plain mapping program was undertaken on November 28, 2013. IR #1 had a range of flood zones in the areas adjacent to the Skeena River and the Kitsumkalum River.
- A search of the BC Water Well Registry was conducted by EcoLog Environmental Risk Information Services (ERIS) on November 11, 2013. A total of three records were identified within 500 metres (m) from, or directly on, IR #1. Of these wells, one was listed as observation or testing wells, one was used for private domestic purposes and one was of "unknown" usage; these three wells were located on Reserve. The wells' final depths ranged from about 20 m (64 feet [ft]) below ground surface (bgs) to 47 m (155 ft) bgs. The ground water table elevation ranged from about 1.5 m bgs (5 ft) to 4.6 m bgs (15 ft). The soil type was generally reported as sand or gravel with clay. The bedrock depth ranged from 11.3 m (37 ft) bgs to 18.6 m (61 ft) bgs. The record of the water well search can be found in Appendix B.
- The surficial geology within IR #1 is generally volcanic tuff and pillow lava, with volcanic sandstone and conglomerate (Carter, N.C. and Grove, E.W. 1971).

3.2 Dalk-Ka-Gila-Quoeux IR #2

IR #2

Approximate Centre of Reserve (Latitude/Longitude)	54°35'9.96" N / 128°40'3.57" W
Approximate Area (Total)	73.6 ha
Approximate Elevations	103 to 225 m asl

- IR #2 was located to the north of the City of Terrace (Figure 3). The Kitsumkalum River borders the easternmost side of the Reserve. The north, south and west sides of the Reserve are bounded by forested land.
- IR #2 varied in elevation, from 103 m asl along the east, to 225 m asl at towards the west (BCGov Base Mapping WMS). At approximately the center of the Reserve in the east to west direction, there is steep incline inferred to be a cliff present north to south, out of the river valley.
- The local groundwater flow at IR #2 was inferred to be influenced by the Kitsumkalum River and the higher elevation in the west; with groundwater flow towards the east side of the Reserve.



- Groundwater levels at IR #2 were expected to vary seasonally because of the seasonal variation of rainfall.
- An on-line search of the BC Flood Plain mapping program was undertaken on November 28, 2013. The Flood Plain mapping program did not extend into the IR #2.
- A search of the BC Water Well Registry was conducted by EcoLog Environmental Risk Information Services (ERIS) on November 11, 2013. Two records were identified within 500 metres (m) from IR #2. These two wells were listed as private domestic water supply wells and were located to the southeast corner of the IR #2, approximately 80 m apart from each other. The wells final depth ranged from 22.5 m (74 ft) to 38.1 m (125 ft) bgs. The groundwater table ranged from 1.2 m (4 ft) to 28.7 m (94 ft) bgs. The soil type was generally reported as either till, coarse gravel, sand or clay. Bedrock was not reported in these wells. The record of the water well search can be found in Appendix B.
- The surficial geology within IR #2 is generally alluvium, sand, gravel, and till (Carter, N.C. and Grove, E.W. 1971).

3.3 Zimagord IR #3

IR #3	
Approximate Centre of Reserve (Latitude/Longitude)	54°29'0.39" N / 128°44'21" W
Approximate Area (Total)	30 ha
Approximate Elevations	57 to 93 m asl

- IR #3 was located to the southwest of the City of Terrace, and southwest of Kitsumkalum IR #1 (Figure 4). The Skeena River borders the southeast corner of the Reserve, and the Zymagotitz River to the east. The north and west sides of the Reserve are bounded by forested land. The Yellowhead Highway runs through the northwest corner of the Reserve.
- IR #3 varied in elevation, from 53 m asl along the northeast, to 93 m asl at the northwest corner (BCGov Base Mapping WMS). There is a sharp incline from the Skeena River up to the Reserve inferred to be a cliff.
- The local groundwater flow at IR #3 was inferred to be influenced by the Skeena River and the higher elevation in the northwest; with groundwater flow towards the southeast side of the Reserve.
- Groundwater levels at IR #3 were expected to vary seasonally because of the seasonal variation of rainfall.
- An on-line search of the BC Flood Plain mapping program was undertaken on November 28, 2013. IR #3 had a range of flood zones in the low to the south and east in the areas adjacent to the Skeena River and Zymagotitz River.
- A search of the BC Water Well Registry was conducted by EcoLog Environmental Risk Information Services (ERIS) on November 11 2013. A total of seven records were identified within 500 metres (m) from, or directly on, IR #3. Of these wells, four were listed as used for private domestic purposes and four



were listed as “unknown” usage. One of the private domestic well locations was located on reserve land. The wells’ final depths ranged from about 4.3 m (14 ft) to 99.1 m (235 ft) bgs. The ground water table elevation ranged from about 1.8 m bgs (6 ft) to 3 m bgs (10 ft). The soil type was generally reported as sand and gravel. The bedrock depth ranged from 2.7 m (9 ft) to 25.0 m (82 ft) bgs. The record of the water well search can be found in Appendix B.

- The surficial geology within IR #1 is generally mafic volcanic rocks, limestone, volcanic sandstone, and chert (Carter, N.C. and Grove, E.W. 1971).

3.4 Port Essington

Port Essington

Approximate Centre of Reserve (Latitude/Longitude)	54°9'22.4" N / 129°58'10.0" W
Approximate Area (Total)	2 ha
Approximate Elevations	5 m to 14 m asl

- Port Essington was located to the southeast of the City of Prince Rupert, approximately 100 km west of the City of Terrace (Figure 5). The Skeena River borders the northwest edge of the Reserve, and the east and south sides are bordered by forested land.
- Port Essington varied in elevation, from 5 m asl along the west edge bordering the Skeena River, to 14 m asl at the east edge inland from the Skeena River (BCGov Base Mapping WMS).
- The local groundwater flow at Port Essington was inferred to be influenced by the Skeena River and the slightly higher elevation in the east; with groundwater flow towards the west side of the Reserve towards the river.
- Groundwater levels at Port Essington were expected to vary seasonally because of the seasonal variation of rainfall, as well as tidal due to proximity of the Reserve to the Pacific Ocean.



4.0 HISTORICAL AND REGULATORY RECORDS REVIEW

The history of the Reserves, as reported by the historical and regulatory review is presented in this section.

4.1 Aerial Photographs

Aerial photographs were reviewed to assess land uses in the area of the Reserves. Photos from approximately 10 year increments, taken between 1947 and 2007 were obtained and reviewed. The aerial photographs were supplied by the University of British Columbia’s Geography Department. A review of the aerial photographs by reserve is presented below.

4.1.1 Kitsumkalum IR #1

Table 1: Summary of Kitsumkalum IR #1 - Aerial Photo Review

Date and Aerial Photograph Number (No.)	Within Reserve	Surrounding Area
1947 Black and White	The Reserve is undeveloped and forested. The Skeena River is present along the south boundary and the Kitsumkalum River near the east boundary.	Farmland and some residential neighbourhoods to the east within the city of Terrace. Yellowhead Highway and inferred railroad along south edge of Reserve.
1960 BC 2788:87 & 86 Black and White	Clearing noted along the east half of the Reserve. Inferred logging roads present approximately north to south through the east side of Reserve. One road (Kalum Road West) present from the southeast corner to the north east corner of the Reserve. Southeast corner has been cleared with constructed buildings visible, inferred residential along Gyik Road.	Change in the shape of the Kitsumkalum River to the east. River has been diverted and dammed just east of the Reserve. Clearing on the east side of Kitsumkalum River, where the river discharges into Skeena River.
1969 BC 7173: 150, 151 & 152 Black and White	Increased clearing and building development in the southeast corner. Inferred rock pit off of Kalum Road. Residential development along old inferred logging road (Spokeshute Road).	Increased residential development in the city of Terrace to the east. Industrial development in clearing where Kitsumkalum and Skeena River meet. Deforestation to the west of the Reserve.
1975 BC 5665: 132, 133, 134 Black and White	No visible change on the Reserve.	Block cleared of trees on northeast boundary of Reserve.
1987 30BCC 594: 059, 060, 115 & 117 Black and White	Residential development visible along old inferred logging road (west arm of Spokeshute Road). Inferred gravel pit has expanded. Forest regrowth over majority of the Reserve.	Elbow of Kitsumkalum River has been altered. To the east farmland has been converted to residential and further building development. Inferred gravel pit to the east along the Skeena River. Visible buildings on the cleared block to the north.
1998 30BCB98005: 147, 148, 210 Black and White	Additional residential development along Spokeshute Road and additional roads.	Additional industrial and residential development to the east. Inferred gravel pit has expanded.
2007 Colour	Gravel pit has expanded.	Additional building industrial and residential development to the east.



4.1.2 Dalk-Ka-Gila-Quoeux IR #2

Table 2: Summary of Dalk-Ka-Gila-Quoeux IR #2 - Aerial Photo Review

Date and Aerial Photograph Number (No.)	Within Reserve	Surrounding Area
1947 BC 442: 51 & 52 Black and White	Reserve is forested and no development observed. Kitsumkalum River present along the east boundary of the Reserve.	Forested and no observed development. Inferred logging road to the east (east of Kitsumkalum River) present north to south (Kalum Lake Drive).
1962 BC 4090: 105	Clearing along the south west corner.	Cut blocks and inferred logging roads to the west and northwest. Inferred main logging road present north to south. Clearing around the lake to the south. South not visible on photos.
1963 BC 5083: 118 Black and White	No visible changes on the Reserve from the 1962 photograph.	Clearing to the south. Farmland visible to the southeast.
1968 BC 5297: 054 & 055 Black and White	Additional clearing in the southwest corner and inferred logging roads observed.	
1973 Black and White	No observed changes on the Reserve from 1968 photograph.	Gravel pit visible near the southwest corner.
1975 BC 7746: 043 & 044 Black and White	No observed changes on the Reserve from 1973 photograph.	Increased.
1988 BC Black and White	Forest regrowth observed.	Forest regrowth observed. Inferred residential road loop to the south (east of Kitsumkalum River). Inferred gravel pit to the east.
1994 30BCC 94033: 170 & 171 Black and White	No observed changes from 1988 photograph.	Buildings visible to the north, east and to the south on inferred residential loop (present east of the Kitsumkalum River).
2001 15BCB01002: 240 Black and White	No observed changes from 1994 photograph.	Increased road and building development east of the Kitsumkalum River. Inferred gravel pit to the southwest has expanded, and buildings are present.

4.1.3 Zimagord IR #3

Table 3: Summary of Zimagord IR #3 - Aerial Photo Review

Date and Aerial Photograph Number (No.)	Within Reserve	Surrounding Area
1947 Black and White	Reserve is forested and no development observed. Skeena River present along the south boundary and Zymagotitz River on the east boundary.	Forested and no development observed.
1960 BC 2787: 100 & 101 Black and White	Inferred road visible through the Reserve. Clearing and inferred logging roads observed along the northwest boundary.	Inferred railroad observed on the south boundary along the Skeena River. Clearing and inferred logging roads observed to the north. To the east (north of the Skeena River), farmland, roads and some buildings observed. Clearing to the west.



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Date and Aerial Photograph Number (No.)	Within Reserve	Surrounding Area
1963 BC 5083: 053 & 054 Black and White	No observed changes on the Reserve from 1960 photograph.	Increased cut block size to the north and west. Inferred logging roads and clearing to the east (south of the Skeena River).
1975 BC 7728: 204 & 205 Black and White	Inferred Yellowhead Highway observed north of the previous roadway.	Clearing to the west. Increasing clearing to the east (north of the Skeena River).
1987 30BCC 594: 109, 110 & 111 Black and White	No observed changes on the Reserve from 1975 photograph.	Additional farmland and residential development observed to the east (north of the Skeena River). Buildings observed on the north boundary (east corner) to the Reserve.
1994 30BCC Black and White	Building observed south of the Yellowhead Highway, on the west site of the Reserve.	Buildings observed to the west. Additional farmland to the east (north and south of the Skeena River), and to the south of the Reserve.
2001 15BCBC1002: 203 & 204 Black and White	Forest regrowth observed.	New clearing to the north west. Building visible along south boundary of the Reserve. Forest regrowth on previously cut areas.

4.1.4 Port Essington

Table 4: Summary of Port Essington - Aerial Photo Review

Date and Aerial Photograph Number (No.)	Within Reserve	Surrounding Area
1947 BC 546: 72 Black and White	Forested. Visible docks at north end of the Reserve. Inferred roads and buildings on west edge of Reserve. Skeena River to the north and west.	Forested and no development observed. Ecstall Island off of the north of land and unnamed river to the east. Inferred road observed on mainland to east (east of the Skeena River).
1963 BC5085: 049 & 050 Black and White	No visible changes on the Reserve from 1947 photograph.	No visible changes from 1947 photograph.
1988 30BCC 803: 020 Black and White	No dock visible. Regrowth of forest over inferred road.	No visible changes from 1963 photograph.
1992 30BCB 92039: 253 Black and White	Increased forest growth, buildings no longer visible.	No visible changes from 1988 photograph.

4.2 Database Search (EcoLog ERIS)

Golder retained EcoLog ERIS, an environmental risk information service provider, to conduct a search of available database records in the vicinity of the Kitsumkaylum IR #1, Dalk-Ka-Gila-Quoeux IR #1, Zimagord IR #3 and Port Essington on November 11, 2013. EcoLog ERIS searched the databases listed below relating to waste production and storage, manufacturing, industrial activity, etc. The EcoLog ERIS search identified those properties in the database located within a 0.5 km offset from the approximate reserves (IR #1, IR #2, IR #3 and



Port Essington) boundary. The results of the search were used to help focus the subsequent field reconnaissance. The full search conducted by EcoLog ERIS can be found in Appendix C.

The search included 44 separate databases; pertinent information was identified in eleven databases. The databases included the Authorization Management System - formerly WASTE, Compliance and Enforcement Summary, Contaminated Sites on Federal Land (FCS), Commercial Fisheries, Private Aggregate Inventory (PRAI), Public Aggregate Inventory, Retail Fuel Storage Tanks, Site Registry, National Environmental Emergencies System, Waste Disposal Site Inventory and Water Wells Inventory System (WWIS) databases. The WWIS results were included in Section 3.0 and a summary of the remaining pertinent search results is included below.

4.2.1 Kitsumkalum IR #1

Table 5: Kitsumkalum IR #1 ERIS Database search

Site ID	Location/Site Name	Database – Report Summary
Contaminated Sites on Federal Land (FCS)		
05048002	On Reserve 681 – Kitsumkalum – 07646 – Kitsumkalum 1 / 7000105398	AANDC – Remediation; Detailed Testing Program
05048001	On Reserve 681 – Kitsumkalum – 07646 – Kitsumkalum 1 / 7000036494	AANDC – Remediation; Develop Remediation/Risk Management Strategy
00000543	On Reserve 681 – Kitsumkalum – 07646 – Kitsumkalum 1 / 0902236405	AANDC – Additional Assessment; Initial Testing Program
00000542	On Reserve 681 – Kitsumkalum – 07646 – Kitsumkalum 1 / 0902236305	AANDC – Additional Assessment; Initial Testing Program
00007829	On Reserve Kitsumkalum 1	IAND – Additional Assessment; Historical Review
00021241	Kitimat-Stikine C (Part 1)	Fisheries and Oceans Canada – Federal Real Property
Retail Fuel Storage Tanks		
	On Reserve West Kalum Road	Kitsumkalum Tempo Gas Station Gasoline, oil and natural gas.
Site ID	Site Registry	
8280 5220	Bell Pole Company 5630 Highway 16W	Wood Preserving Large Site, simple contamination 2004 – Active – Assessment Complete 2007 – Inactive – No Further Action
9330	CN Rail Property	2005 – Inactive – No Further Action
8147	Lot 1, DL 369, Range 5, Coast District	2003 – Inactive – No Further Action
Authorization Management System (formerly WASTE)		
	Petro Canada Highway 16	Permit: Petroleum Storage and Distribution Facilities Storm Water Regulation
Compliance and Enforcement Summary		
	Bell Pole Company	Conviction: Failure to comply with permits (1991)



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Inventory Number	Environmental Issues Inventory System	
7000105398	On Reserve Band Yard Maintenance, Kitsumkalum IR #1	Under or above storage tanks 1997/1998 Remediation
7000036494	On Reserve Former Log Sorting Yard, Kitsumkalum IR #1	Under or above storage tanks 1996/1997 Phase III 1997/1998 Remediation 2000/2001 Remediation
Generator Number	Waste Generators Summary	
BCG35103	On Reserve Kitsumkalum Band 8, 11, 12 and 13 West Kalum Road	Asbestos, White
National Environmental Emergencies System		
	Bell Pole Company	1992 – Thick yellow smoke
	Gateway Transfer	2000 – Above ground tank leak; equipment failure
Permit #	Waste Disposal Site Inventory	
RE-14138 (1)	Petro Canada Highway 16	Waste Type: Effluent
PA-2198 (3)	Bell Pole Company	Waste Type: Air

4.2.2 Dalk-Ka-Gila-Quoeux IR #2

Table 6: Dalk-Ka-Gila-Quoeux IR #2 ERiS Database Search

Index No.	Location/Site Name	Database – Report Summary
	Private Aggregate Inventory	
G-01-023	N: 6049317 E: 522942	Active Gravelly Sand

4.2.3 Zimagord IR #3

Table 7: Zimagord IR #3 ERiS Database Search

License No	Location/Site Name	Database – Report Summary
	Commercial Fisheries	
2010-000547	Yellow Cedar Lodge Highway 16 West Terrace, BC	Sport – Caught Fish Processing
2005-000603 2004-000643 CA 2003-000786 CA	Fisherman's B&B PO Box 612 Terrace, BC	Sport – Caught Fish Processing
2010-000573	Fisherman's Lodge #1 13526 Highway 16 West Terrace, BC	Sport – Caught Fish Processing
ID	Public Aggregate Inventory	
2061	N: 6037000 E: 516500 Zymacord Pit	Pit
National Environmental Emergencies System		
	Gateway Transfer Highway 16	2000 – Above ground tank leak; equipment failure



4.2.4 Port Essington

No records were found in the databases searched for the Reserve or the surrounding properties.

4.3 BC MoE Online Site Registry

An area search of the BC Ministry of Environment (MoE) Online Site Registry database was conducted by Golder on October 27, 2013. The search process did not identify properties on the database within 500 m of the Reserves. The results of the area search can be found in Appendix D.

4.4 Historic Report Review

AANDC provided Golder with historic reports for review on January 24, 2014. A listing of the AANDC supplied reports and additional reports that were reviewed is provided in Table 8. A summary of the report contents is also provided below for those report related to former and current APECs identified at the Site.

Table 8: Summary of Historic Reports Reviewed

Date	Company	Project or File Number	Title	Notes
November 1985	Golder Associates Ltd.	852-1568	Report to Kitsumkalum Band Council on a Hydrogeological Investigation Kitsumkalum Indian Reserve	Report concluded that sewage disposal site not a source of contamination for drinking water well. Sanitary well seal recommended.
July 18, 1986	B.H. Levelton & Associates Limited	File 186-532B	Kitsumkalum Village Infill Lots Report of Geotechnical Investigation	Geotechnical investigation of 3 residential lots.
February 1987	NovaTec Consultants Inc.	--	Wastewater Disposal Failure Investigation and Conceptual Report for Kitsumkalum Indian reserve No. 1	Wastewater treatment and disposal options.
June 1987	Golder Associates Ltd.	862-1227	Report to Novatec Consultants Inc. on a Detailed Hydrogeological Investigation of Inground Sewage Disposal Kitsumkalum Indian Reserve No. 1	Sewage disposal mound rehabilitation.
May 17, 1994	Lapointe Engineering Ltd.	056-1857FGS	Kitsumkalum Band Council Development Feasibility Study for Reload Area	Development considerations for Reload Area. Extent of Reload Area shown. Reload area environmental concerns noted.
October 31, 1994	PWGSC	BW8260/BC681-C71, 760674; Report # 5786	Request for an Environmental Audit of a Specific Claim Related to the Formal Return of Land (Parcels 1 to 4) Encompassed by an Old Highway R.O.W. Within Kitsumkaylum I.R. 1	No contamination indicated. Need for restoration of natural drainage and for asphalt pile disposal noted.
February 10, 1995	PWGSC	BW8260/BC681-C71, 760674; Report # 5703	Request for an Environmental Audit of a Specific Claim Related to the Formal Return of Land (North & South Sections) Located Within the C.N. Railway R.O.W. Traversing Kitsumkaylum I.R. 1	No contamination indicated.



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Date	Company	Project or File Number	Title	Notes
June 1, 1995	PWGSC	BW8260/BC681-C71, 760674; Report # 5786	Request for an Environmental Audit of a Specific Claim Related to the Creation of a New Reserve Adjacent to Dalk-Ka-Gila-Quoeux I.R. 2 for the Kitsumkalum Band	No contamination indicated.
August 31, 1995	Centennial Geotechnical Engineers Ltd.	File V95160	Geotechnical Investigation Proposed Kitsumkalum Community Centre	Geotechnical investigation with 6 test pits.
August 20, 1997	PGL	786-40.08	Phase II Investigation Report – Maintenance Yard and Former Log Sort Yard – Kitsumkalum Band Reserve	Test pit investigations of Band maintenance yard and log sort yard. Log sort diesel UST pumped out. Monitoring wells installed at log sort yard.
November 1998	PGL	786-40.09	Site Remediation Report – UST Removal, Soil Remediation, and Groundwater Monitoring – Maintenance Yard and Former Log Sort Yard – Kitsumkalum Band Reserve	Report on maintenance yard and log sort yard remediation, including UST removal, soil remediation and groundwater monitoring. Remediation recommended for two areas not excavated, and groundwater monitoring at a third area not excavated.
March 2006	PGL	786-40.04	Kitsumkalum Band, Phase I Report, FNESS UST Removal/Replacement Program	Report identified AST and USTs, fuel station and quarry operation concerns.
October 8, 2010	Golder Associates Ltd.	10-1436-0069	Phase I Environmental Site Assessment, Former Kalum Forest Products Mill Site, West Kalum Road, Near Terrace, BC	Report identified a Total of 10 APECs at former sawmill site located north of IR#1.

Report to Kitsumkalum Band Council on a Hydrogeological Investigation Kitsumkalum Indian Reserve (Golder, 1985)

The work evaluated the potential for contamination of the water supply well from the in-ground wastewater mounds or other sources. A pumping test of the water supply well showed no drawdown in the installed piezometers and little indications of contamination of the well water. The report concluded that under the conditions present during the study, the sewage disposal mound was outside the zone of influence of the water supply well.

Kitsumkalum Band, Phase I Report, FNESS UST Removal/Replacement Program (PGL, 2006)

This report (PGL Filed: 786-40.04) was dated March 2006, however, the contents indicate the report was completed in the 1997 timeframe.

The Phase I assessment identified the following environmental issues at IR#1:

- One abandoned/disused UST and three priority issues at the log sort yard;



- Two active ASTs, and soil staining at the Band maintenance yard;
- Three active residential furnace oil ASTs and four abandoned/disused ASTs; and
- Four other priority issues including fuel station, quarry operation, urea formaldehyde foam insulation (UFFI) at IR#1 and Reserve fire risk at the Zymagotitz Reserve.

The abandoned UST was identified at the former log sort yard, and did not meet fuel storage guidelines. Three priority issues were also identified at the log sort yard, including buried wood waste, contamination from former maintenance building activities, and stained soils at the former drum storage area. PGL recommended a test pit and drilling program to assess soil and groundwater contamination associated with these three priority issues.

Two active diesel ASTs were present at the Band maintenance yard, and stained soils were identified in the area. PGL recommended removal of the ASTs and a test pit and drilling program to assess subsurface contamination.

PGL recommended review of the fuel station construction drawings for the station scheduled for opening in 1997 to confirm compliance with fuel tank codes of practice, a station inspection after installation to confirm code compliance, and AST system registration.

The quarry site was operated by Canadian National Railway (CNR) from 1964 to the mid-1980s, and the Band reportedly produced gravel from the quarry on occasion. PGL noted no fuel storage or soil staining and recommended no further action.

No further action was recommended for the UFFI issue, as no evidence of impact was noted.

There was no evidence of leaks or soil staining associated with the three residential ASTs. PGL recommended installation of concrete pads if tanks remained in use, or AST removal if residents converted to alternative heating sources.

Phase II Investigation Report – Maintenance Yard and Former Log Sort Yard – Kitsumkalum Band Reserve (PGL, 1997)

In the 1997 report, PGL identified the following:

- Two active diesel ASTs, and the priority issue of soil-stained soil at the Band maintenance yard with risk of impact to the nearby water well; and
- Priority issues at the former log sort yard included possible leachate from buried wood waste with potential to impact the Site and nearby Kitsumkalum River, industrial contamination risk at the former maintenance building, and contamination risk from the former drum storage area.

PGL investigated the priority issues and pumped out the log sort UST. The investigation scope included test pits, observation (monitoring) well installation and analysis of soil and groundwater samples for PCOCs. PGL completed a total of 25 test pits and installed four observation wells including six test pits (TP-1 to TP-6) at the



Band maintenance yard; 19 test pits (LSTP-1 to LSTP-10) at the former log sort yard; and four observation wells (OW-1 to OW-4) at the former log sort yard. PGL removed approximately 2,000 L of diesel fuel from the abandoned UST at the former log sort yard and eight drums of waste oil from the Band maintenance yard.

Findings indicated shallow hydrocarbon contamination across the Band maintenance yard and at several source areas at the log sort yard. The estimated volume Band maintenance yard contaminated soil was 30 to 60 m³ at a depth of less than 1 m. Soil samples exceeded applicable standards for LEPH/HEPH indicating fuel related impacts, but no metal or VOC impacted were identified.

In the log sort yard PGL investigated buried wood waste, the former maintenance building drain, an abandoned diesel UST area, and the former drum storage area.

Buried Wood Waste: Elevated aluminum and manganese and slightly acidic pH in groundwater samples in the buried wood waste area indicated possible leaching of these metals from soil. The aquatic toxicity tests indicated groundwater was non-toxic.

Former Maintenance Building Drain: Soil samples in the maintenance building drain area exceeded applicable standards for LEPH/HEPH, but no metal or VOC contaminants were identified. PGL estimated that contaminants migrated about 25m along the ditch with minimal lateral or vertical dispersion, and an estimated 100 to 150 m³ of hydrocarbon contaminated soil present.

Abandoned Diesel UST: Test pit soil samples exceeded LEPH/HEPH standards. Impacts appeared to be shallow, with an estimated volume of contaminated soil of 20 to 40 m³. PGL noted the area under the tank could not be assessed as it remained in place, and that additional contamination may be present under the tank.

PGL concluded that areas of soil were impacted by hydrocarbons, but no hydrocarbon impacts were noted in groundwater. Wood waste leachate impacts to groundwater at the log sort yard were noted, but environmental effects and downgradient water quality were likely unaffected (PGL, 1997).

PGL recommended excavation and remediation of contaminated soil, removal of the UST, and additional groundwater monitoring.

Site Remediation Report – UST Removal, Soil Remediation, and Groundwater Monitoring – Maintenance Yard and Former Log Sort Yard – Kitsumkalum Band Reserve (PGL, 1998)

PGL completed soil remediation in the Band maintenance yard and former log sort yard, with excavation and treatment in bioremediation cells. The contaminated soil removal was completed as planned with the exception of one area at the Band maintenance yard and two areas at the former log sort yard. The confirmation sample at the Band maintenance yard former drum storage area #2 exceeded standards and PGL recommended remediation of residual contaminated soil in this area.

In the former log sort yard area, PGL reported that hydrocarbon contaminated soil remained that was associated with a buried grease pit and Nass Road. PGL recommended a groundwater monitoring program to assess the contamination and provide data for remedial options evaluation.



PGL also performed a test pit investigation of the former logging truck parking area and other maintenance shop risks in the log sort area. No evidence of contamination was reported, but a crushed UST was detected and subsequently removed with no associated contamination noted.

Groundwater monitoring results indicated minor impacts in the former log sort yard from wood waste leachate. Dissolved manganese and iron exceeded aquatic life standards. Extractable petroleum hydrocarbons at the sampled locations were below aquatic life standards. PGL recommended continued groundwater monitoring of the log sort yard wells for dissolved metals to confirm groundwater conditions, and sampling of the Kitsumkalum River for total metals to assess possible impacts.

Phase I Environmental Site Assessment, Former Kalum Forest Products Mill Site, West Kalum Road, Near Terrace, BC (Golder, 2010)

Golder identified a total of ten APECs during the Phase I ESA of the Former Kalum Forest Mill site, and provided the recommendations shown below. The former mill site is located north of IR#1.

Ten APECs identified at the Former Kalum Forest Products Mill Site

Mill Site APEC	Description	Potential Contaminants of Concern
1	Former boiler, AST and associated piping in the former Kalum Forest Products building.	Hydrocarbons, metals
2	Former drum storage area (<i>i.e.</i> , prior to 1990) at east side of main building	Hydrocarbons, metals
3	Former waste oil collection and 'poor man's refinery' including a large AST (located at the northern portion of the Site), three former USTs and associated piping. Former UST locations uncertain.	Hydrocarbons, metals
4	Operational 50,000 L AST (double-walled), generator and fuel AST (no secondary containment). Potential for small spills during filling operations.	Hydrocarbons, metals
5	Wood and metal waste pile at northeast portion of Site.	Metals, tannins, lignins
6	Former fuel island at west-central portion of Site (2 or 3 USTs). Presence/absence of USTs onsite remains unknown.	Hydrocarbons, metals
7	Hogfuel across Site.	Hydrocarbons, metals, tannins, lignins
8	Ash and sheen on puddled water at southwest portion of Site.	Hydrocarbons, heavy metals, pH
9	Fill of unknown origins used to construct weigh scale.	Hydrocarbons, metals
10	Former diesel fuelling facility (2 USTs) at northwestern portion of Site.	Hydrocarbons, metals

Recommendations to address the identified APECs included the following:

- Mill Site APEC 1 – Conduct an inspection of the concrete surrounding the former boiler and AST. In the event that the boiler, AST and associated piping is to be removed, along with the underlying concrete, then collect and analyse soil samples beneath the concrete;
- Mill Site APEC 2 – Sample and analyse soils at the east side of the main building;



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- Mill Site APEC 3 – Ascertain former location of ‘poor man’s refinery’. Sample and analyse soil and groundwater at the former UST and AST locations;
- Mill Site APEC 4 – Review filling procedures at ASTs and provide secondary containment facilities beneath the small fuel AST;
- Mill Site APEC 5 – Sample and analyse waste material;
- Mill Site APEC 6 – Ascertain former location and presence/absence of fuel island. Remove USTs if onsite, and sample and analyse soil and groundwater at the former UST locations;
- Mill Site APEC 7 – Sample and analyse hogfuel material;
- Mill Site APEC 8 – Determine the source of ash material. Sample and analyse ash material and puddle surface water;
- Mill Site APEC 9 – Ascertain origin of fill material used to construct weigh scale. In the event that the origin is unknown or the material is from an industrial site without testing, then sample and analyse fill material; and
- Mill Site APEC 10 – Ascertain former location of diesel fuelling facility. Sample and analyse soil and groundwater at the former UST locations.



5.0 INTERVIEWS

5.1 Project Meeting/Interview at KFN Treaty Office

On November 7, 2013, Golder conducted an interview and project meeting with members of the PMC and other KFN members, who were knowledgeable of present and past operations at the Reserves and surrounding area. During the initial meeting, Mr. Kelly Baltz met with PMC members including Mr. Alex Bolton, Mr. Alan Bolton, Mr. Steve Roberts, Ms. Yveonne Wesley, and Mr. Tim Powers (AANDC). A second meeting was held with Mr. Kelly Baltz and Mr. Damian Kusiak of Golder, and PMC members Mr. Alex Bolton and Mr. Allan Bolton. Below is a summary of key findings discussed in the meetings.

IR #1

- In 1949 the KFN leased 77 acres of property for use as a log sorting and re-load area. Railway tracks were installed in this area and logs were loaded onto trains. In the 1980s to early 1990s, the use of this area was returned to the KFN. A ground investigation was subsequently carried out in this area and several test pits were excavated. The investigation determined that layers of waste including wood waste (referred to as “slag”, “bark” and “hogfuel” by KFN representatives, Mr. Alex Bolton and Mr. Allan Bolton) were left over from the historical logging activities in the area. In several locations, the wood slag layers were reported to have a thickness of up to 14 ft (4.3 m). The KFN is concerned with the “slag” becoming toxic over time and contaminants making their way down-gradient into the Kalum and Skeena Rivers. Mr. Alex Bolton also mentioned that several 45 gallon (205 litre) drums were recovered during the original “reclamation” process.

According to Mr. Alex Bolton, a “chemical shed” approximately 100 square feet (ft²) (9.3 square metres [m²]) in size was also historically present in the log-load area. Mr. Bolton recalls a hazardous materials team entering the shed and removing the chemical materials. The KFN representatives were not certain of what type of chemical substances were contained in the shed, and when the shed and chemicals were removed. No documentation regarding the chemical shed was available.

KFN representative indicated that fire suppression equipment was stored in the reload area, and provided an aerial photograph showing the general location.

In 2011, the log sorting and re-load area (still containing wood waste piles) was levelled and covered with gravel fill material from the Kalum Rock Quarry (gravel pit).

The current site occupant of the majority of this area is BC Hydro / Valard Construction Limited.

- Approximately 13 residential units were originally built on IR #1. These units were heated with the use of heating oil, stored in above-ground storage tanks (ASTs). According to KFN representatives, many of these ASTs are still present at the original residential units.
- The residential lots located across from the Fire Hall on West Kalum Road (current addresses 3530 and 3534) used to be the location of a “septic field”, according to Mr. Alex Bolton and Mr. Allen Bolton. Several underground septic tanks used to be located at the location, but were removed. The date of the tank removal was unknown by the KFN representatives. No documentation regarding the septic field was available at the time of the interview.



- The Maintenance Shed, located on the south side of the Treaty Office on West Kalum Road, used to have two diesel ASTs outside of the shed entrance. It is understood that these ASTs were used to fuel equipment and were in place until 2007. In approximately 2007, the fuel tanks and fuel saturated soils from beneath the tanks, were removed and placed in a bio-cell. The shed is currently used to store tools, small equipment and small amounts of household chemicals. The KFN plans to move the shed to a different location in 2014.

IR #2

- Logging occurred within the boundaries of IR #2 in the 1950s and 1960s. The forest was replanted following logging activities. Areas of IR #2 were not logged, including areas of old growth forest near the Kalum River.

IR #3

- IR #3 has two residential units next to the Zymagord River. The units were constructed in the 1970s and 1980s and are both currently occupied. The residential units each have a dedicated groundwater well for domestic and drinking water purposes.
- The old Highway 16 right-of-way runs through IR #3.



6.0 RESERVE RECONNAISSANCE BY LOCATION

Given the large area of the Reserves, the number of buildings and the mixed usages (specifically at IR #1) it was beyond the scope of this Phase I ESA to assess each building and determine the specific details of each site (i.e., water supply, generators, oil/water separators, heat source). Golder's approach focused on the areas with suspected historical environmental issues and locations whose usage had potential for impacts on the environment at the time of this Phase I ESA. Prior to the site reconnaissance the documented APECs included the Band maintenance yard (historical use and presence of ASTs), the former log sort and re-load area (buried wood waste, metal debris, former ASTs and USTs, maintenance activities, and former drum storage area), the fuel station, and the APECs associated with the Former Kalum Products Mill Site location north of IR#1.

On November 6 and 7, 2013, Golder completed reconnaissance to IR #1, IR #2 and IR #3. The Golder representative was Mr. Damian Kusiak. The Golder representative was accompanied by two KFN representatives, Mr. Allan Bolton and Ms. Debbie Parker at each site. The reconnaissance involved driving through public roadways of the Reserves and walking on foot to observe visible signs of land usage and make cursory observations of the Reserve sites and neighbouring areas.

At the time of reconnaissance conducted on November 6 and 7, 2013, it was approximately 5°C and overcast and 5°C and partially cloudy, respectively. Select photographs taken during the reconnaissance are available in Appendix E. Several global positioning system (GPS) coordinates of sites were also collected during the time of reconnaissance using a handheld GPS device.

6.1 Kitsumkaylum IR #1

The following areas on or adjacent to IR #1 were visited by Golder and two KFN representatives on November 7, 2013.

6.1.1 Historic Log Sorting and Re-Load Area

This area was located on IR #1 between Gyik Road and the Kalum River, just south of the rock quarry and north of Highway 16. The area consisted mostly of a levelled gravel-fill surface. According to Mr. Allan Bolton, the gravel-fill material was placed overtop of thick layers (3 m to 4 m) of wood waste (referred to as "bark", "slag" and "hogfuel") left over from historical site activities. Railway tracks were observed (present from north to south) along the east boundary of the gravelled area. A gravel road (Kalum West Forest Service Road) was parallel with the east side of the railway tracks, separated by a gravel drainage swale. The majority of the levelled gravel pad to the east of this area was occupied by a Valard Construction site, which consisted primarily of a power line materials storage yard and a Valard Construction employee camp. Land located between the railway tracks and the Kalum River was mostly vegetated and included a historic log storage pond. Metal waste in the form of old train parts, vehicle frames/bodies (approximately 10 to 15 vehicles in total), heavy equipment parts, metal cables (log cribbing), etc. was noted in several areas along or near the banks of the Kalum River. The metal waste was mostly observed in large piles, or buried/partially buried. The waste was reportedly left over from historical site activities (carried out by CN and SCI). Small streams and ponds located east of the waste vehicle piles (next to the Kalum River) were observed to have orange (oxidized) sediments and a metallic-like sheen.



Prior assessment activities, including test pit work and observation well sampling, have documented the presence of the buried wood waste, and impacts to groundwater that have included elevated metals concentrations (PGL, 1997 and PGL, 1998). KFN representatives also reported the fire suppression equipment was formerly stored in the area. Based on the historical assessments, site interviews and visits, the log sorting and re-load area is considered an APEC.

6.1.1.1 Valard Construction Ltd. Site

At the time of the site visit, Valard Construction Ltd. (Valard) was the current occupant of a large portion of the Historic Log Sorting and Re-load Area. The south portion of the Valard site was used primarily to store power line construction materials and also consisted of several office trailers, an equipment maintenance facility and a fueling station. The north portion of the Valard site was used primarily as an employee camp, composed of numerous ATCO trailers and a large gravel parking area (used to store Valard equipment and trucks). According to Mr. Allan Bolton, the area around the current Valard office trailer historically contained two diesel underground storage tanks (USTs) that are no longer present. The Valard site is considered an APEC based on the historical UST presence.

6.1.2 Kalum Rock Quarry

The Kalum Rock Quarry (gravel pit) was located just north of the Historic Log Sorting and Re-load Area. The pit operations were carried out by Kalum Rock Quarry Ltd. (owned by KFN). Heavy equipment observed at the rock quarry during the site visit consisted of approximately two excavators, two drill rigs, six haul trucks and a portable crusher. Approximately six large stockpiles of rock materials were observed near the east end of the rock quarry site. Several access points to the rock quarry were observed including Old Quarry Road, Gyik Road and Kalum FSR. No signs of an equipment fueling station were visible at the time of the site visit; however Golder was informed that the equipment is fueled by pick-up trucks carrying fuel tidy tanks.

No fuel storage, soil staining or stressed vegetation were observed in the area during the current assessment, and during the previous assessment (PGL, 2006). Because impacts were not observed or documented in interviews, site visits, or the historical assessment, the quarry is not considered an APEC.

6.1.3 West Kalum Road

6.1.3.1 Administration Area

The administration area on West Kalum Road consisted of approximately ten buildings/facilities including the Treaty Office, Water Treatment Plant, Fire Hall, Health Building (original), Health Building (new), School, Maintenance Shed, Administration Building, Community Hall and Economic Office. Observations made at select locations within the administration area are provided below.

Maintenance Shed and Surrounding Area

The Maintenance Shed was constructed of aluminum (dome-style structure) and had a concrete slab-on-grade floor. The Shed was located between the Treaty Office and New Health Building. The primary use of the shed was for storage of tools, small equipment and various chemicals. Chemicals were mostly in the form of aerosol



cans and were stored on wooden shelves inside the facility. The ground surrounding the Maintenance Shed consisted of an unpaved gravel surface. A strong hydrocarbon odour was observed near the entrance to the shed. According to Mr. Allan Bolton, the area outside of the Shed was used to store fuel in two ASTs until 2007, when the ASTs were removed and the fuel saturated soil beneath the ASTs was excavated and removed.

Storage of various metal and wood materials, including empty water tanks and semi-truck was observed in the area southwest of the Maintenance Shed, behind the new health building.

Remediation of stained soil associated with the ASTs was completed previously, but residual contaminated soil associated with the Band maintenance yard former drum storage area #2 was identified (PGL, 1998). Based on the residual soil impacts, historical uses, and the strong hydrocarbon odour, the shed is considered an APEC.

The ditch/swale located on West Kalum Road across from residential unit # 3, was reportedly used as a dumping area for used motor oil. This ditch area is considered an APEC.

6.1.3.2 *Water Treatment Plant*

The Water Treatment Plant was located just north of the Fire Hall. The building was constructed of concrete and aluminum siding. Ground surrounding the building was paved. A chlorination room was observed at the front of the building. Three water wells were noted on the north side of the water treatment plant, in a fenced off area.

6.1.4 *Residential Areas*

Approximately 100 residential units were present at IR #1. The properties were observed by driving along the public access roads in IR# 1, including West Kalum Road, Spokechute Road and Gylík Road. Most of the roads were paved, with the exception of Spokechute Road. Based on observations made, homes were primarily of wood frame construction and finished with vinyl or wood siding. Several of the properties appeared to store non-operational vehicles in front and/or backyards. Metal waste bins were observed in dedicated areas on each road.

The property of one of the thirteen original residential units (constructed in 1960s) was accessed by Golder with permission from Mr. Allan Bolton. The home, located directly across from the Treaty Office on West Kalum Road, had been partially burnt by a fire and abandoned. A small (approximately 50 litre [L]) empty AST was observed in the backyard of the property, along with two non-operational vehicles. According to Mr. Allan Bolton, many of the original residential units used heating oil tanks as a heat source. In response to a newsletter article soliciting information on residential ASTs, the resident of house # 2 reported a stove oil tank in the back yard. Residential ASTs are considered APECs.

6.1.5 *Old Quarry Road (dumpsite)*

Waste piles were observed at the south entrance to Old Quarry Road (off of Spokechute Road). Although “No Dumping” signs were in place, several piles of garbage including old furniture, empty propane tanks, metal and wood were observed at this location. According to Mr. Bolton, the area is still used as a dumping ground by local residents, despite the signs that have been put in place. The dumpsite is considered an APEC.



6.1.6 Tempo Gas Bar and Carwash

The Tempo Gas Bar and Touchless Carwash (located in two separate buildings) were located on the north side of Highway 16, on West Kalum Road. According to Mr. Allan Bolton the gas station was originally built in 1994/1995 and renovated in early 2000s. Six gas/diesel pumps and one propane pump were visible at the site. Diesel, gasoline and propane were available at the gas station. Four ASTs were visible between the gas station and the car wash (three containing gasoline and one containing diesel) and one propane AST with a pump was visible at the south entrance of the “touchless” carwash. Staining and/or spills were not visible at the time of the site visit, however ground conditions were wet. Based on the historical fuel storage and dispensing activities, the gas bar is considered an APEC.

6.1.7 Old “Kalum W Products” Sawmill

The Sawmill was located on the east side of Kalum West Forest Service Road (Kalum FSR), just north of the IR #1 boundary. The Sawmill was not currently in operation, and according to Mr. Allan Bolton, has not been in operation since the spring of 2013. Stockpiles of wood bark and logs were visible at the front of the site building. One fuel AST was observed in front of the site building, near the north property boundary. Several semi-truck flat-deck trailers were stored along the west property boundary, near the site entrance. A closer examination of site features could not be made as permission to access the site was not provided. Based on information provided by Mr. Allan Bolton, the most recent occupant of the site was Bryco Enterprises; a bark peeling and log exporting company. Based on the visible conditions at the former sawmill, and the results of a previous Phase I ESA at this site (Golder, 2010), the former sawmill is considered an off-site APEC. A total of ten APECs were previously identified within the former sawmill property.

6.2 Dalk-Ka-Gila-Quoeux IR #2

The accessible pathways and all-terrain vehicle ATV trails through IR #2 were walked by Golder representative Mr. Damian Kusiak and KFN representatives Mr. Allan Bolton and Ms. Debbie Parker on November 6, 2013. The group walked through areas of the replanted forest, until reaching the boundary of the old growth forest, near the Kalum River. A few of the historical 1950s and 1960s logging areas were observed along the way to look for signs of potential environmental concerns. As the area was densely forested, observations were mostly limited to the areas of the walking trail and clearings in the forest. Small ponds were observed near one of the logging landing locations. Soil and ground conditions during the site walkover were moist or partially snow covered. Signs of fill or contamination were not observed during the site walk over.

Metal storage containers containing explosives and stockpiles of wood slag/bark (covered with gravel fill) were observed at the neighbouring SCI site, located south of IR #2. The SCI site is not currently considered an off-site APEC, based on the inferred location downgradient (south) of IR#2.

6.3 Zimagord IR #3

The accessible pathways and areas through IR #3 were walked by Golder representative Mr. Damian Kusiak and KFN representatives Mr. Allan Bolton and Ms. Debbie Parker on November 6, 2013. With the exception of the residential area located in the northeast portion of IR #3, the majority of the reserve was densely forested. The following sites on IR #3 were visited.



6.3.1 Residential Area

The residential area on IR #3 was located just south of Highway 16, on the west shore of the Zymagord River. The first residential unit was a 2-floor log house constructed in the 1970s. One propane AST was observed north of the log house (in the front yard). According to Mr. Lyle Bolton (house resident – present at the time of the site visit), the propane was used to heat the home. A septic tank was observed at the south side of the home (in the back yard). The house had a newer addition that was added in approximately 1992, according to Mr. Lyle Bolton. The addition was of wood frame construction, with a concrete foundation, and was built to serve as a “carving shack”. North of the log house was a log shed, which was used primarily as a wood working area to build canoes. A piece of machinery (small dozer) was parked along the north edge of the wood working shed. A domestic/drinking water well was observed east of the shed, near the Zymagord River. The well was separated from the river by an earth embankment at the shore of the river and a small impermeable earth embankment (covered in plastic) that was observed around the perimeter of the well. Just south of the well, the existing paved Highway 16 right-of-way was visible. The right-of-way ran through the property from east to west, and made up the drive for the two residential units present at IR #3. Further west, the Highway right-of-way was no longer paved, and instead appeared as an overgrown dirt pathway running through the remaining forested area of IR #3.

The second residential unit at IR #3 was located west of the log house, just south of the Highway 16 site entrance. This unit was a one-floor wood-frame structure, with wood siding and drywall interior. The unit was reportedly constructed in the 1980s. The home was currently occupied by Ms. Sheela Bolton (not present at the time of the site visit). A domestic/drinking water well was observed at the northeast corner of the property. Just west of the well was a small wood shed, primarily used as a smoke house and to store yard tools. Although a septic tank was not visible at the property, according to Mr. Allan Bolton, the house was connected to septic tank. A small plastic greenhouse and garden were observed west of the home (in the back yard).

Two empty water tanks were observed at the entrance to the residential property. These tanks were lying on their sides and were not in use. According to Mr. Allan Bolton, the tanks were previously used to store water for fire protection purposes at one of the other reserves and were recently brought to IR #3 to be stored.

Signs of fill or contamination were not observed during the site walk over.

6.3.2 Zymagord Dumpsite

The dumpsite on IR #3 was located in a forested area, approximately 400 to 500 m west of the residential area. The site is located between Highway 16 and the old Highway 16 right-of-way, and is accessible from both by narrow pathways (wide enough to fit a vehicle). Various wastes were observed at this site including three non-operational vehicles, up to fifteen home appliances (fridges, stoves, etc.), empty plastic containers and buckets, and other miscellaneous wastes. The dumpsite is considered an APEC.



7.0 RESERVE RECONNAISSANCE BY ENVIRONMENTAL CONCERN

Table 9: Reserve Reconnaissance Summary

Potential for Environmental Concern	IR #1	IR #2	IR #3
Solid Waste (non hazardous and hazardous) management, storage and handling	Observed	Not Observed	Observed
Herbicides, Pesticides and Fertilizers	Not Observed	Not Observed	Not Observed
AST, USTs	Observed	Not Observed	Observed
Chemical Storage	Observed	Not Observed	Not Observed
PCB Storage	Potential	Not Observed	Potential
Discharges, Releases and Staining	Observed	Not Observed	Not Observed
Lead Based Paint	Potential	Not Observed	Potential
Asbestos Containing Materials	Potential	Not Observed	Potential
Ozone Depleting Substance	Potential	Not Observed	Potential
Radioactive Material	Potential	Not Observed	Potential
Mercury	Potential	Not Observed	Potential
Natural Environmental Receptors	Observed	Observed	Observed
Vehicle Storage (more than five)	Observed	Not Observed	Not Observed

7.1 Waste Management and Handling

7.1.1 IR #1

Metal lugger bins used for the collection of solid wastes, were located in the residential and administration areas of IR #1. Geier Waste Services of Terrace, BC owns the waste bins, and reportedly collects waste from the bins twice weekly and transports the waste to the Terrace Landfill.

7.1.2 IR #2

No waste was reportedly generated at IR #2.

7.1.3 IR #3

No waste collection system was present at IR #3. According to KFN representatives, waste generated at IR #3 consists primarily of domestic wastes, which are collected and transported to the Geier waste bins (located on IR #1) by the IR #3 residents.

7.2 Herbicides, Pesticides and Fertilizers

Storage or use of herbicides, pesticides and fertilizers was not observed at the Reserves that were visited. There was no reported use or storage in the historical documents reviewed and during site interviews.



7.3 Storage Tanks

ASTs and USTs that were observed during the Reserve visits are listed in Table 10 below. Information on the volumes of tanks was unavailable due to lack of labelling or limited access to the tanks.

Table 10: Observed ASTs and USTs

Location		ASTs	USTs
IR #1	Kistumkalum TEMPO Gas Bar	3 Gasoline ASTs 1 Diesel 1 Propane AST	Not observed
	Valard Construction Site (Fueling Station)	1 Diesel AST	Not observed
	Residential Area	2 Heating Oil ASTs (others reportedly present);	Not observed
IR #2	Visited Area	Not observed	Not observed
IR# 3	Residential Area	1 Propane AST	1 Septic Tank (one other reportedly present)
		2 Water ASTs (empty, in storage)	

In addition, former ASTs and USTs were present at IR#1 that were abandoned and removed. These include two ASTs removed from the Band maintenance yard, and the crushed UST removed from the log sort area during the soil remediation work.

7.4 Chemical Storage

The Maintenance Shed at IR #1 was observed to have storage of various aerosol cans, jerry cans, motor oil and other household chemicals. The Waste Water Treatment Plant at IR #1 was observed to have a chlorination room, therefore it is inferred that an unknown amount of chlorine is stored within the facility.

7.5 PCB Storage

The use of polychlorinated biphenyl (PCB) dielectric fluids in electrical equipment such as transformers, fluorescent lamp ballast and capacitors was common up to about 1980. The Federal Chlorobiphenyls Regulations, SOR/91-152, prohibits the use of PCBs in the above electrical equipment installed after July 1, 1980.

Due to the age of the buildings on the Reserves, it is possible that PCBs are present at the Reserves in electrical equipment; however this was not observed during the reconnaissance.



7.6 Discharges, Releases and Staining

7.6.1 IR #1

According to KFN representatives, the wastewater from IR #1 is conveyed through a force main connection to the City of Terrace wastewater system for treatment.

Historically, the community was served by a dual septic tank and in-ground wastewater disposal mound system, with one tank built in 1969 and the other septic tank and two mounds built in 1983. Evidence of effluent breakout was noticed in 1983 (NovaTec, 1987). The study performed to evaluate potential contamination of the water supply well by the disposal mounds concluded that the disposal mounds were outside the zone of influence of the water supply well (Golder, 1985).

Water from the Historic Log Sorting and Re-load Area was observed discharging at a low flow rate into wetlands adjacent to the Kalum River west shore. This water was observed to carry rust orange sediments and a metallic-like sheen. The discharge water entered streams and ponds which are directly connected to the Kalum River.

7.6.2 IR #2

No discharges, releases or staining were observed during the site visit, or reported during site interviews.

7.6.3 IR #3

No discharges, releases or staining were observed during the site visit, or reported in interviews. However, residences on these reserves were inferred to use septic field tanks.

7.7 Lead-Based Paint

Although lead-based paints were banned from use on exterior or interior surfaces of buildings, furniture, or household products in the 1970s, various commercial paints are still known to contain lead in concentrations greater than 0.5 percent by mass (i.e., road paint).

During the Reserve reconnaissance, a number of structures were observed to have been possibly constructed prior to 1970. On this basis, lead-based paints are potentially present in the buildings on the Reserves (excluding IR #2).

7.8 Asbestos-Containing Materials

Asbestos-containing materials (ACMs) can be found in plaster, mechanical insulation, gaskets, thermal insulation on pipes, refractory material, roofing felts, floor tiles, ceiling tiles and pargings, heat resistant panels, incandescent light fixture reflector plates and other material requiring a high degree of durability and/or thermal resistance. The common use of potential friable (breakable by hand) ACMs in construction voluntarily stopped in the mid-1970s.

During the Reserve reconnaissance, buildings potentially constructed prior to the mid-1970s were observed on the Reserves (excluding IR #2). Based on the age of the buildings, it is possible that ACMs are present.



7.9 Ozone-Depleting Substances

Commonly used equipment that could potentially contain ozone-depleting substances include aerosols, foam plastics, dry cleaning equipment, refrigeration systems, air conditioning units and some portable fire extinguishers.

The Reserves (excluding IR #2) contained buildings and/or structures that may have contained fire extinguishers, air conditioning and refrigeration units. No information was available regarding the type of refrigerant used or the maintenance of the air conditioners. It is possible therefore, that the Reserves may contain ozone-depleting substances.

7.10 Radioactive Material

The Atomic Energy Control Regulations (C.R.C, C. 365) outline the licensing requirements for radioactive isotopes and substances capable of releasing atomic energy ("Prescribed Substance"). The Atomic Energy Control Regulations require licensing to import, export, use, transport or disposed of any Prescribed Substance. The Atomic Energy Control Regulations do not apply to naturally occurring radioactive Prescribed Substances that have not been related with any activity associated with the development or application or use of the atomic energy.

Radioactive material may be present in smoke detectors located in the buildings; however, none of the buildings were entered during the Reconnaissance.

7.11 Mercury

Mercury may be present in the switches, thermostats and florescent lighting in the buildings at the Reserves; however, none of the buildings were entered during the Reconnaissance.

7.12 Natural Environment Receptors

7.12.1 Wetlands and Forests

Wetlands and forested areas were observed (and made up the majority of the Reserve area) in IR #1, IR #2, and IR #3, during the site reconnaissance. Each area showed wetland areas located near water bodies and/or waterways present within or adjacent to them.

7.12.2 Surface Water

IR #1 and IR #2 are located adjacent to (and inferred to be up-gradient of) the Kalum River, which flows from north to south and joins the Skeena River just south of the Reserves. Several small steams and ponds were also located within Reserves IR #1 and IR #2.

IR #3 is located adjacent to (and inferred to be up-gradient of) the Zymagord and Skeena Rivers.



8.0 CONCLUSION AND RECOMMENDATIONS

8.1 APEC Summary

Based on the results of the Phase I ESA, a total of eight on-site APECs from two Reserves (IR #1 and IR #3) and one off-site APEC were identified. A description of the APECs, PCOCs and recommended actions is provided in Table 11. Figures 6, 7 and 8 show the approximate APEC locations.

Investigations are recommended as indicated in Table 11 at the specified APECs. Level C costs estimates for the recommended assessments are provided in Appendix F. Additional historical document research and discussion the PMC should be completed to address the identified data gaps, as described in Section 8.2. This includes information on any residential AST information provided by residences of the IRs for incorporation in the Final report.



KITSUMKALUM PHASE I ESA

Table 11: Phase I ESA: Summary of APECs and Recommendations

Site/Area	Classification of Risk		Contaminants of Potential Concern	Description of Contamination or Risk	Recommended Action	PMC Decision
	Contamination					
	Potential	Actual				
APEC 1 – Historic Log Sorting and Re-loading Area		X	Hydrocarbons, metals, possible fire suppression related contaminants	Located on IR #1. Gravel fill at surface, placed over thick layers of wood waste. Metal waste (old train parts) present in several areas on-Site. Former storage of fire suppression equipment.	Delineate extent of wood waste (slag) and assess impacts to soil and groundwater through test pitting and drilling program. Sample existing observation wells. Install additional monitoring wells as needed to evaluate groundwater quality. Collect and analyze surface water and sediment samples east of waste vehicle piles. Complete additional review to identify types of fire suppression equipment and chemical formerly stored in re-load area.	
APEC 2 – Historic Diesel USTs on Valard Construction Ltd. Site	X		Hydrocarbons, metals	Located on IR #1. Southern portion of Valard site historically contained two diesel USTs. No longer present.	Determine if contaminant present in soil through test pitting. If contamination is encountered, borehole drilling should be completed to assess its extent and groundwater quality should be evaluated through installation and sampling from monitoring wells where colored discharge noted.	
APEC 3 – Maintenance Shed		X	Hydrocarbons, metals	Located on IR #1. Hydrocarbon-like odour observed at entrance to shed. Historically two ASTs were used for fuel storage adjacent to the shed. Fuel saturated soil was excavated post-removal of ASTs.	Test pit assessment near entrance of shed, and area of reported residual soil impacts. If contamination is encountered, complete borehole drilling to assess extent and evaluate groundwater quality through monitoring well installation and sampling. Coordinate assessment timing with Band plans for shed removal.	



KITSUMKALUM PHASE I ESA

Site/Area	Classification of Risk		Contaminants of Potential Concern	Description of Contamination or Risk	Recommended Action	PMC Decision
	Contamination					
	Potential	Actual				
APEC 4 – West Kalum Road Ditch	X		Hydrocarbons, metals	Reported dumping area for used motor oil from cars.	Test pit assessment and analysis of soil samples. If contamination is encountered, complete borehole drilling to assess extent and evaluate groundwater quality through monitoring well installation and sampling.	
APEC 5 – Current and Historical ASTs in a Residential Area	X		Hydrocarbons, metals	Located on IR #1. A 50 L empty AST and many historic ASTs were used as heat oil tanks on the residential properties.	Evaluate condition of each AST reported by residences. Determine further assessments based on observations, location and history.	
APEC 6 – Old Quarry Road Dumpsite	X		Metals	Located on IR #1. Several piles of garbage (including propane tanks, metal, and wood) in the area.	Complete test pit or drilling assessment of soil in the area. If contamination is encountered, borehole drilling should be completed to determine its extent and groundwater contamination should be evaluated through installation and sampling from monitoring wells.	
APEC 7 – Tempo Gas Station	X		Hydrocarbons, metals	Fuel storage and dispensing since late 1990s.	Complete a soil vapour survey to assess subsurface conditions in the fuel storage and dispensing areas. If contamination is encountered, complete additional investigation work to evaluate possible impacts to groundwater.	
APEC 8 – Offsite: Former Kalum Forest Products Mill Site	X		Hydrocarbons, metals, tanins, lignins	A total of 10 APECs were previously identified in 2010 at the former mill site located north of IR#1. Potential for migration of impacts from offsite APEC 8 to IR#1.	Soil and groundwater investigation along northern edge of IR#1 adjacent to former mill site. Assess soil and groundwater conditions and determine local direction of groundwater flow to assess possible impacts to IR#1 from off-site APEC.	



KITSUMKALUM PHASE I ESA

Site/Area	Classification of Risk		Contaminants of Potential Concern	Description of Contamination or Risk	Recommended Action	PMC Decision
	Contamination					
	Potential	Actual				
APEC 9 – Zymagord Dumpsite	X		Metals	Located on IR #3. Various wastes in the area, including abandoned vehicles and home appliances.	Complete test pit or drilling assessment in the area. If contamination is encountered, borehole drilling should be completed to determine its extent and groundwater contamination should be evaluated through installation and sampling from monitoring wells.	



8.2 DATA GAPS

The following data gaps have been noted based on the historical document review, interviews, and IR visits:

- Log sort area chemical storage building: Documentation of chemical removal and any soil sampling that may have been completed was not located. Additional checks for this documentation should be done. If there is no available documentation, then this area may need to be classified as an APEC with soil sampling to evaluate the potential for residual impacts from chemical handling activities.
- Log sort slag depth and extent: Assessment results showing slag impacts to 14 feet (mentioned by PMC) were not located. If historical reports are available that provide delineation information for the vertical and horizontal extent of remaining slag or hogfuel, then the scope of the recommended test pit assessment for the log sort area can be refined.
- Site remediation status for maintenance yard and log sort yard: In the 1998 report, PGL recommended future remediation of two remaining contaminated areas and groundwater monitoring of a third area (PGL, 1998). It was not clear based on the reviewed documents if the additional remediation has been completed. Additional efforts are needed to locate the latest groundwater monitoring results and the status of any follow on remediation in these areas.
- Residential ASTs: Information on residential ASTs that was requested through newsletters to Band members will be used to determine the total number of ASTs. This information will be incorporated into the Final report.

8.3 Other Environmental Concerns and Housekeeping Issues

The following environmental concerns or housekeeping issues were noted during the field reconnaissance visits or interviews. The information and concerns were provided by Mr. Richard Inkster, Mr. Steve Roberts and Mr. Alex Bolton.

- IR#1 Historic CN Reject Pile: A reject pile of CN debris/ballast reportedly blocked the flow of a creek near the rock quarry and damaged the riparian area. Removal of remaining debris and rehabilitation of the riparian buffer zone are required to address this concern.
- IR#1 Shallow Drinking Water Wells: Mr. Richard Inkster and Mr. Steve Roberts expressed concerns about two shallow drinking water wells supplying IR#1. The concerns are that these wells as installed may be under unconfined aquifer conditions, and the potential for surface water infiltration into the well capture zone that may occur. Mr. Inkster also noted that the wells are influenced by the nearby Skeena River water levels, indicating a hydraulic connection between the wells and the river. Their preference was reclassification of the wells as unconfined, if appropriate, and replacement with deeper wells screened within a confined aquifer zone.
- IR#1 Drinking Water Well #2: Discolored water has been noted recently.
- IR#1 Sewer Line: Older sewer lines on West Kalum Road are reportedly out of level, and sewer backup has occurred. Portions of the line are located within 150 feet of drinking water wells. The Band have reportedly held prior discussions with INAC about possible line repair.



- IR#1 Site Drainage: Site drainage in the area west of the Administration Building is reportedly problematic, with surface water ponding. In the area a creek flows from the IR through a culvert, crossing under the highway and rail line and into the Kalum River. Surface A flap gate was installed in 2007 to address backflow, which has been helpful, but ponding of surface water continues.
- IR#1 Kitsumkalum Cemetery: Mr. Steve Roberts relayed concerns that the cemetery is being impacted by altered stream flow that has resulted from logging roads constructed in the 1940s and 1950s. The Kitsumkalum Band Council proposes deactivation of the old logging roads and return of mountain streams back to their original water course. A copy of the email correspondence from Mr. Roberts to AANDC expressing this concern is provided in Appendix G.
- IR#3 Drinking Water Well: Coliforms have reportedly been detected.
- IR#4 Erosion: Mr. Roberts noted concern about ongoing erosion at Port Essington.



9.0 CLOSURE

We trust this provides you with the information you require at this time. Should you have any questions, or require further information please do not hesitate to contact the undersigned.

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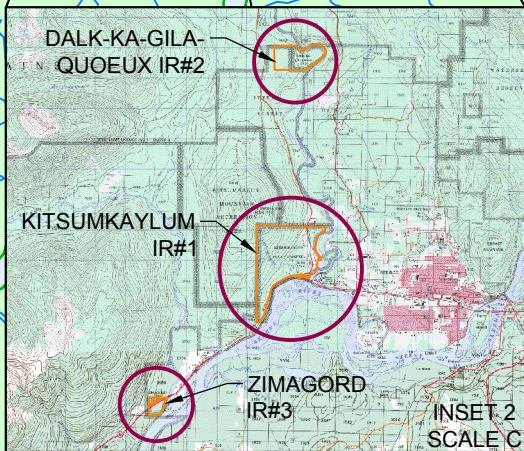
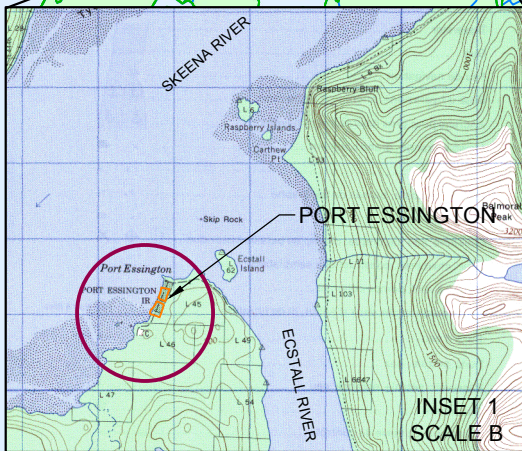
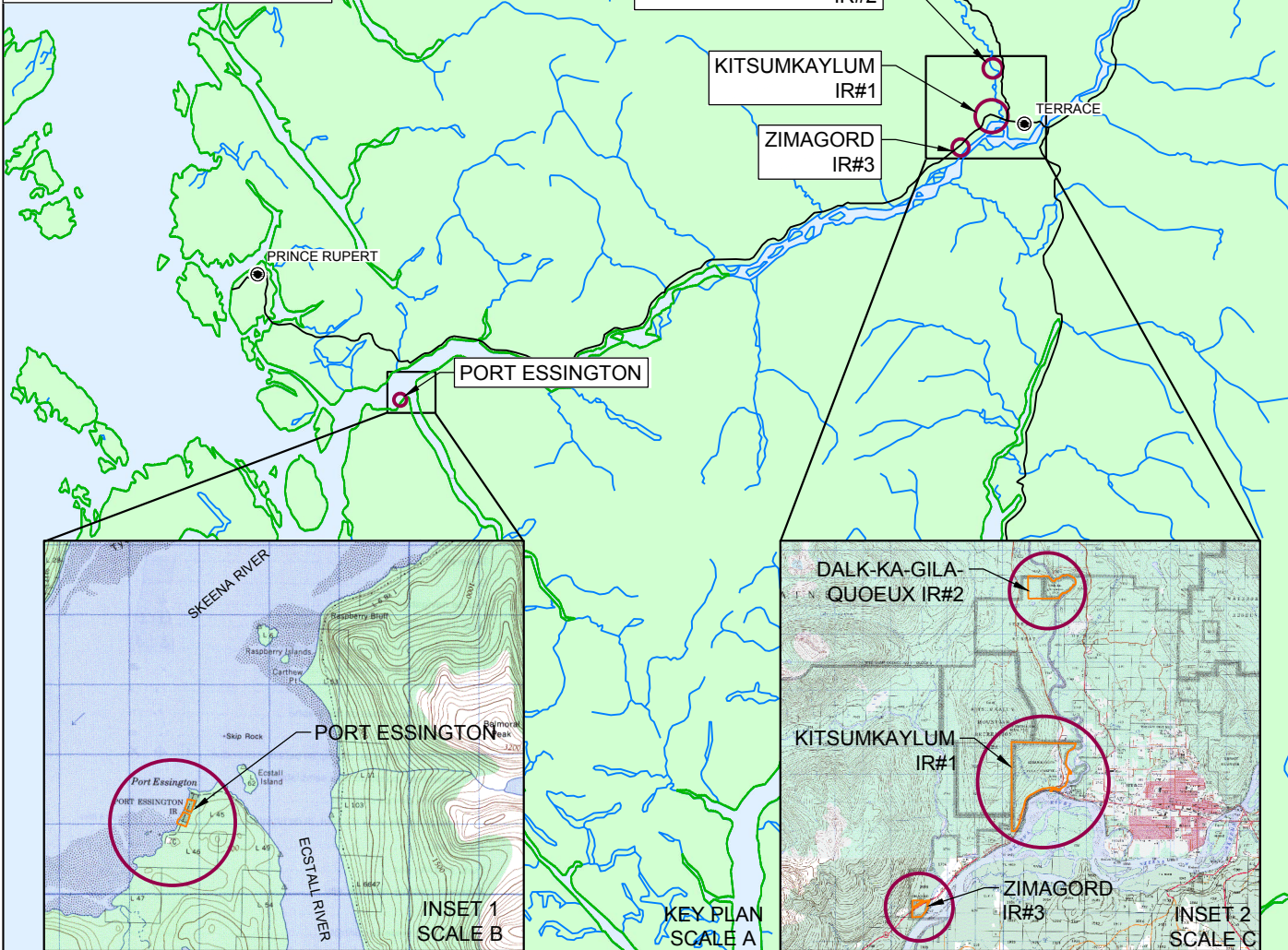
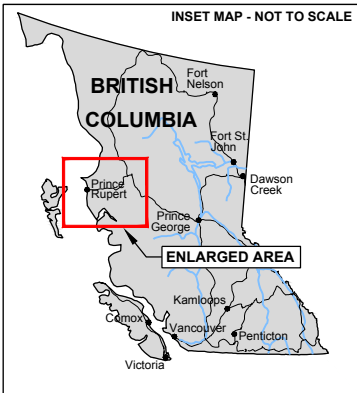
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DRAFT

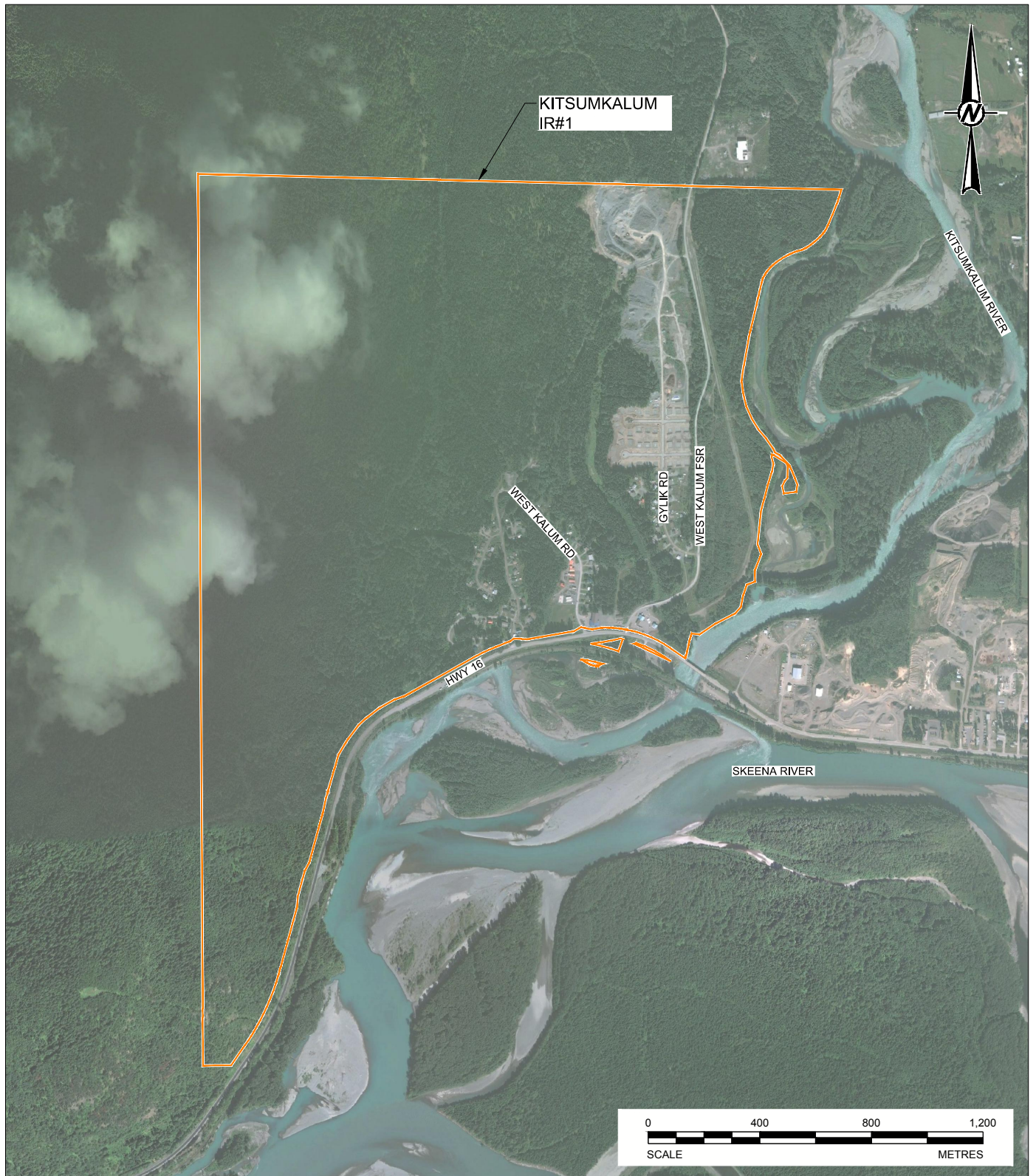
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2. KEY PLAN: BASE DATA OBTAINED FROM GEOGRATIS - ATLAS OF CANADA - DEPARTMENT OF NATURAL RESOURCES. DATUM: UTM NAD 83 ZONE 9
3. INSET 1: TOPOGRAPHIC MAP 1031/4 © 1980 HER MAJESTY THE QUEEN IN RIGHT OF CANADA. DEPARTMENT OF NATURAL RESOURCES. ALL RIGHTS RESERVED. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD83 COORDINATE SYSTEM: UTM ZONE 9
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REV	DATE	REVISION DESCRIPTION	TJP	AMW	-	-
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PROJECT KITSUMKALUM FIRST NATION PHASE I ENVIRONMENTAL SITE ASSESSMENT TERRACE, B.C.						
TITLE KEY PLAN						
PROJECT No.		13-1475-0024	FILE No.		1314750024-01	
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CADD	AMW	2013-12-18	FIGURE		1	
CHECK	-	-				
REVIEW	-	-				



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LEGEND

— INDIAN RESERVE BOUNDARY

DRAFT

REFERENCE

IMAGE OBTAINED FROM GOOGLE EARTH PRO. USED UNDER LICENSE. IMAGERY DATE: 2009.
 GOOGLE EARTH IMAGE IS NOT TO SCALE.
 ADDITIONAL BASE DATA OBTAINED FROM GeoBC WEB MAPPING SERVICE.

△	2013-12-18	DRAFT - FOR INTERNAL REVIEW	TJP	AMW	-	-
REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RWW

PROJECT
**KITSUMKALUM FIRST NATION
 PHASE I ENVIRONMENTAL SITE ASSESSMENT
 TERRACE, B.C.**

TITLE
**KITSUMKALUM IR#1
 SITE PLAN**

	PROJECT No.	13-1475-0024	FILE No.	1314750024-02	
	DESIGN	TJP	2013-12-11	SCALE	AS SHOWN
	CADD	AMW	2013-12-18	FIGURE	2
	CHECK	-	-		
REVIEW	-	-			



DALK-KA-GILA-QUOEUX
IR#2

KITSUMKALUM RIVER

KALUM LAKE RD

LEGEND

— INDIAN RESERVE BOUNDARY

REFERENCE

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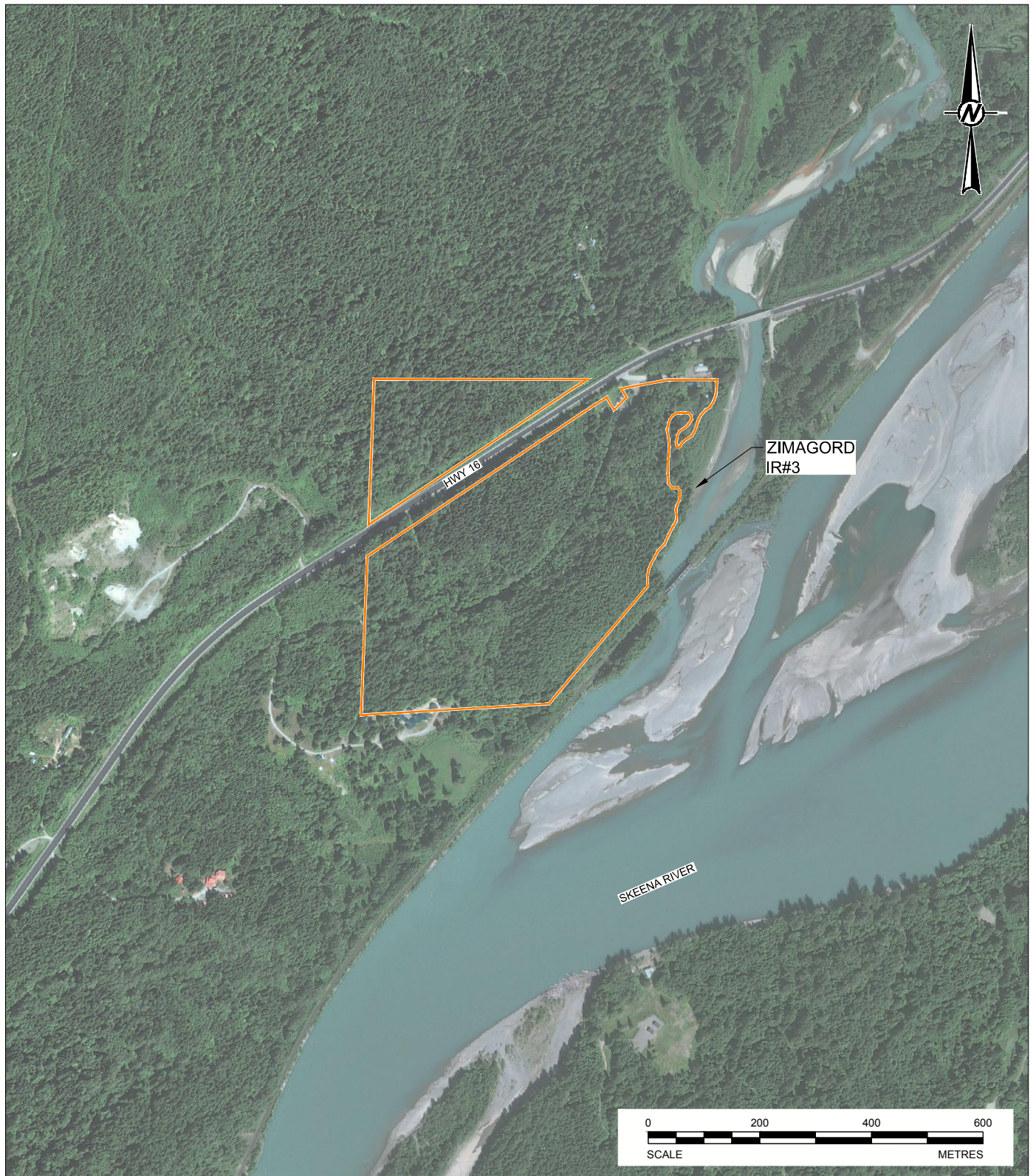
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DRAFT



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PROJECT		KITSUMKALUM FIRST NATION PHASE I ENVIRONMENTAL SITE ASSESSMENT TERRACE, B.C.				
TITLE		DALK-KA-GILA-QUOEUX IR#2 SITE PLAN				
PROJECT No.		13-1475-0024	FILE No.		1314750024-02	
DESIGN	TJP	2013-12-11	SCALE		AS SHOWN	
CADD	AMW	2013-12-18	FIGURE		3	
CHECK	-	-				
REVIEW	-	-				





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LEGEND

— INDIAN RESERVE BOUNDARY

DRAFT

REFERENCE

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REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RWW

PROJECT	KITSUMKALUM FIRST NATION PHASE I ENVIRONMENTAL SITE ASSESSMENT TERRACE, B.C.
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TITLE	ZIMAGORD IR#3 SITE PLAN
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	PROJECT No.	13-1475-0024	FILE No.	1314750024-02	
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REVIEW	-	-			

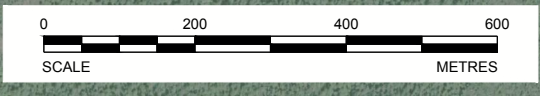


LOWER SKEENA RIVER

ECSTALL ISLAND

ECSTALL RIVER

PORT ESSINGTON



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LEGEND

— INDIAN RESERVE BOUNDARY

DRAFT

REFERENCE

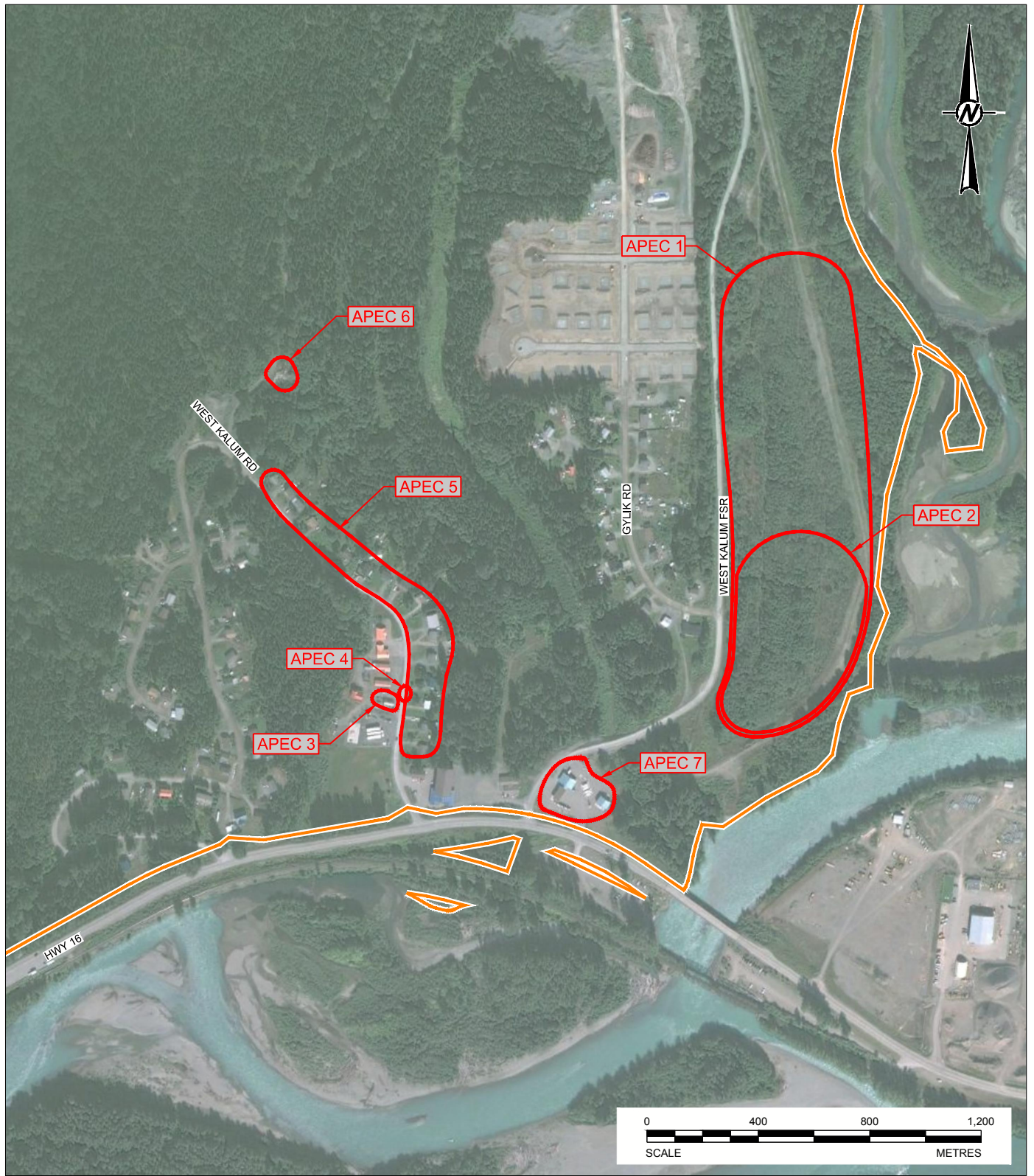
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△	2013-12-18	DRAFT - FOR INTERNAL REVIEW	TJP	AMW	-	-
REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RWW

PROJECT
**KITSUMKALUM FIRST NATION
 PHASE I ENVIRONMENTAL SITE ASSESSMENT
 TERRACE, B.C.**

TITLE
**PORT ESSINGTON
 SITE PLAN**

	PROJECT No.	13-1475-0024	FILE No.	1314750024-02	
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	CADD	AMW	2013-12-18	FIGURE	5
	CHECK	-	-		
REVIEW	-	-			



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- INDIAN RESERVE BOUNDARY
- AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APEC)

DRAFT

REFERENCE

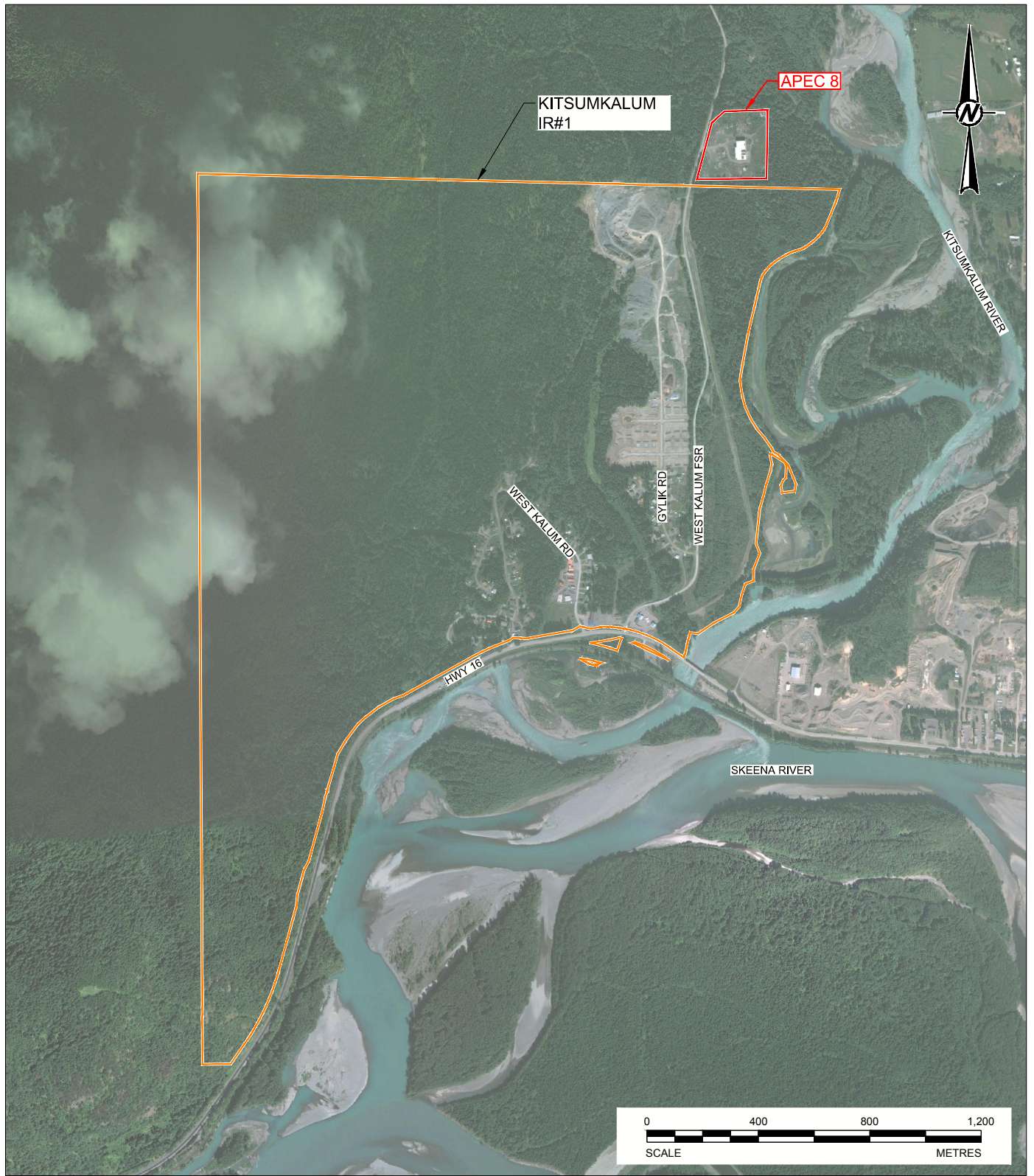
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REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RWW

PROJECT **KITSUMKALUM FIRST NATION
 PHASE I ENVIRONMENTAL SITE ASSESSMENT
 TERRACE, B.C.**

TITLE **KITSUMKALUM IR#1
 ON-SITE AREAS OF POTENTIAL
 ENVIRONMENTAL CONCERN**

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REVIEW	-	-			



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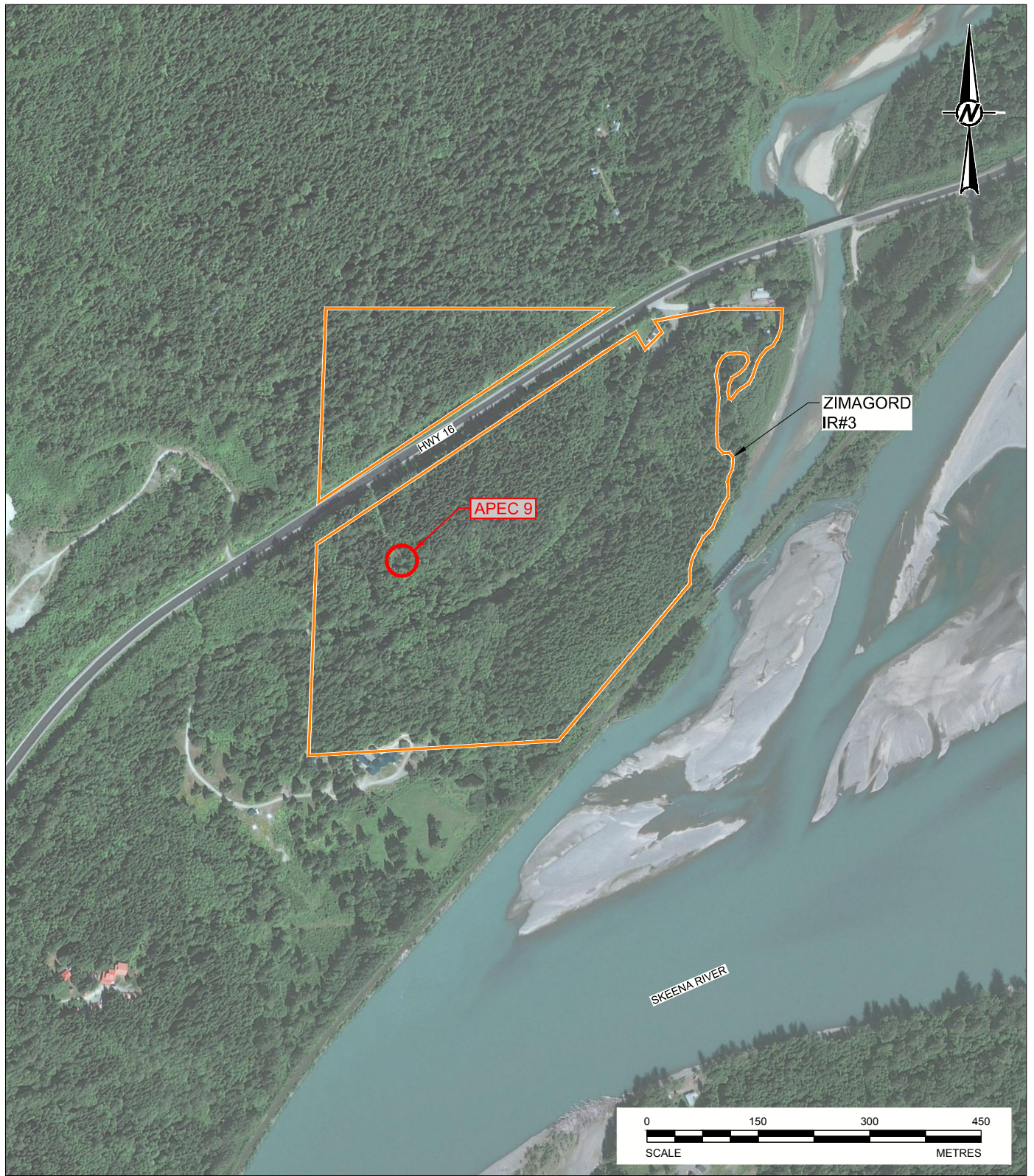
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PROJECT	KITSUMKALUM FIRST NATION PHASE I ENVIRONMENTAL SITE ASSESSMENT TERRACE, B.C.
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TITLE	OFF-SITE AREAS OF POTENTIAL ENVIRONMENTAL CONCERN
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	PROJECT No.	13-1475-0024	FILE No.	1314750024-04	
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LEGEND

- INDIAN RESERVE BOUNDARY
- AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APEC)

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REFERENCE

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REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RWW
PROJECT						
KITSUMKALUM FIRST NATION PHASE I ENVIRONMENTAL SITE ASSESSMENT TERRACE, B.C.						
TITLE						
ZIMAGORD IR#3 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN						
PROJECT No. 13-1475-0024			FILE No. 1314750024-03			
DESIGN	TJP	2014-01-29	SCALE AS SHOWN			
CADD	JEF	2014-01-29	FIGURE			
CHECK	-	-	8			
REVIEW	-	-				





APPENDIX A

Canadian Climate Normals

Climate

[Home](#) > [Data](#) > [Climate Normals & Averages](#)

Canadian Climate Normals 1971-2000 Station Data

The minimum number of years used to calculate these Normals is indicated by a [code](#) for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

Metadata including Station Name, Province, Latitude, Longitude, Elevation, Climate ID, WMO ID, TC ID

PRINCE RUPERT A * BRITISH COLUMBIA				
Latitude:	54°17'33.000" N	Longitude:	130°26'41.000" W	Elevation: 35.40 m
Climate ID:	1066481	WMO ID:		TC ID:

* This station meets [WMO standards](#) for temperature and precipitation.

1971 to 2000 Canadian Climate Normals station data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Temperature:														
Daily Average (°C)	1.3	2.5	3.9	6	8.7	11.1	13.1	13.5	11.3	7.9	4.1	2.2	7.1	A
Standard Deviation	2.7	2.2	1.3	1	1	0.8	0.7	0.8	0.8	1	2.3	2.2	0.7	A
Daily Maximum (°C)	4.6	5.9	7.4	9.9	12.3	14.2	16.1	16.7	14.9	11.1	7.1	5.1	10.5	A
Daily Minimum (°C)	-2.1	-1	0.3	2.1	5	8	10.1	10.3	7.6	4.7	0.9	-0.8	3.8	A
Extreme Maximum (°C)	17.6	18.9	18.5	23.3	27.9	27.4	27.8	28.7	27	21.7	18.9	18.9		
Date (yyyy/dd)	1986/13	1992/27	1994/28	1976/28	1993/13	1991/20	1976/30	1977/14	1989/08	1987/01	1962/02	1962/12		
Extreme Minimum (°C)	-24.4	-18.1	-17.2	-7.1	-2.2	1.1	2.8	2.8	-2.2	-11.3	-20.6	-22.8		
Date (yyyy/dd)	1965/04	1986/18	1976/02	1990/07	1996/08	1963/07	1972/01	1969/23	1972/26	1984/31	1985/26	1968/28		
Precipitation:														
Rainfall (mm)	217.7	179	174.4	173.3	139.5	123.7	114.3	155.4	244	378.9	293.7	274.7	2468.5	A
Snowfall (cm)	40.9	26.1	17.1	5.1	0.1	0	0	0	0	0.3	9.6	27.1	126.3	A
Precipitation (mm)	256.9	203.9	191.6	178.7	139.5	123.7	114.3	155.4	244	379.2	304.4	302	2593.6	A
Average Snow Depth (cm)	4	3	1	0	0	0	0	0	0	0	0	2	1	A
Median Snow Depth (cm)	2	1	0	0	0	0	0	0	0	0	0	1	0	A
Snow Depth at Month-end (cm)	4	2	0	0	0	0	0	0	0	0	0	2	1	A
Extreme Daily	84	100.6	53.2	98.6	56.8	64.2	67.2	87.6	118.2	107.8	73.6	93.2		

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Rainfall (mm)														
Date (yyyy/dd)	1982/08	1997/15	1981/27	1972/26	1979/25	1987/11	1988/23	1967/10	1983/25	1986/05	1993/19	1990/07		
Extreme Daily Snowfall (cm)	39.9	25.6	22	10.4	1.5	0	0	0	0.2	4	19.8	30		
Date (yyyy/dd)	1973/20	1982/16	1995/07	1972/05	1964/12	1962/08	1962/01	1962/01	1994/06	1984/29	1977/17	2000/15		
Extreme Daily Precipitation (mm)	84	100.6	53.2	98.6	56.8	64.2	67.2	87.6	118.2	107.8	73.6	93.2		
Date (yyyy/dd)	1982/08	1997/15	1981/27	1972/26	1979/25	1987/11	1988/23	1967/10	1983/25	1986/05	1993/19	1990/07		
Extreme Snow Depth (cm)	76	66	41	10	8	0	0	0	0	70	23	43		
Date (yyyy/dd)	1965/09	1969/05	1972/08	1972/06	1986/01	1962/01	1962/01	1962/01	1962/01	1994/20	1970/29	1964/14		
Days with Maximum Temperature:														
<= 0 °C	4	1.6	0.20	0	0	0	0	0	0	0.07	1.1	2.6	9.5	A
> 0 °C	27	26.7	30.8	30	31	30	31	31	30	30.9	28.9	28.4	355.8	A
> 10 °C	1.9	2.8	4.6	12.6	25.1	29.7	31	31	29.6	20.7	4.5	1.5	194.9	A
> 20 °C	0	0	0	0.40	0.67	0.47	1.4	2.1	0.68	0.07	0	0	5.8	A
> 30 °C	0	0	0	0	0	0	0	0	0	0	0	0	0	A
> 35 °C	0	0	0	0	0	0	0	0	0	0	0	0	0	A
Days with Minimum Temperature:														
> 0 °C	12.8	12.9	16.6	22.3	29.5	30	31	31	29.4	26.8	19	15.1	276.3	A
<= 2 °C	22.8	20	19.9	14.9	5.1	0.10	0	0	1.8	7.2	16.2	21.1	129.2	A
<= 0 °C	18.2	15.4	14.2	7.7	1.5	0	0	0	0.32	4.2	10.9	15.9	88.4	A
< -2 °C	12.1	10.1	7.9	2.1	0.03	0	0	0	0.04	1.2	6	9.6	49	A
< -10 °C	4.1	2	0.13	0	0	0	0	0	0	0.07	0.96	2	9.2	A
< -20 °C	0.10	0	0	0	0	0	0	0	0	0	0.04	0	0.14	A
< -30 °C	0	0	0	0	0	0	0	0	0	0	0	0	0	A
Days with Rainfall:														
>= 0.2 mm	17	16	20	19.3	18.5	17.8	16.8	16.9	18.7	24.2	22.5	20.4	228.2	A
>= 5 mm	11.3	10.1	11.3	10.3	9	8.1	7.6	8.5	11.1	17.9	15.4	14.1	134.7	A
>= 10 mm	7.7	6.4	6.7	5.5	5.1	4.2	4.3	5.7	8	13	10.4	9.9	87.1	A
>= 25 mm	2.5	1.6	0.97	1.3	0.72	0.69	0.52	1.3	3.1	4.7	3	3	23.5	A
Days With Snowfall:														
>= 0.2 cm	7.3	5.2	4.6	1.8	0.07	0	0	0	0.04	0.24	2.9	5.5	27.6	A
>= 5 cm	2.8	1.9	1.2	0.40	0	0	0	0	0	0	0.64	1.8	8.7	A
>= 10 cm	1.2	0.97	0.40	0.03	0	0	0	0	0	0	0.21	0.79	3.6	A
>= 25 cm	0.13	0.07	0	0	0	0	0	0	0	0	0	0.04	0.24	A
Days with Precipitation:														

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
>= 0.2 mm	20.8	18.7	21.7	19.7	18.5	17.9	16.8	16.9	18.7	24.3	23.1	22.6	239.7	A
>= 5 mm	13.8	11.9	12.5	10.8	9	8.1	7.6	8.5	11.1	17.9	16	15.6	142.7	A
>= 10 mm	9	7.4	7.4	5.8	5.1	4.2	4.3	5.7	8	13.1	10.9	11	91.9	A
>= 25 mm	2.7	1.7	1.1	1.3	0.72	0.69	0.52	1.3	3.1	4.7	3.1	3.2	24.2	A
Days with Snow Depth:														
>= 1 cm	10.2	7	2.9	0.37	0.07	0	0	0	0	0.14	1.8	5.2	27.6	A
>= 5 cm	7.5	4.6	1.8	0.17	0.07	0	0	0	0	0.03	0.61	3.5	18.2	A
>= 10 cm	5.3	2.7	1	0.10	0	0	0	0	0	0.03	0.39	2.8	12.3	A
>= 20 cm	2.1	0.79	0.52	0	0	0	0	0	0	0.03	0	1.1	4.5	A
Wind:														
Speed (km/h)	14.3	14.7	14.5	14.5	12.9	11.3	9.6	9.6	10.8	14.5	14.7	15	13.1	A
Most Frequent Direction	SE	SE	SE	SE	SE	W	W	SE	SE	SE	SE	SE	SE	A
Maximum Hourly Speed (km/h)	89	74	70	74	64	55	64	54	74	93	89	87		
Date (yyyy/dd)	1986/13	1976/22	1977/11	1970/05	1971/10	1967/27	1970/06	1999/28	1988/28	1964/18	1968/28	1981/18		
Direction of Maximum Hourly Speed	SE	S	SE	S	SE	SE	SE	S	S	SE	SE	SE	SE	
Maximum Gust Speed (km/h)	115	113	113	109	96	76	64	70	96	135	137	133		
Date (yyyy/dd)	1986/13	1972/19	1971/01	1968/29	1987/03	1984/27	1970/06	1991/08	1988/28	1964/18	1968/28	1981/18		
Direction of Maximum Gust	SE	S	SE	S	SE	SE	SE	SE	S	SE	SE	SE	SE	
Days with Winds >= 52 km/h	2.5	2.1	1.3	0.9	0.5	0	0	0.1	0.3	1.8	2.4	2.5	14.4	C
Days with Winds >= 63 km/h	0.6	0.7	0.3	0.2	0.2	0	0	0	0	0.4	0.6	0.7	3.8	C
Degree Days:														
Above 24 °C	0	0	0	0	0	0	0	0	0	0	0	0	0	A
Above 18 °C	0	0	0	0	0	0	0.1	0.1	0	0	0	0	0.3	A
Above 15 °C	0	0	0	0	0.3	0.3	2.7	4.7	0.9	0	0	0	8.8	A
Above 10 °C	0.2	0.4	0.1	1.6	11.4	40.6	97.7	108.7	49.1	10.4	0.7	0.1	320.9	A
Above 5 °C	13.2	13.5	17.4	43.4	114.4	183.4	252.5	263.5	187.1	98.2	26.4	13.4	1226.3	A
Above 0 °C	85.2	90.3	123.4	180.5	268.9	333.4	407.5	418.5	337.1	246.7	133	96.3	2720.8	A
Below 0 °C	45.6	21	3.7	0	0	0	0	0	0	0.7	13.8	27.4	112.2	A
Below 5 °C	128.6	85.6	52.7	12.8	0.5	0	0	0	0.1	7.2	57.1	99.6	444.1	A
Below 10 °C	270.6	213.9	190.4	121	52.5	7.2	0.3	0.1	12	74.4	181.5	241.2	1365.1	A
Below 15 °C	425.4	354.9	345.3	269.5	196.4	116.9	60.2	51.1	113.8	219	330.8	396.1	2879.4	A

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Below 18 °C	518.4	439.7	438.3	359.5	289.1	206.6	150.7	139.6	203	312	420.8	489.1	3966.7	A
Bright Sunshine:														
Total Hours	43.7	64.8	99.6	139.5	173.5	147.6	146.7	151	113	71	46.6	32.1	1229.1	C
Days with measureable	15.6	17.3	21.5	24	25.5	23.7	25	24.6	23.1	20.1	16.6	13.2	250.3	C
% of possible daylight hours	17.7	23.6	27.2	33.1	35	28.8	28.5	32.7	29.5	21.7	18.2	13.9	25.8	C
Extreme Daily	7.8	9.6	11.5	14.3	15.2	16	15.7	14.6	11.9	9.5	8.6	7.2		A
Date (yyyy/dd)	1988/30	1989/28	1983/21	1984/26	1985/31	1986/03	1972/03	1980/11	1993/02	1990/04	1973/03	1985/01		
Humidex:														
Extreme Humidex	17.2	18.6	17.9	22.8	29.3	27.8	29.1	31.6	28.5	23.4	19.3	16.1		
Date (yyyy/dd)	1986/13	1992/26	1994/28	1976/28	1983/29	1991/20	1976/30	1977/14	1988/03	1969/07	1962/02	1962/12		
Days with Humidex >= 30	0	0	0	0	0	0	0	0.1	0	0	0	0	0.1	A
Days with Humidex >= 35	0	0	0	0	0	0	0	0	0	0	0	0	0	A
Days with Humidex >= 40	0	0	0	0	0	0	0	0	0	0	0	0	0	A
Wind Chill:														
Extreme Wind Chill	-34.2	-25.4	-22.9	-11.5	-5.4	-1.3	1.3	0	-6	-16.8	-27.8	-31		
Date (yyyy/dd)	1965/04	1989/01	1976/02	1966/12	1962/05	1974/04	1978/02	1973/31	1972/26	1984/31	1985/26	1968/28		
Days with Wind Chill < -20	1.5	0.5	0	0	0	0	0	0	0	0	0.2	0.6	2.8	A
Days with Wind Chill < -30	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	A
Days with Wind Chill < -40	0	0	0	0	0	0	0	0	0	0	0	0	0	A
Humidity:														
Average Vapour Pressure (kPa)	0.6	0.6	0.7	0.7	0.9	1.1	1.3	1.4	1.2	0.9	0.7	0.6	0.9	A
Average Relative Humidity - 0600LST (%)	85.5	82.7	85.6	87.6	89.8	91.4	93.6	94.6	92.8	89.2	85.6	84.6	88.6	A
Average Relative Humidity - 1500LST (%)	77.8	71.4	69.4	68.3	71	75.8	77.8	78.9	77.1	77.7	77.5	80.6	75.3	A
Pressure:														
	100.7	100.6	100.7	101	101.1	101.2	101.4	101.3	101.1	100.8	100.5	100.7	100.9	A

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Average Station Pressure (kPa)														
Average Sea Level Pressure (kPa)	101.1	101	101.1	101.4	101.5	101.6	101.8	101.7	101.5	101.2	100.9	101.1	101.3	A
Visibility (hours with):														
< 1 km	11.2	8.3	6.2	5.7	2.7	7.3	23.9	36.4	33.1	11.8	2.7	7	156.2	C
1 to 9 km	98.2	72.9	70	50	45.9	59.8	87	101.1	89.1	81	67.1	101.7	923.8	C
> 9 km	634.7	597.7	667.8	664.3	695.5	653	633	606.5	597.8	651.2	650.2	635.3	7686.9	C
Cloud Amount (hours with):														
0 to 2 tenths	114.7	118.3	101.8	92.1	89.8	58.4	74.3	95.2	121.2	83.1	92.5	95.2	1136.6	C
3 to 7 tenths	97	96.8	134.5	140.6	144	133.4	126.5	136.7	132.8	124.5	106.3	110.9	1483.8	C
8 to 10 tenths	532.3	463	507.7	487.3	510.2	528.2	543.2	512.1	466.1	536.5	521.2	537.9	6145.7	C

Legend

- A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for **either** temperature **or** precipitation)
- B = At least 25 years
- C = At least 20 years
- D = At least 15 years

Date modified: 2013-11-12

Climate

[Home](#) > [Data](#) > [Climate Normals & Averages](#)

Canadian Climate Normals 1971-2000 Station Data

The minimum number of years used to calculate these Normals is indicated by a [code](#) for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

Metadata including Station Name, Province, Latitude, Longitude, Elevation, Climate ID, WMO ID, TC ID

TERRACE PCC * BRITISH COLUMBIA					
Latitude:	54°30'07.000" N	Longitude:	128°37'29.000" W	Elevation:	58.20 m
Climate ID:	1068131	WMO ID:		TC ID:	

* This station meets [WMO standards](#) for temperature and precipitation.

1971 to 2000 Canadian Climate Normals station data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Temperature:														
Daily Average (°C)	-3.5	-0.5	3.2	6.9	10.9	14.1	16.6	16.5	12.6	7.1	1.5	-2.1	6.9	A
Standard Deviation	3.5	2.7	1.6	1.3	1.4	1.5	1.3	1.3	1.2	1.2	2.4	2.9	0.9	A
Daily Maximum (°C)	-0.8	2.6	7.3	12.2	16.7	19.6	22.3	22.1	17.5	10.4	3.7	0.2	11.2	A
Daily Minimum (°C)	-6.2	-3.7	-1	1.6	5.1	8.5	10.9	10.9	7.7	3.8	-0.8	-4.3	2.7	A
Extreme Maximum (°C)	9.5	11	19	26.1	35	34.4	35	36.5	33.3	22.5	14.4	11.5		
Date (yyyy/dd)	1996/11	1981/28	1994/28	1976/29	1983/29	1969/15	1991/23	1990/11	1974/01	1993/02	1970/01	1980/14		
Extreme Minimum (°C)	-25.6	-22.8	-16.7	-6.7	-2.8	1	3	1.1	-2.5	-12	-23.5	-25.6		
Date (yyyy/dd)	1972/27	1971/04	1974/07	1968/12	1971/09	1985/06	1985/26	1973/31	1982/30	1984/31	1985/26	1968/29		
Precipitation:														
Rainfall (mm)	69.4	64.4	57.3	56.9	47.4	46.9	47.3	57.4	93.6	173.3	134	108.4	956.2	A
Snowfall (cm)	68.3	35	13.4	2.1	0	0	0	0	0	1	25.8	59	204.4	A
Precipitation (mm)	137.7	99.4	70.7	58.9	47.4	46.9	47.3	57.4	93.6	174.3	159.7	167.4	1160.6	A
Extreme Daily Rainfall (mm)	44	39.4	35.4	50	38.4	29	33.6	40.7	97	85.9	63	74		
Date (yyyy/dd)	1987/09	1984/19	1979/06	1981/04	1999/22	1986/14	1980/04	1978/06	1992/28	1978/31	1975/11	1999/03		
Extreme Daily	61.5	66.8	46.7	27.9	0.5	0	0	0	0	11	51	48		

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Snowfall (cm)														
Date (yyyy/dd)	1971/17	1972/18	1971/01	1972/04	1985/11	1968/01	1968/01	1968/01	1968/01	1991/29	1999/28	1990/03		
Extreme Daily Precipitation (mm)	61.5	66.8	46.7	50	38.4	29	33.6	40.7	97	85.9	78.7	74		
Date (yyyy/dd)	1971/17	1972/18	1971/01	1981/04	1999/22	1986/14	1980/04	1978/06	1992/28	1978/31	1975/11	1999/03		
Extreme Snow Depth (cm)	61	94	39	6	0	0	0	0	0	0	51	86		
Date (yyyy/dd)	1982/13	1999/12	1999/01	1996/03	1981/01	1981/01	1981/01	1980/01	1981/01	1981/01	1999/29	1990/04		
Days with Maximum Temperature:														
<= 0 °C	13.7	6.5	1.2	0	0	0	0	0	0	0.20	4.1	11.4	37	A
> 0 °C	17.3	21.8	29.8	30	31	30	31	31	30	30.8	25.9	19.6	328.2	A
> 10 °C	0	0.13	6	19.1	29.7	29.9	31	31	29.3	15.4	0.67	0.07	192.3	A
> 20 °C	0	0	0	1.4	6.5	11.3	18.5	18	6.6	0.13	0	0	62.5	A
> 30 °C	0	0	0	0	0.24	0.57	2.2	1.8	0.13	0	0	0	5	A
> 35 °C	0	0	0	0	0	0	0	0.10	0	0	0	0	0.10	A
Days with Minimum Temperature:														
> 0 °C	4.4	6.9	11.8	19.6	29.1	30	31	31	29.4	26.4	13.2	5.3	238.3	A
<= 2 °C	30.3	27.3	27.3	17.2	5.5	0.40	0	0.10	1.8	8.8	24.5	30.4	173.6	A
<= 0 °C	26.6	21.4	19.2	10.4	1.9	0	0	0	0.60	4.6	16.8	25.7	127	A
< -2 °C	18.3	13.5	9.8	3.2	0.11	0	0	0	0.03	1.3	7.2	15.4	68.8	A
< -10 °C	8.9	3.8	0.53	0	0	0	0	0	0	0.07	1.2	4.9	19.4	A
< -20 °C	1	0.14	0	0	0	0	0	0	0	0	0.10	0.67	1.9	A
< -30 °C	0	0	0	0	0	0	0	0	0	0	0	0	0	A
Days with Rainfall:														
>= 0.2 mm	9.5	10.5	13.7	15.5	14.3	14.9	12.9	13.7	16.3	21.7	17.4	11.8	172.1	A
>= 5 mm	4.6	4.4	4	3.4	2.9	3	2.9	3.9	5.5	9.7	7.2	5.8	57.3	A
>= 10 mm	2.4	2.1	1.6	1.5	0.80	0.97	0.93	1.5	2.3	5.3	4.1	3.4	26.9	A
>= 25 mm	0.54	0.39	0.07	0.20	0.13	0.03	0.13	0.23	0.67	1.5	1.2	1.2	6.3	A
Days With Snowfall:														
>= 0.2 cm	9.4	6.6	3	0.50	0.03	0	0	0	0	0.43	5.4	10.6	35.9	A
>= 5 cm	4.6	2.3	0.76	0.10	0	0	0	0	0	0.03	1.5	4.3	13.6	A
>= 10 cm	2.1	0.93	0.38	0.03	0	0	0	0	0	0.03	0.66	1.8	5.9	A
>= 25 cm	0.57	0.14	0.07	0.03	0	0	0	0	0	0	0.17	0.25	1.2	A
Days with Precipitation:														
>= 0.2 mm	16.5	14.9	15.5	15.6	14.3	14.9	12.9	13.7	16.3	21.8	20.3	18.8	195.5	A
>= 5 mm	9	6.5	4.7	3.4	2.9	3	2.9	3.9	5.5	9.7	8.6	9.7	69.9	A
>= 10 mm	4.9	3.1	2.1	1.5	0.80	0.97	0.93	1.5	2.3	5.4	4.8	5.5	33.7	A

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
>= 25 mm	1.2	0.64	0.17	0.23	0.13	0.03	0.13	0.23	0.67	1.5	1.5	1.6	8	A
Degree Days:														
Above 24 °C	0	0	0	0	0	0	0.1	0.2	0	0	0	0	0.2	A
Above 18 °C	0	0	0	0	0.7	4.1	18.3	17.5	1	0	0	0	41.5	A
Above 15 °C	0	0	0	0	4.1	21.7	62.1	60.5	8.6	0	0	0	157.1	A
Above 10 °C	0	0	0	6.1	48	124	203	202	85.5	8.4	0.1	0	677.1	A
Above 5 °C	0.2	0.5	12.1	66.8	182.7	273.2	358	357	228.1	77.5	5.7	0.3	1562.1	A
Above 0 °C	24.5	43.1	108.4	207.6	337.6	423.2	513	512	377.9	221.2	72.7	26.6	2867.9	A
Below 0 °C	133.7	57.9	10.4	0	0	0	0	0	0	1.2	28.4	91.4	323	A
Below 5 °C	264.4	156.5	69	9.2	0.1	0	0	0	0.2	12.5	111.5	220	843.4	A
Below 10 °C	419.3	297.1	212	98.5	20.4	0.8	0	0	7.6	98.4	255.8	374.8	1784.6	A
Below 15 °C	574.3	438.3	367	242.5	131.5	48.5	14.1	13.5	80.7	245	405.7	529.8	3090.8	A
Below 18 °C	667.3	523.1	460	332.4	221.1	120.9	63.2	63.5	163.1	338	495.7	622.8	4070.9	A

Legend

- A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for **either** temperature **or** precipitation)
- B = At least 25 years
- C = At least 20 years
- D = At least 15 years

Date modified: 2013-11-12



APPENDIX B

BC Water Resources Atlas

128-43 W

128-42 W

128-41 W

128-40 W

128-39 W

54-32-30 N

54-32-0 N

54-31-30 N

54-31-0 N

54-30-30 N

54-32-30 N

54-32-0 N

54-31-30 N

54-31-0 N

54-30-30 N

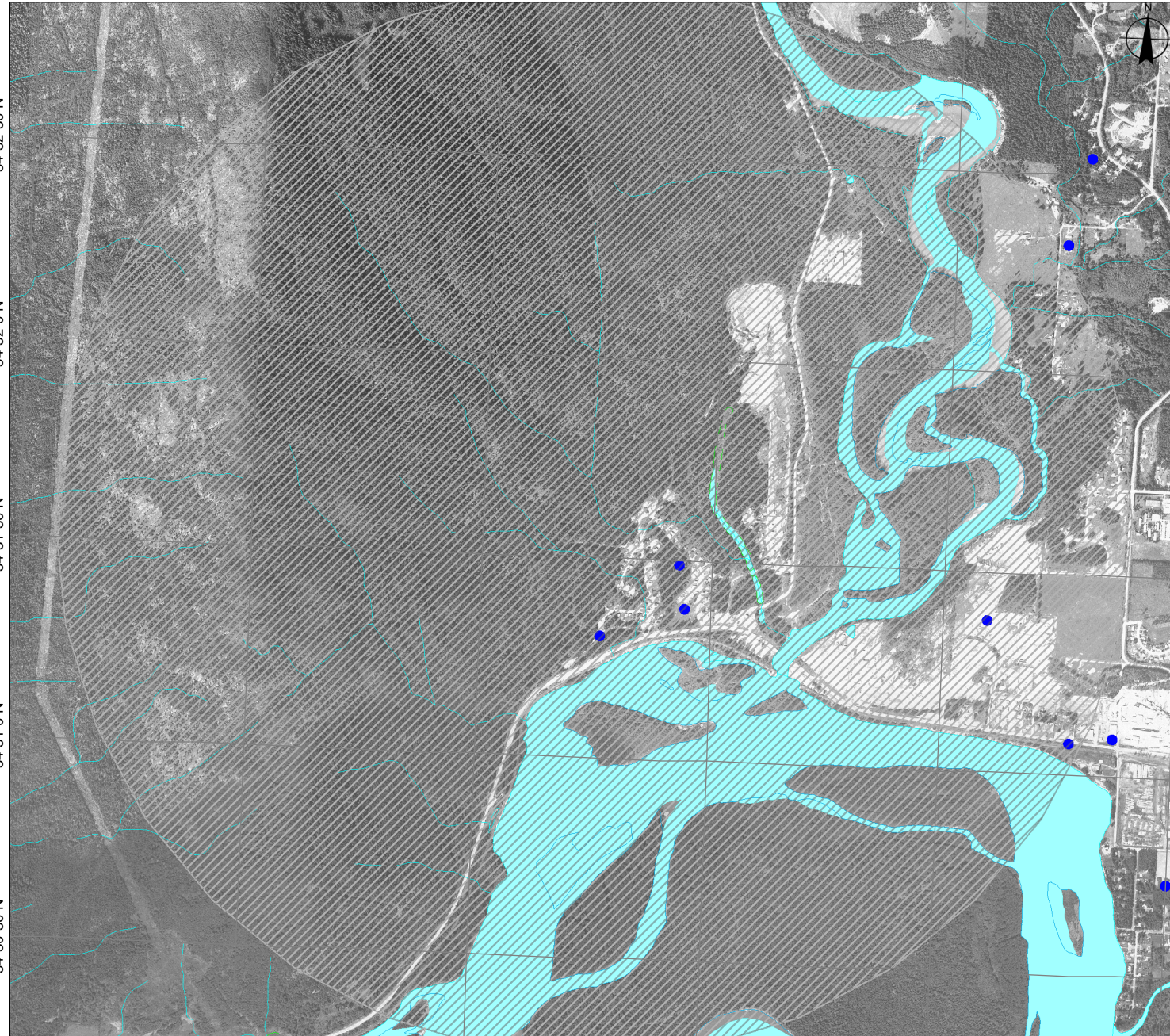
128-42 W

128-41 W

128-40 W

128-39 W

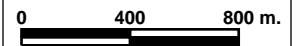
128-38 W



Kitsumkaylum Water Wells

Legend

- Water Wells



Scale: 1:27,845

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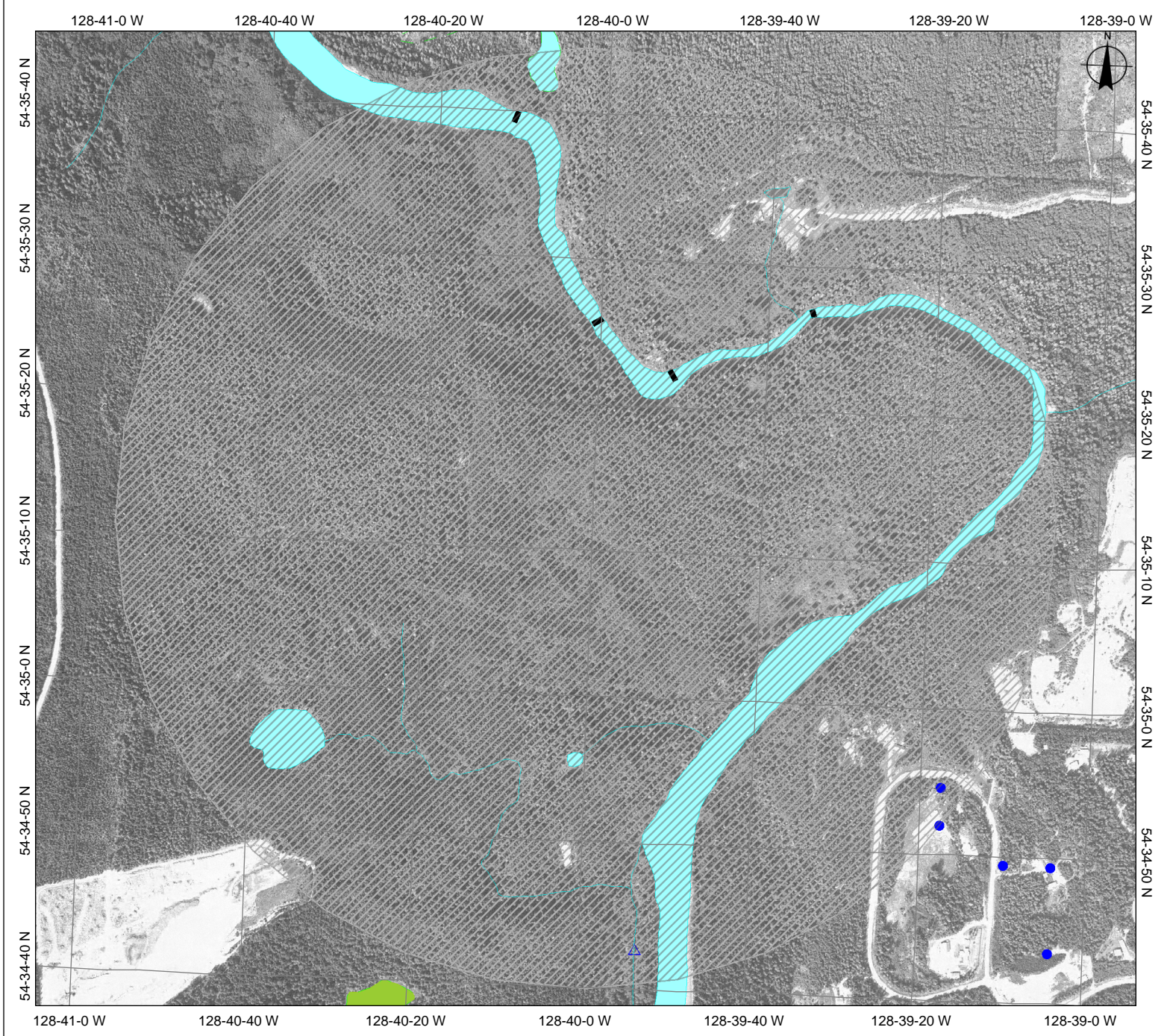
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Datum/Projection: NAD83, Albers Equal Area Conic

Key Map of British Columbia

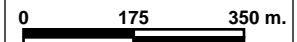




Dalk-Ka-Gila-Quoeux Water Wells

Legend

- Water Wells



Scale: 1:12,000

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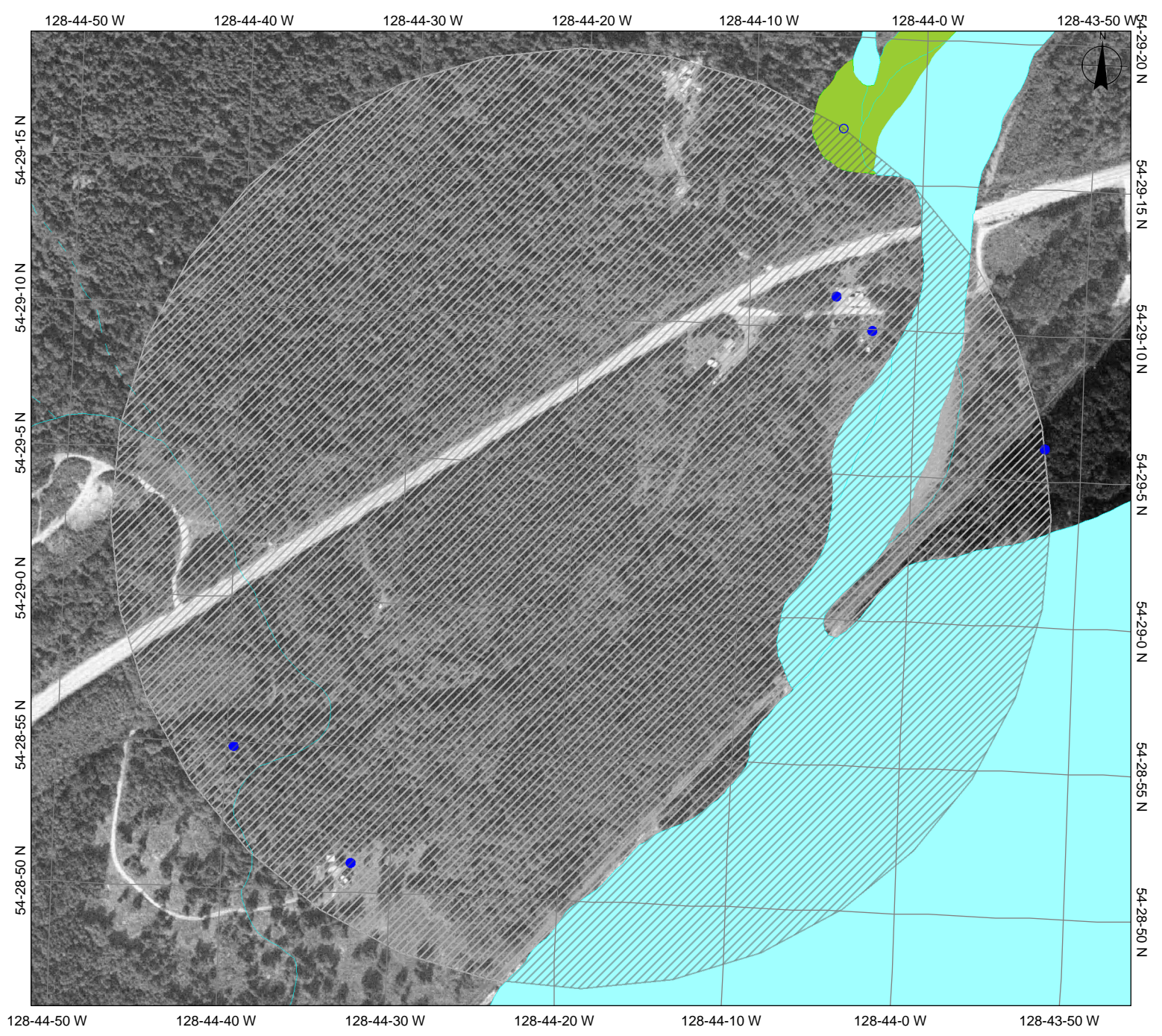
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Datum/Projection: NAD83, Albers Equal Area Conic

Key Map of British Columbia

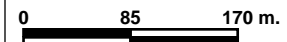




Zimagord Water Wells

Legend

- Water Wells



Scale: 1:6,000

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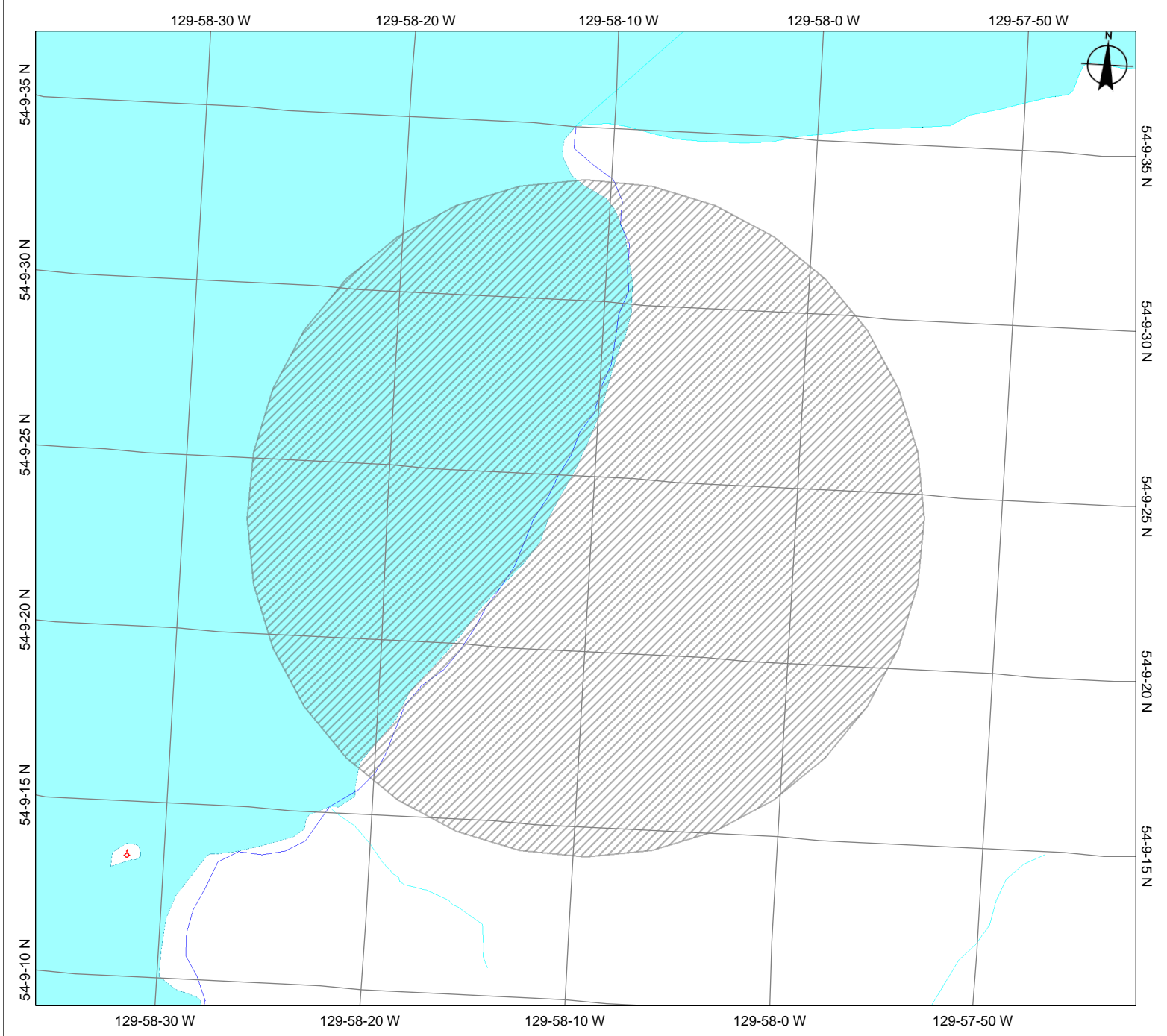
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Datum/Projection: NAD83, Albers Equal Area Conic

Key Map of British Columbia

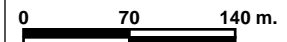




Port Essington Water Wells

Legend

- Water Wells



Scale: 1:5,000

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Datum/Projection: NAD83, Albers Equal Area Conic

Key Map of British Columbia





APPENDIX C

EcoLog ERIS Search



REPORT



Project Property: *Reserve
521037.34 m E, 6042116.50 m N
Kitsumkaylum IR #1 BC*

Report Type: *Custom-Build Your Own Report*

Order #: *20131101004*

Date: *November 11, 2013*

EcoLog ERIS Ltd.
Environmental Risk
Information Service Ltd. (ERIS)
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Executive Summary

Property Information:

Project Property: Reserve
521037.34 m E, 6042116.50 m N Kitsumkaylum IR #1 BC

Order Information:

Order No.: 20131101004
Date Requested: 11/11/2013
Requested by: Golder Associates Ltd.
Report Type: Custom-Build Your Own Report

Additional Products:

Executive Summary: Report Summary

Database	Name	Selected	On Site	Boundary to 0.50KM	Total
AMS	Authorization Management System (formerly WASTE)	Y	0	0	0
ARIS	Assessment Report Indexing System	Y	0	0	0
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
BCG	All BCG Registered Firms	Y	0	0	0
BOGW	BC Oil and Gas Wells	Y	0	0	0
CHEM	Chemical Register	Y	0	0	0
COAL	Coal Tar Sites	Y	0	0	0
CONV	Compliance and Enforcement Summary	Y	0	0	0
DIS	Wastewater Discharge Inventory	Y	0	0	0
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	0	0	0
EIS	Environmental Issues Inventory System	Y	0	0	0
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	5	1	6
FISH	Commercial Fisheries	Y	0	0	0
FOFT	Fisheries & Oceans Fuel Tanks	Y	0	0	0
GEN	Waste Generators Summary	Y	0	0	0
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
LUM	Lumber Mills	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Minerals Deposits Database	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defence & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defence & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBW	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGW	Oil and Gas Wells	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCB	Inventory of PCB Storage Sites	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	0	0
PRAI	Private Aggregate Inventory	Y	0	0	0
PUAI	Public Aggregate Inventory	Y	0	0	0

<i>Database</i>	<i>Name</i>	<i>Selected</i>	<i>On Site</i>	<i>Boundary to 0.50KM</i>	<i>Total</i>
REC	<i>Waste Receivers Summary</i>	Y	0	0	0
RST	<i>Retail Fuel Storage Tanks</i>	Y	1	0	1
SCT	<i>Scott's Manufacturing Directory</i>	Y	0	2	2
SREG	<i>Site Registry</i>	Y	0	2	2
TCFT	<i>Transport Canada Fuel Storage Tanks</i>	Y	0	0	0
WDS	<i>Waste Disposal Site Inventory</i>	Y	0	0	0
WWIS	<i>Water Well Information System</i>	Y	3	0	3
Total:			9	5	14

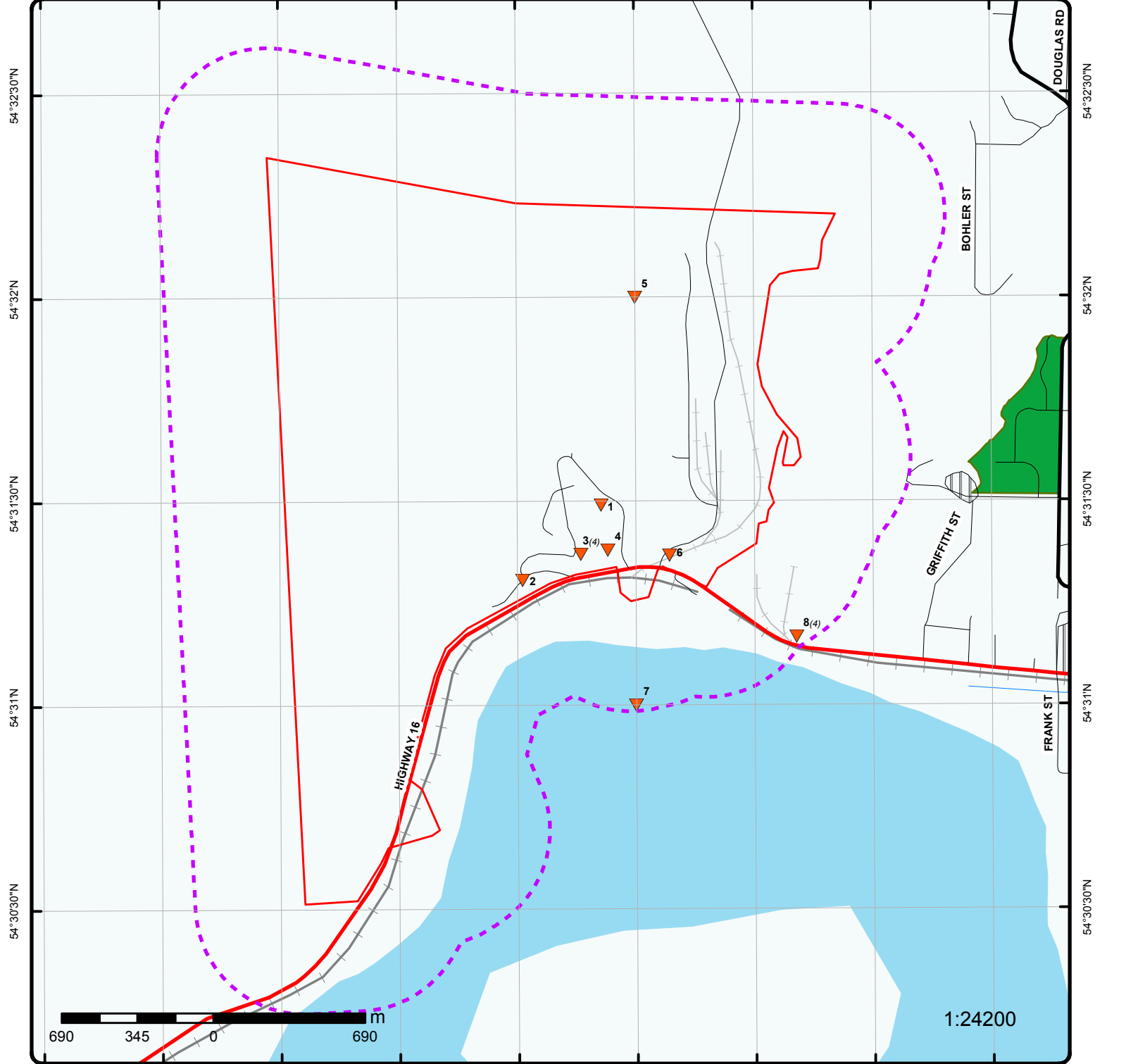
Executive Summary: Site Report Summary – Project Property

Map Key	DB	Company/Site Name	Address	Page Number
1	WWIS		UNKNOWN UNKNOWN BC	9
2	WWIS		CEMETARY ROAD ATLIN, PINE CREEK FAN BC	9
3	FCS		Kitsumkaylum 1 BC	10
3	FCS		Kitsumkaylum 1 BC	10
3	FCS		Kitsumkaylum 1 BC	11
3	FCS		Kitsumkaylum 1 BC	11
4	WWIS		KITSUMKALLUM COAST RANGE 5 BC	12
5	FCS		Kitsumkaylum 1 BC	12
6	RST	KITSUMKALUM TEMPO GAS STATION	WEST KALUM RD TERRACE BC	13

Executive Summary: Site Report Summary – Surrounding Properties

Map Key	DB	Company/Site Name	Address	Page Number
7	FCS		Kitimat-Stikine C (Part 1) BC	13
8	SCT	BELL POLE COMPANY	5630 Highway 16 W Terrace BC V8G	13
8	SCT	Bell Pole Company	5630 Hwy 16 W Terrace BC V8G 4R6	14
8	SREG		5630 HIGHWAY 16 WEST TERRACE BC V8G 4A6	14
8	SREG		5630 HIGHWAY 16 WEST TERRACE BC V8G 4A6	14

128°42'30"W 128°42'W 128°41'30"W 128°41'W 128°40'30"W 128°40'W 128°39'30"W 128°39'W 128°38'30"W

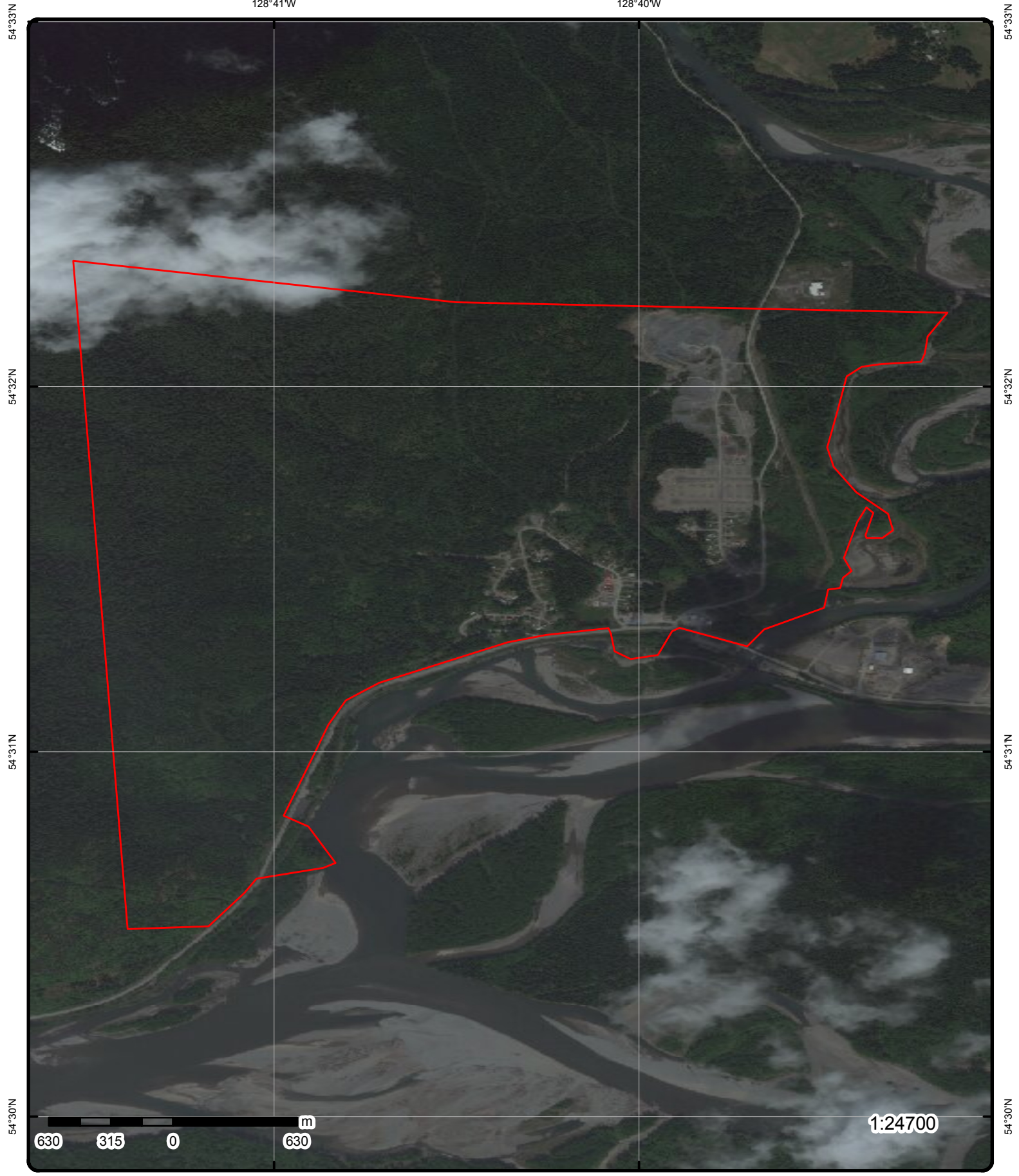


Map

Order No: 20131101004

Address: 521037.34 m E, 6042116.50 m N, Kitsumkaylum IR #1, BC

Project Property	Expressway	Industrial and Resource - Regions	National Park
Buffer Outline	Principal Highway	Main Line	Provincial or Territorial Park
Eris Sites with Higher Elevation	Secondary Highway	Sidetrack	Other Park
Eris Sites with Same Elevation	Major Road	Transit Line	Golf Course or Driving Range
Eris Sites with Lower Elevation	Local road	Abandoned Line	Park or Sports Field
Eris Sites with Unknown Elevation	Trail	Proposed Road	Other Recreation Area
	Proposed Road		
	Ferry Route/Ice Road		



Aerial

Order No: 20131101004

Address: 521037.34 m E, 6042116.50 m N, Kitsumkaylum IR #1, BC

Detail Report

Map Key	Number of Records	Elevation m	Site	DB		
1	1 of 1	69.5	UNKNOWN UNKNOWN BC	<u>WWIS</u>		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Well Tag No.: 101401</p> <p>Owner's Well No.:</p> <p>Land District:</p> <p>Lot:</p> <p>District Lot:</p> <p>Township:</p> <p>Legal Misc:</p> <p>PID:</p> <p>Longitude:</p> <p>Northing: 6041968</p> <p>Location Accuracy: G (unknown, accuracy based on parcel size) No ICF cadastre, poor or no location sketch; site located in center of primary parcel</p> <p>Observ. Well No.:</p> <p>Chemistry Site Id:</p> <p>Construction Start Dt: 1996-04-17 00:00:00</p> <p>Construction Method:</p> <p>Orientation of Well: Vertical</p> <p>Sub-Class of Well: Domestic</p> <p>Yield Units:</p> <p>Artesian Units:</p> <p>Aquifer Lithology:</p> <p>Water Depth: 15</p> <p>Final Well Depth: 64</p> <p>Surf Seal Flag:</p> <p>Surf Seal Material:</p> <p>Surf Seal Depth:</p> <p>General Remarks:</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Seq No.:</p> <p>BCGS Mapsheet:</p> <p>Well Owner:</p> <p>Plan:</p> <p>Section:</p> <p>Range:</p> <p>Island:</p> <p>Latitude:</p> <p>Easting: 521416</p> <p>Zone: 09</p> <p>Well Status: New</p> <p>Observ. Well Status:</p> <p>Other Chemistry Data:</p> <p>Construction End Dt: 1996-04-17 00:00:00</p> <p>Use: Private Domestic</p> <p>Class of Well: Water supply</p> <p>Est. Yield:</p> <p>Artesian Flow:</p> <p>Artesian Pressure:</p> <p>Bedrock Depth: 61</p> <p>Depth Well Drilled: 64</p> <p>Well Diameter:</p> <p>Surf Seal Method:</p> <p>Surf Seal Thickness:</p> <p>Aquifer No.:</p> </td> </tr> </table>					<p>Well Tag No.: 101401</p> <p>Owner's Well No.:</p> <p>Land District:</p> <p>Lot:</p> <p>District Lot:</p> <p>Township:</p> <p>Legal Misc:</p> <p>PID:</p> <p>Longitude:</p> <p>Northing: 6041968</p> <p>Location Accuracy: G (unknown, accuracy based on parcel size) No ICF cadastre, poor or no location sketch; site located in center of primary parcel</p> <p>Observ. Well No.:</p> <p>Chemistry Site Id:</p> <p>Construction Start Dt: 1996-04-17 00:00:00</p> <p>Construction Method:</p> <p>Orientation of Well: Vertical</p> <p>Sub-Class of Well: Domestic</p> <p>Yield Units:</p> <p>Artesian Units:</p> <p>Aquifer Lithology:</p> <p>Water Depth: 15</p> <p>Final Well Depth: 64</p> <p>Surf Seal Flag:</p> <p>Surf Seal Material:</p> <p>Surf Seal Depth:</p> <p>General Remarks:</p>	<p>Seq No.:</p> <p>BCGS Mapsheet:</p> <p>Well Owner:</p> <p>Plan:</p> <p>Section:</p> <p>Range:</p> <p>Island:</p> <p>Latitude:</p> <p>Easting: 521416</p> <p>Zone: 09</p> <p>Well Status: New</p> <p>Observ. Well Status:</p> <p>Other Chemistry Data:</p> <p>Construction End Dt: 1996-04-17 00:00:00</p> <p>Use: Private Domestic</p> <p>Class of Well: Water supply</p> <p>Est. Yield:</p> <p>Artesian Flow:</p> <p>Artesian Pressure:</p> <p>Bedrock Depth: 61</p> <p>Depth Well Drilled: 64</p> <p>Well Diameter:</p> <p>Surf Seal Method:</p> <p>Surf Seal Thickness:</p> <p>Aquifer No.:</p>
<p>Well Tag No.: 101401</p> <p>Owner's Well No.:</p> <p>Land District:</p> <p>Lot:</p> <p>District Lot:</p> <p>Township:</p> <p>Legal Misc:</p> <p>PID:</p> <p>Longitude:</p> <p>Northing: 6041968</p> <p>Location Accuracy: G (unknown, accuracy based on parcel size) No ICF cadastre, poor or no location sketch; site located in center of primary parcel</p> <p>Observ. Well No.:</p> <p>Chemistry Site Id:</p> <p>Construction Start Dt: 1996-04-17 00:00:00</p> <p>Construction Method:</p> <p>Orientation of Well: Vertical</p> <p>Sub-Class of Well: Domestic</p> <p>Yield Units:</p> <p>Artesian Units:</p> <p>Aquifer Lithology:</p> <p>Water Depth: 15</p> <p>Final Well Depth: 64</p> <p>Surf Seal Flag:</p> <p>Surf Seal Material:</p> <p>Surf Seal Depth:</p> <p>General Remarks:</p>	<p>Seq No.:</p> <p>BCGS Mapsheet:</p> <p>Well Owner:</p> <p>Plan:</p> <p>Section:</p> <p>Range:</p> <p>Island:</p> <p>Latitude:</p> <p>Easting: 521416</p> <p>Zone: 09</p> <p>Well Status: New</p> <p>Observ. Well Status:</p> <p>Other Chemistry Data:</p> <p>Construction End Dt: 1996-04-17 00:00:00</p> <p>Use: Private Domestic</p> <p>Class of Well: Water supply</p> <p>Est. Yield:</p> <p>Artesian Flow:</p> <p>Artesian Pressure:</p> <p>Bedrock Depth: 61</p> <p>Depth Well Drilled: 64</p> <p>Well Diameter:</p> <p>Surf Seal Method:</p> <p>Surf Seal Thickness:</p> <p>Aquifer No.:</p>					
2	1 of 1	76.0	CEMETARY ROAD ATLIN, PINE CREEK FAN BC	<u>WWIS</u>		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Well Tag No.: 85421</p> <p>Owner's Well No.: 6" TEST WELL</p> <p>Land District: CASSIAR</p> <p>Lot:</p> <p>District Lot:</p> <p>Township:</p> <p>Legal Misc:</p> <p>PID:</p> <p>Longitude:</p> <p>Northing: 6041625</p> <p>Location Accuracy: G (unknown, accuracy based on parcel size) No ICF cadastre, poor or no location</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Seq No.:</p> <p>BCGS Mapsheet:</p> <p>Well Owner: TAKU RIVER TLINGIT FIRST NATIONS</p> <p>Plan:</p> <p>Section:</p> <p>Range:</p> <p>Island:</p> <p>Latitude:</p> <p>Easting: 521060</p> <p>Zone: 9</p> <p>Well Status:</p> </td> </tr> </table>					<p>Well Tag No.: 85421</p> <p>Owner's Well No.: 6" TEST WELL</p> <p>Land District: CASSIAR</p> <p>Lot:</p> <p>District Lot:</p> <p>Township:</p> <p>Legal Misc:</p> <p>PID:</p> <p>Longitude:</p> <p>Northing: 6041625</p> <p>Location Accuracy: G (unknown, accuracy based on parcel size) No ICF cadastre, poor or no location</p>	<p>Seq No.:</p> <p>BCGS Mapsheet:</p> <p>Well Owner: TAKU RIVER TLINGIT FIRST NATIONS</p> <p>Plan:</p> <p>Section:</p> <p>Range:</p> <p>Island:</p> <p>Latitude:</p> <p>Easting: 521060</p> <p>Zone: 9</p> <p>Well Status:</p>
<p>Well Tag No.: 85421</p> <p>Owner's Well No.: 6" TEST WELL</p> <p>Land District: CASSIAR</p> <p>Lot:</p> <p>District Lot:</p> <p>Township:</p> <p>Legal Misc:</p> <p>PID:</p> <p>Longitude:</p> <p>Northing: 6041625</p> <p>Location Accuracy: G (unknown, accuracy based on parcel size) No ICF cadastre, poor or no location</p>	<p>Seq No.:</p> <p>BCGS Mapsheet:</p> <p>Well Owner: TAKU RIVER TLINGIT FIRST NATIONS</p> <p>Plan:</p> <p>Section:</p> <p>Range:</p> <p>Island:</p> <p>Latitude:</p> <p>Easting: 521060</p> <p>Zone: 9</p> <p>Well Status:</p>					

Map Key	Number of Records	Elevation m	Site	DB
			sketch; site located in center of primary parcel	
Observ. Well No.:				Observ. Well Status:
Chemistry Site Id:				Other Chemistry Data:
Construction Start Dt:	2004-11-22 00:00:00			Construction End Dt:
Construction Method:	DRI			Use: Abandoned
Orientation of Well:				Class of Well:
Sub-Class of Well:				Est. Yield: 5
Yield Units:	GPM			Artesian Flow:
Artesian Units:				Artesian Pressure:
Aquifer Lithology:	Bedrock			Bedrock Depth: 37
Water Depth:	5			Depth Well Drilled:
Final Well Depth:	155			Well Diameter: 6
Surf Seal Flag:	N			Surf Seal Method:
Surf Seal Material:				Surf Seal Thickness:
Surf Seal Depth:				Aquifer No.:
General Remarks:	6" TEST WELL. THIS WELL WAS DRILLED, THEN BACKFILLED AND ABANDONED.			

3 **1 of 4** **77.8** **Kitsumkaylum 1 BC** [FCS](#)

Site Id: 05048002
 Departmental Id: 7000105398
 Property No.:
 Site Name: 681 - Kitsumkalum - 07646 - KITSUMKAYLUM 1 / 7000105398
 Location:
 Municipality: Kitsumkaylum 1
 Census Division: Kitimat-Stikine
 Federal Electoral District: Skeena--Bulkley Valley
 Nearest Populated Area:
 Longitude: -128.67053
 Latitude: 54.52283
 Reporting Organization: Aboriginal Affairs and Northern Development Canada (Indian and Inuit Affairs Program)
 Reason for Involvement: A reserve as defined in the Indian Act
 Est m³ Contaminated: 20
 Est Ha Contaminated: 0
 Est Tons Contaminated: 0
 Site Management Strategy: Remediation
 Highest Step Completed: Detailed Testing Program
 Action Plan:
 Additional Info:
 --- Details ---
 Medium: Soil
 Contaminant: Petroleum hydrocarbons and PAH's

3 **2 of 4** **77.8** **Kitsumkaylum 1 BC** [FCS](#)

Site Id: 05048001
 Departmental Id: 7000036494
 Property No.:
 Site Name: 681 - Kitsumkalum - 07646 - KITSUMKAYLUM 1 / 7000036494
 Location:
 Municipality: Kitsumkaylum 1
 Census Division: Kitimat-Stikine

Map Key	Number of Records	Elevation m	Site	DB
<i>Federal Electoral District:</i>		Skeena--Bulkley Valley		
<i>Nearest Populated Area:</i>				
<i>Longitude:</i>		-128.67053		
<i>Latitude:</i>		54.52283		
<i>Reporting Organization:</i>		Aboriginal Affairs and Northern Development Canada (Indian and Inuit Affairs Program)		
<i>Reason for Involvement:</i>		A reserve as defined in the Indian Act		
<i>Est m³ Contaminated:</i>		10		
<i>Est Ha Contaminated:</i>		0		
<i>Est Tons Contaminated:</i>		0		
<i>Site Management Strategy:</i>		Remediation		
<i>Highest Step Completed:</i>		Develop Remediation/Risk Management Strategy		
<i>Action Plan:</i>				
<i>Additional Info:</i>				
--- Details ---				
<i>Medium:</i>		Soil		
<i>Contaminant:</i>		Petroleum hydrocarbons and PAH's		

3 **3 of 4** **77.8** ***Kitsumkaylum 1 BC*** [FCS](#)

<i>Site Id:</i>		00000543		
<i>Departmental Id:</i>		0902236405		
<i>Property No.:</i>				
<i>Site Name:</i>		681 - Kitsumkalum - 07646 - KITSUMKAYLUM 1 / 0902236405		
<i>Location:</i>				
<i>Municipality:</i>		Kitsumkaylum 1		
<i>Census Division:</i>		Kitimat-Stikine		
<i>Federal Electoral District:</i>		Skeena--Bulkley Valley		
<i>Nearest Populated Area:</i>				
<i>Longitude:</i>		-128.67053		
<i>Latitude:</i>		54.52283		
<i>Reporting Organization:</i>		Aboriginal Affairs and Northern Development Canada (Indian and Inuit Affairs Program)		
<i>Reason for Involvement:</i>		A reserve as defined in the Indian Act		
<i>Est m³ Contaminated:</i>		6000		
<i>Est Ha Contaminated:</i>		0		
<i>Est Tons Contaminated:</i>		0		
<i>Site Management Strategy:</i>		Additional assessment		
<i>Highest Step Completed:</i>		Initial Testing Program		
<i>Action Plan:</i>				
<i>Additional Info:</i>				
--- Details ---				
<i>Medium:</i>		Not Available		
<i>Contaminant:</i>		Petroleum hydrocarbons and PAH's		

3 **4 of 4** **77.8** ***Kitsumkaylum 1 BC*** [FCS](#)

<i>Site Id:</i>		00000542		
<i>Departmental Id:</i>		0902236305		
<i>Property No.:</i>				
<i>Site Name:</i>		681 - Kitsumkalum - 07646 - KITSUMKAYLUM 1 / 0902236305		
<i>Location:</i>				
<i>Municipality:</i>		Kitsumkaylum 1		
<i>Census Division:</i>		Kitimat-Stikine		
<i>Federal Electoral District:</i>		Skeena--Bulkley Valley		
<i>Nearest Populated Area:</i>				
<i>Longitude:</i>		-128.67053		
<i>Latitude:</i>		54.52283		
<i>Reporting Organization:</i>		Aboriginal Affairs and Northern Development Canada (Indian and Inuit Affairs Program)		

Map Key	Number of Records	Elevation m	Site	DB
<i>Reason for Involvement:</i>		A reserve as defined in the Indian Act		
<i>Est m³ Contaminated:</i>		6000		
<i>Est Ha Contaminated:</i>		0		
<i>Est Tons Contaminated:</i>		0		
<i>Site Management Strategy:</i>		Additional assessment		
<i>Highest Step Completed:</i>		Initial Testing Program		
<i>Action Plan:</i>				
<i>Additional Info:</i>				
--- Details ---				
<i>Medium:</i>		Not Available		
<i>Contaminant:</i>		Petroleum hydrocarbons and PAH's		

4 **1 of 1** **56.0** **KITSUMKALLUM
COAST RANGE 5 BC** [WWIS](#)

<i>Well Tag No.:</i>	42582	<i>Seq No.:</i>	1
<i>Owner's Well No.:</i>		<i>BCGS Mapsheet:</i>	1031057214
<i>Land District:</i>	COAST RANGE 5	<i>Well Owner:</i>	KITSUMKALLUM BAND CO
<i>Lot:</i>		<i>Plan:</i>	
<i>District Lot:</i>		<i>Section:</i>	
<i>Township:</i>		<i>Range:</i>	
<i>Legal Misc:</i>		<i>Island:</i>	
<i>PID:</i>		<i>Latitude:</i>	
<i>Longitude:</i>		<i>Easting:</i>	521448
<i>Northing:</i>	6041763	<i>Zone:</i>	9
<i>Location Accuracy:</i>	C (50 m) Digitized from 1:20,000 mapping	<i>Well Status:</i>	New
<i>Observ. Well No.:</i>		<i>Observ. Well Status:</i>	
<i>Chemistry Site Id:</i>		<i>Other Chemistry Data:</i>	
<i>Construction Start Dt:</i>	1979-06-09 00:00:00	<i>Construction End Dt:</i>	
<i>Construction Method:</i>	OTH	<i>Use:</i>	Unknown Well Use
<i>Orientation of Well:</i>		<i>Class of Well:</i>	
<i>Sub-Class of Well:</i>		<i>Est. Yield:</i>	75
<i>Yield Units:</i>	GPM	<i>Artesian Flow:</i>	
<i>Artesian Units:</i>		<i>Artesian Pressure:</i>	
<i>Aquifer Lithology:</i>	Unconsolidated	<i>Bedrock Depth:</i>	
<i>Water Depth:</i>	13	<i>Depth Well Drilled:</i>	
<i>Final Well Depth:</i>	64	<i>Well Diameter:</i>	6.0
<i>Surf Seal Flag:</i>		<i>Surf Seal Method:</i>	
<i>Surf Seal Material:</i>		<i>Surf Seal Thickness:</i>	
<i>Surf Seal Depth:</i>		<i>Aquifer No.:</i>	
<i>General Remarks:</i>			
--- Details ---			
<i>Depth:</i>	From 0 To 12 Ft.	<i>Material:</i>	hard layer- boulders to 8 " with sand &
+			
<i>Depth:</i>	From 0 To 0 Ft.	<i>Material:</i>	gravel in clay
+			
<i>Depth:</i>	From 12 To 64 Ft.	<i>Material:</i>	gravel to 3" with sand, water bearing-
+			
<i>Depth:</i>	From 0 To 0 Ft.	<i>Material:</i>	did not bottom out of water bearing mat.

5 **1 of 1** **98.3** **Kitsumkaylum 1 BC** [FCS](#)

Site Id: 00007829
Departmental Id: 0904739610
Property No.:

Map Key	Number of Records	Elevation m	Site	DB
<p>Site Name: Location: Municipality: Kitsumkaylum 1 Census Division: Kitimat-Stikine Federal Electoral District: Skeena--Bulkley Valley Nearest Populated Area: Longitude: -128.666666 Latitude: 54.533333 Reporting Organization: Department of Indian Affairs and Northern Development (Indian and Inuit Affairs Program) Reason for Involvement: A reserve as defined in the Indian Act Est m³ Contaminated: Est Ha Contaminated: Est Tons Contaminated: Site Management Strategy: Additional assessment Highest Step Completed: Historical Review Action Plan: Additional Info:</p>				
6	1 of 1	56.7	KITSUMKALUM TEMPO GAS STATION WEST KALUM RD TERRACE BC	<u>RST</u>
<p>Facility: Service Stations-Gasoline, Oil & Natural Gas Description:</p>				
7	1 of 1	49.2	Kitimat-Stikine C (Part 1) BC	<u>FCS</u>
<p>Site Id: 00021241 Departmental Id: P K 90337 Property No.: Site Name: Location: Municipality: Kitimat-Stikine C (Part 1) Census Division: Kitimat-Stikine Federal Electoral District: Skeena--Bulkley Valley Nearest Populated Area: Longitude: -128.666666 Latitude: 54.516666 Reporting Organization: Fisheries and Oceans Canada Reason for Involvement: Federal Real Property Est m³ Contaminated: 0 Est Ha Contaminated: 0 Est Tons Contaminated: 0 Site Management Strategy: Other Highest Step Completed: Action Plan: Additional Info:</p>				
8	1 of 4	70.8	BELL POLE COMPANY 5630 Highway 16 W Terrace BC V8G	<u>SCT</u>
<p>Established: 1909 Plant Size (ft²): 0 Employment: 10</p>				

Map Key	Number of Records	Elevation m	Site	DB
--- Details ---				
	SIC/NAICS Code:	2491		
	Description:	Wood Preserving		
	+			
	SIC/NAICS Code:	321114		
	Description:	Wood Preservation		
8	2 of 4	70.8	Bell Pole Company 5630 Hwy 16 W Terrace BC V8G 4R6	SCT
	Established:	1909		
	Plant Size (ft²):			
	Employment:	10		
--- Details ---				
	SIC/NAICS Code:	321114		
	Description:	Wood Preservation		
8	3 of 4	70.8	5630 HIGHWAY 16 WEST TERRACE BC V8G 4A6	SREG
	Site ID #:	8280		
	Registered:	2003-JUN-03		
	Updated:	2004-NOV-02		
	Detail Removed:	2004-OCT-21		
	Common Name:	5630 HIGHWAY 16 WEST, TERRACE		
	Victoria File No.:	26250-20/8280		
	Regional File No.:			
	Region:	SMITHERS, SKEENA		
	Latitude:	54.522500		
	Longitude:	128.656111		
	Location Description:	SITE CREATED BY SITE PROFILE, ENTERED 2003-05-29		
	Site Description:	LARGE SITE, SIMPLE CONTAMINATION		
	Cleanup Status:	ACTIVE - ASSESSMENT COMPLETE		
8	4 of 4	70.8	5630 HIGHWAY 16 WEST TERRACE BC V8G 4A6	SREG
	Site ID #:	5220		
	Registered:	1999-JAN-29		
	Updated:	2007-JUN-01		
	Detail Removed:	2007-JUN-01		
	Common Name:	BELL POLE COMPANY		
	Victoria File No.:			
	Regional File No.:	26250-20/TE/BELPOLE		
	Region:	SMITHERS, SKEENA		
	Latitude:	54.522683		
	Longitude:	128.659775		
	Location Description:	LAT/LONG DERIVED BY BC ENVIRONMENT REFERENCING THE TRANSPORTATION CENTRELINE NETWORK (TCN) NAD 83, JULY 23, 1998. VICTORIA FILE: 26250-20/5220 HAS BEEN PERMANANTLY TRANSFERED TO THE REGION		
	Site Description:	LARGE SITE, SIMPLE CONTAMINATION		
	Cleanup Status:	INACTIVE - NO FURTHER ACTION		

Unplottable Report

Site: **PETRO CANADA
HIGHWAY 16, TERRACE BC**

Database:
AMS

File #:
Permit Type: Petroleum Storage and Distribution Facilities Storm Water Regulation
Date Issued: 6/7/2007
Date Ammended:
Status: Active
Status As Of: Aug 2009
Location: HIGHWAY 16, TERRACE
SIC Code:
Mailing Address: C/O SEACOR ENVIRONMENTAL INC 2700 - 700 WEST GEORGIA STREET VANCOUVER,
BC V7Y 1B12

Site: **Kitsumkalum First Nation
Terrace BC**

Database:
AMS

File #:
Permit Type: Permit - refuse
Date Issued: 1/3/1978
Date Ammended: 1/14/2011
Status: Active
Status As Of: Jan 2012
Location: Terrace
SIC Code: 321111
Mailing Address: P.O. Box 544 Terrace BC V8G 4B5

Site: **BELL POLE CO. LTD.
BOX 280 TERRACE BC**

Database:
AMS

File #: PA-2198(04)
Permit Type:
Date Issued:
Date Ammended:
Status: CANCELLED
Status As Of: Dec-98
Location:
SIC Code: 311
Mailing Address:

Site: **PETRO CANADA
HIGHWAY 16, TERRACE BC**

Database:
AMS

File #:
Permit Type: Petroleum Storage and Distribution Facilities Storm Water Regulation
Date Issued: 6/7/2007
Date Ammended:
Status: Cancelled
Status As Of: Jan 2012
Location: HIGHWAY 16, TERRACE

SIC Code:
Mailing Address:

C/O SEACOR ENVIRONMENTAL INC 2700 - 700 WEST GEORGIA STREET VANCOUVER,
BC V7Y 1B8

Site: **Kitsumkalum First Nation**
TERRACE BC

Database:
AMS

File #:
Permit Type: Permit - refuse
Date Issued: 1/3/1978
Date Ammended: 7/23/2010
Status: Active
Status As Of: Oct 2010
Location: TERRACE
SIC Code: 321111
Mailing Address: Terrace

Site: **Bell Pole Co. Ltd**
Terrace BC

Database:
CONV

Type: Conviction
Act:
Regulation:
Section:
Penalty:
Date: 1991
Description: Fail to comply with terms of permit
Court Location:
Disposition:
Disposition Date:
Charge Date: 91-01-21

Site: **Bell Pole Co. Ltd**
Terrace BC

Database:
CONV

Type: Conviction
Act:
Regulation:
Section:
Penalty:
Date: 1991
Description: Fail to comply with terms of permit
Court Location:
Disposition:
Disposition Date:
Charge Date: 91-01-28

Site: **Band Maintenance Yard**
KITSUMKAYLUM NO. 1 BC

Database:
EIIS

Inventory Number: 7000105398
Environmental Issue: UNDER OR ABOVE GROUND STORAGE TANKS
Band: KITSUMKALUM
Reserve: KITSUMKAYLUM NO. 1
File Closed:

--- Details ---

Fiscal Year: 1997/1998
Funding Site Action: REMEDIATION

Site: Former Log Sorting Yard
KITSUMKAYLUM NO. 1 BC

Database:
EIS

Inventory Number: 7000036494
Environmental Issue: UNDER OR ABOVE GROUND STORAGE TANKS
Band: KITSUMKALUM
Reserve: KITSUMKAYLUM NO. 1
File Closed:

--- Details ---

Fiscal Year: 1996/1997
Funding Site Action: PHASE III
+
Fiscal Year: 1997/1998
Funding Site Action: REMEDIATION
+
Fiscal Year: 2000/2001
Funding Site Action: REMEDIATION

Site: KITSUMKALUM BAND
8, 11, 12 AND 13 WEST KALUM ROAD TERRACE BC

Database:
GEN

Generator #: BCG35103
Registration Date: 10/2/2006
Status: ACTIVE
Status Date: 10/2/2006
Mailing Address: BOX 544, TERRACE, BC, CA V8G 4B5

--- Details ---

Waste: ASBESTOS, WHITE

Site: BELL POLE COMPANY
TERRACE BC

Database:
NEES

Incident Date: 1/17/92
Contaminant: THICK YELLOW SMOKE
Amount:
Units:
Quantity:
Cause:
Source: UNKNOWN
Reason:
Sector: UNKNOWN

Site: Gateway Transfer
Hwy 16, West of Terrace Terrace BC

Database:
NEES

Incident Date: 11/29/00 11:00
Contaminant: undetermined contaminant
Amount:
Units:
Quantity: Unknown
Cause: Above Ground Tank Leak
Source: Other Motor Vehicle
Reason: Equipment Failure
Sector: Transportation

Site: BELL POLE COMPANY
TERRACE BC

Database:
NEES

Incident Date: 1/16/92
Contaminant: SMOKE
Amount:
Units:
Quantity:
Cause:
Source: BURNING
Reason:
Sector: COMMERCIAL

Site: KITSUMKALUM TEMPO GAS STATION
14309 HIGHWAY 16 E TERRACE BC

Database:
RST

Facility: SERVICE STATIONS-GASOLINE, OIL & NATURAL GAS
Description:

Site: UNKNOWN TERRACE BC

Database:
SREG

Site ID #: 9330
Registered: 2005-MAR-18
Updated:
Detail Removed:
Common Name: CN RAIL PROPERTY, TERRACE
Victoria File No.: 26250-20/9330
Regional File No.:
Region: SMITHERS, SKEENA
Latitude: 00.000000
Longitude: 000.000000
Location Description: SITE CREATED BY SITE PROFILE, ENTERED 2005-02-17
Site Description: NOT APPLICABLE
Cleanup Status: INACTIVE - NO FURTHER ACTION

Site: UNKNOWN TERRACE BC

Database:
SREG

Site ID #: 8147
Registered: 2003-JAN-13
Updated:
Detail Removed:
Common Name: LOT 1, DL 369, RANGE 5, COAST DISTRICT
Victoria File No.: 26250-20/8147
Regional File No.:
Region: SMITHERS, SKEENA
Latitude: 00.000000
Longitude: 000.000000
Location Description: SITE CREATED BY SITE PROFILE, ENTERED 2003-01-08
Site Description: NOT APPLICABLE
Cleanup Status: INACTIVE - NO FURTHER ACTION

Site: PETRO CANADA
HIGHWAY 16, TERRACE TERRACE BC

Database:
WDS

Permit #: RE-14138(1)
Manner of Operation: REGULATED SITE
Waste Type: EFFLUENT

Site: BELL POLE CO. LTD.
TERRACE TERRACE BC

Database:
WDS

Permit #: PA-2198(3)
Manner of Operation: PERMIT
Waste Type: AIR

Appendix: Database Descriptions

Ecolog Environmental Risk Information Services Ltd can search the following databases. The extent of Historical information varies with each database and current information is determined by what is publicly available to Ecolog ERIS at the time of update. **Note:** Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.

Authorization Management System (formerly WASTE):

1957-Jan 2012

Provincial

[AMS](#)

AMS is the Ministry of Environment's waste permit administration system. It maintains data related to the administration of permits issued under the Environmental Management Act and registrations under various regulations where the regulation requires a discharger to register. It will include information such as companies or individuals permitted to discharge waste; type of business and locations at which waste disposal is permitted; the types, amounts and frequency of waste products that are permitted to be discharged at given locations; issue date and more. This was previously referred to as the "WASTE" database.

Assessment Report Indexing System:

1947-Jan 2012

Provincial

[ARIS](#)

Within British Columbia, the "Mineral Tenure Act Regulation", requires that all results of mineral exploration and development programs be submitted to the British Columbia Ministry of Employment and Investment, where they are then maintained and housed by the Geological Survey Branch. The assessment reports provided by the Geological Survey Branch contain summary information for reports approved to November 1998; on geology, geophysics, geochemistry, drilling, prospecting and physical work.

Automobile Wrecking & Supplies:

2001-Jun 2010

Private

[AUWR](#)

This database provides an inventory of all known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

All BCG Registered Firms:

Provincial

[BCG](#)

The combination of Generators, Receivers and PCBs(Active and Inactive Generators) into one database since the data are no longer provided separately.

BC Oil and Gas Wells:

1918-Jan 2006*

Provincial

[BOGW](#)

The BC Oil and Gas Wells database was collected from the BC Oil and Gas Commission and is a comprehensive database that includes information regarding well number, well name, operator name, location, depth, status, as well as drill date and type. Please note that this database will not be updated, information on wells drilled after January 2006 can be found in the Oil and Gas Wells (OGW) database under the 'Private Source Database' section.

Chemical Register:

1999-Jun 2010

Private

[CHEM](#)

This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.

Coal Tar Sites:

1992*

Provincial

[COAL](#)

This one-time study is an inventory of all known and historical coal tar sites, identifying sites that produced coal tar and other related tars during the mid 1800's to the mid 1900's.

Compliance and Enforcement Summary: 1990-2011 Provincial [CONV](#)
This database summarizes orders, tickets and convictions issued by the Ministry of the Environment under applicable ministry and federal legislation. Orders are issued when action is required to prevent or stop actual or potential impact to the environment. Tickets apply to all tickets paid, deemed guilty by non-payment or expiry, or contested in court and found guilty by a judge. Convictions apply to all court convictions of ministry legislation as well as federal legislation where the ministry has taken action. This reporting summary began in January 2006, replacing Non-Compliance Reports by the former Ministry of Water, Land & Air Protection. See the Non-Compliance Reports (NCPL) database below for more information. This database is part of a larger COORS (Conservation Officer On-Line Reporting System) database controlled by the Ministry of Environment in BC.

Wastewater Discharge Inventory: 1957-1995* Provincial [DIS](#)
This inventory contains information regarding direct dischargers of toxic pollutants for the following operations: Industrial; Commercial; Agricultural; Mining; Municipal; Urban; Aquaculture; and Pulp & Paper, operating under provincial permits. Please note that this program was discontinued and therefore the database will not be updated.

Environmental Effects Monitoring: 1992-2007* Federal [EEM](#)
The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

ERIS Historical Searches: 1999-Mar 2013 Private [EHS](#)
EcoLog ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Environmental Issues Inventory System: 1992-2001* Federal [EIS](#)
The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Federal Convictions: 1988-Jun 2007* Federal [FCON](#)
Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Contaminated Sites on Federal Land: June 2000-Jan 2013 Federal [FCS](#)
The Federal Contaminated Sites Inventory includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Commercial Fisheries: 1993-2010 Provincial [FISH](#)
The Fisheries, Aquaculture & Commercial Fisheries Branch of the Ministry of Water, Land & Air Protection maintains a database of fish processing plant approvals, licenses and activities. Each year, licenses need to be renewed.

Fisheries & Oceans Fuel Tanks:

1964-Sept 2003

Federal

[FOFT](#)

Fisheries & Oceans Canada maintains an inventory of all aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Waste Generators Summary:

1993-2010

Provincial

[GEN](#)

Within British Columbia, the Special Waste Regulation defines a waste generator as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number (BCG#), company name and address of registered generators; including the types of hazardous wastes generated and the form of treatment used in the handling of the waste. This information is a summary of all years from June 1993 to March 2006. Please note that a British Columbia Generator number (BCG#) are not unique to a company. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Indian & Northern Affairs Fuel Tanks:

1950-Aug 2003*

Federal

[IAFT](#)

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of all aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Lumber Mills:

1997-2009

Provincial

[LUM](#)

This database provides information regarding the general location and estimated annual output capacity of major timber processing facilities within the province of British Columbia.

Canadian Mine Locations:

1998-2009

Private

[MINE](#)

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Minerals Deposits Database:

1852-Apr 2012

Provincial

[MNR](#)

The Ministry of Energy and Mines maintains a database of more than 12,000 metallic mineral, industrial mineral and coal deposits and occurrences within British Columbia. Information within our report pertains to primary name, elevation, mining division, commodities, and status. Please note that as of January 27, 1999, information included within this database was divided into 2 categories: released and unreleased areas. Records for unreleased areas may contain incomplete, unedited, and/or inaccurate data.

National Analysis of Trends in Emergencies System (NATES):

1974-1994*

Federal

[NATE](#)

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Non-Compliance Reports: 1990-Mar 2001* Provincial [NCPL](#)
From 1990 to March 2001 the Ministry of Water, Land & Air Protection maintained a reporting system that identified any reported concern that pertained to compliance with authorized waste management permits or plans, approvals, orders, operational certificates and regulations, or any other activity under the Waste Management Act. This reporting system was discontinued in April of 2001; therefore there will be no updates to this database. However, beginning in January 2006 the Ministry of the Environment began publishing Compliance and Enforcement Summaries. See the Compliance and Enforcement Summary (CPL) database above for more information.

National Defence & Canadian Forces Fuel Tanks: Up to May 2001* Federal [NDFT](#)
The Department of National Defence and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

National Defence & Canadian Forces Spills: Mar 1999-Aug 2010 Federal [NDSP](#)
The Department of National Defence and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

National Defence & Canadian Forces Waste Disposal Sites: 2001-Apr 2007* Federal [NDWD](#)
The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

National Energy Board Wells: 1920-Feb 2003* Federal [NEBW](#)
The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

National Environmental Emergencies System (NEES): 1974-2003* Federal [NEES](#)
In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for all previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

National PCB Inventory: 1988-2008* Federal [NPCB](#)
Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. All federal out-of-service PCB containing equipment and all PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites.

National Pollutant Release Inventory: 1993-2011 Federal [NPRI](#)
Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Oil and Gas Wells: 1988-Jun 2013 Private [OGW](#)
The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Canadian Pulp and Paper: 1999, 2002, 2004, 2005, 2009 Private [PAP](#)
This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Inventory of PCB Storage Sites: 1989, May 1993-2010 Provincial [PCB](#)
The Ministry of Water, Land & Air Protection maintains a database of all active PCB waste storage sites within the Special Waste Information System. Please note that there is no requirement to maintain an accurate listing of all inactive PCB waste storage equipment and/or disposal sites. The records within this database provide information regarding site name, location, an inventory of stored wastes and quantities, and status date (when site first active/inactive). Previous to May 1993, data was collected from a different source and is only available for 1989.

Parks Canada Fuel Storage Tanks: 1920-Jan 2005* Federal [PCFT](#)
Canadian Heritage maintains an inventory of all known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Pesticide Register: 1989-Apr 2010 Provincial [PES](#)
This is a database of individuals who apply for a service or vendor license for the use of registered pesticides. A service license is denoted by an "S" in the license number, likewise, a vendor license by a "V" in the license number.

Private Aggregate Inventory: 1975-1996* Provincial [PRAI](#)
Within British Columbia, aggregate pits are designated as mines; and as such, the Ministry of Energy and Mines is responsible for their planning, management and regulation, including permitting, health, safety and reclamation. Owners or operators of all private aggregate pits must file Notices of Work as part of the permitting and reclamation process. In 1994, the Geological Survey Branch initiated the Aggregate Program, in order to establish an inventory of natural and crushed aggregate pits. Information about each pit in the database file includes its location, NTS map sheet number, Notice of Work file number and status (active/inactive) and the type of landform hosting the pit. This database was a one-time inventory and will not be updated.

Public Aggregate Inventory: 1960-2001* Provincial [PUAI](#)
Information about public aggregate pits in British Columbia is collected and managed by the Ministry of Transportation and Highways. Data has been gathered on more than 2000 pits, in respect to pit name, type and geographical location.

Waste Receivers Summary: 1992-2010 Provincial [REC](#)
The Special Waste Regulation defines the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. A waste receiving location is any site or facility to which waste is transferred through a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Retail Fuel Storage Tanks:

1999-Jun 2010

Private

[RST](#)

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Scott's Manufacturing Directory:

1992-Mar 2011

Private

[SCT](#)

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Site Registry:

1985-Oct 2012

Provincial

[SREG](#)

This information is collected from the Ministry of Environment's Site Registry. It is not a registry of contaminated sites, although some sites on the registry are contaminated. Most sites have already been investigated and require minor remediation, or have already been cleaned up to government requirements. The Registry also stores environmentally relevant historic information about sites including: names of participants, legal and administrative notations, references to pertinent documents submitted to the ministry, associations with other sites, and much more.

Transport Canada Fuel Storage Tanks:

1970-Mar 2007

Federal

[TCFT](#)

With the provinces of BC, MB, NB, NF, ON, PE, and QC; Transport Canada currently owns and operates 90 fuel storage tanks. Our inventory provides information on the site name, location, tank age, capacity and fuel type.

Waste Disposal Site Inventory:

1980-1998*

Provincial

[WDS](#)

This inventory pertains to active, regulated waste disposal sites within the province of British Columbia. Registered companies may hold a permit or certificate for release of the following waste types: Effluent, Refuse, Air and Special Waste Storage. Information on Waste Disposal Sites after 1998 is contained within the Authorizations (AUTH) database.

Water Well Information System:

1880-Jul 2013

Provincial

[WWIS](#)

This database was collected from the Groundwater Information Center of the Ministry of Water, Land & Air Protection and contains over 90,000 records. Comprehensive information is available for each well including: well location (address/site area), latitude/longitude, legal description (section, lot, plan, district lot, range, township), BCGS Mapsheet No., depth of well, construction dates, well status and lithology. The accuracy of well locations is also provided, as well as the reference source for obtaining geographic coordinates.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries". All values are an approximation.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property, within the report search radius, and the surrounding area outside the search radius.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red upside down triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and were included as reference.



REPORT



Project Property: *Reserve
521595.07 m E, 6048816.33 m N
Dalk-Ka-Gila-Quoeux IR #2 BC
Custom-Build Your Own Report*

Report Type:

Order #: *20131101002*

Date: *November 11, 2013*

EcoLog ERIS Ltd.
Environmental Risk
Information Service Ltd. (ERIS)
A division of Glacier Media Inc.
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Executive Summary

Property Information:

Project Property: Reserve
521595.07 m E, 6048816.33 m N Dalk-Ka-Gila-Quoeux IR #2 BC

Order Information:

Order No.: 20131101002
Date Requested: 11/11/2013
Requested by: Golder Associates Ltd.
Report Type: Custom-Build Your Own Report

Additional Products:

Executive Summary: Report Summary

Database	Name	Selected	On Site	Boundary to 0.50KM	Total
AMS	Authorization Management System (formerly WASTE)	Y	0	0	0
ARIS	Assessment Report Indexing System	Y	0	0	0
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
BCG	All BCG Registered Firms	Y	0	0	0
BOGW	BC Oil and Gas Wells	Y	0	0	0
CHEM	Chemical Register	Y	0	0	0
COAL	Coal Tar Sites	Y	0	0	0
CONV	Compliance and Enforcement Summary	Y	0	0	0
DIS	Wastewater Discharge Inventory	Y	0	0	0
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	0	0	0
EIS	Environmental Issues Inventory System	Y	0	0	0
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	0	0	0
FISH	Commercial Fisheries	Y	0	0	0
FOFT	Fisheries & Oceans Fuel Tanks	Y	0	0	0
GEN	Waste Generators Summary	Y	0	0	0
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
LUM	Lumber Mills	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Minerals Deposits Database	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defence & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defence & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBW	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGW	Oil and Gas Wells	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCB	Inventory of PCB Storage Sites	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	0	0
PRAI	Private Aggregate Inventory	Y	0	1	1
PUAI	Public Aggregate Inventory	Y	0	0	0

<i>Database</i>	<i>Name</i>	<i>Selected</i>	<i>On Site</i>	<i>Boundary to 0.50KM</i>	<i>Total</i>
REC	<i>Waste Receivers Summary</i>	Y	0	0	0
RST	<i>Retail Fuel Storage Tanks</i>	Y	0	0	0
SCT	<i>Scott's Manufacturing Directory</i>	Y	0	0	0
SREG	<i>Site Registry</i>	Y	0	0	0
TCFT	<i>Transport Canada Fuel Storage Tanks</i>	Y	0	0	0
WDS	<i>Waste Disposal Site Inventory</i>	Y	0	0	0
WWIS	<i>Water Well Information System</i>	Y	0	2	2
<hr/>					
		Total:	0	3	3

Executive Summary: Site Report Summary – Project Property

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Page Number</i>
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No records found in the selected databases for the project property.

Executive Summary: Site Report Summary – Surrounding Properties

Map Key	DB	Company/Site Name	Address	Page Number
1	WWIS		DEEP CREEK SUBDIVISION TERRACE BC	9
2	WWIS		OSCAR ROAD TERRACE BC	9
3	PRAI		BC	10

128°41'W

128°40'30"W

128°40'W

128°39'30"W

128°39'W

54°36'N

54°36'N

54°35'30"N

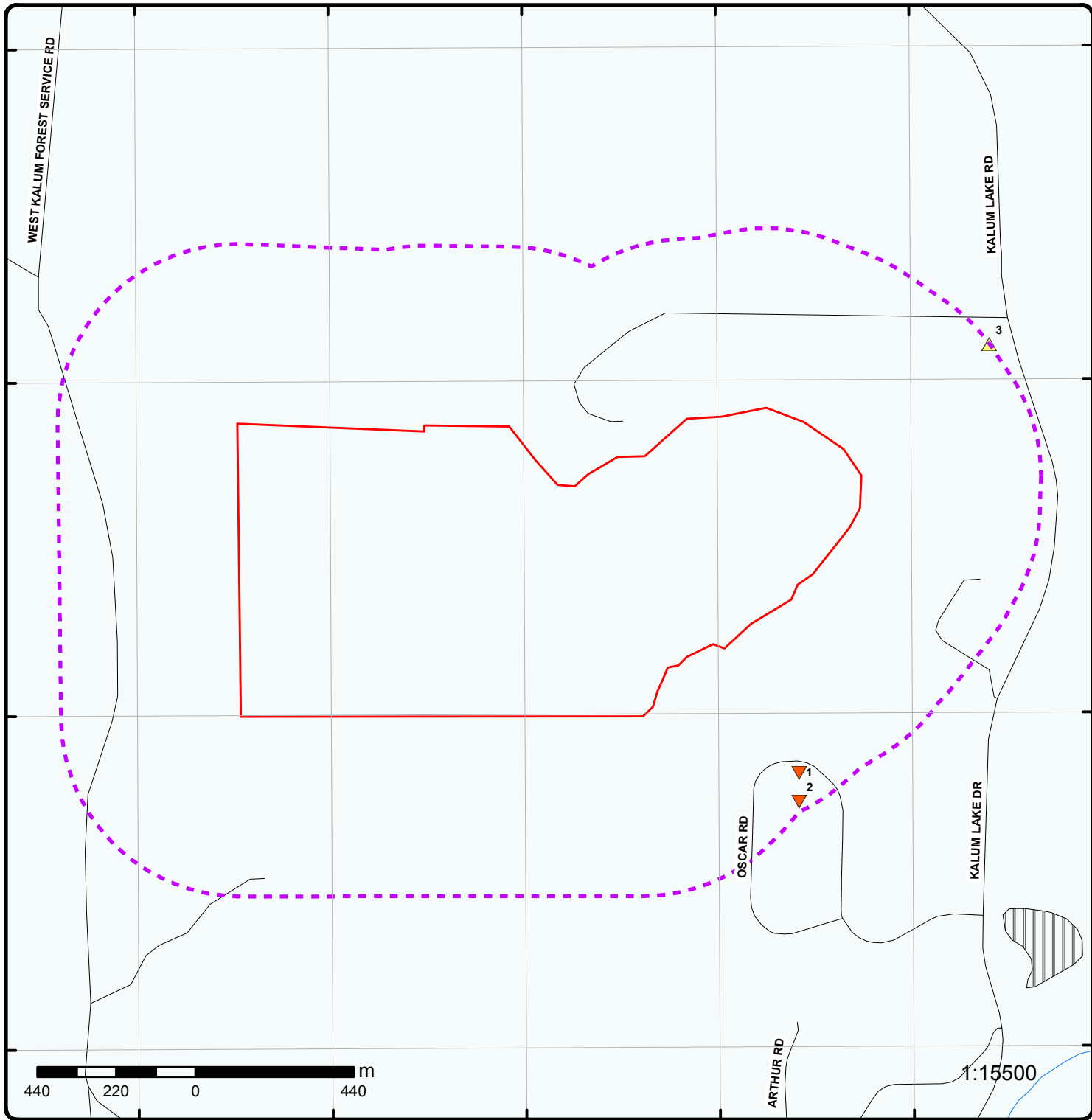
54°35'30"N

54°35'N

54°35'N

54°34'30"N

54°34'30"N



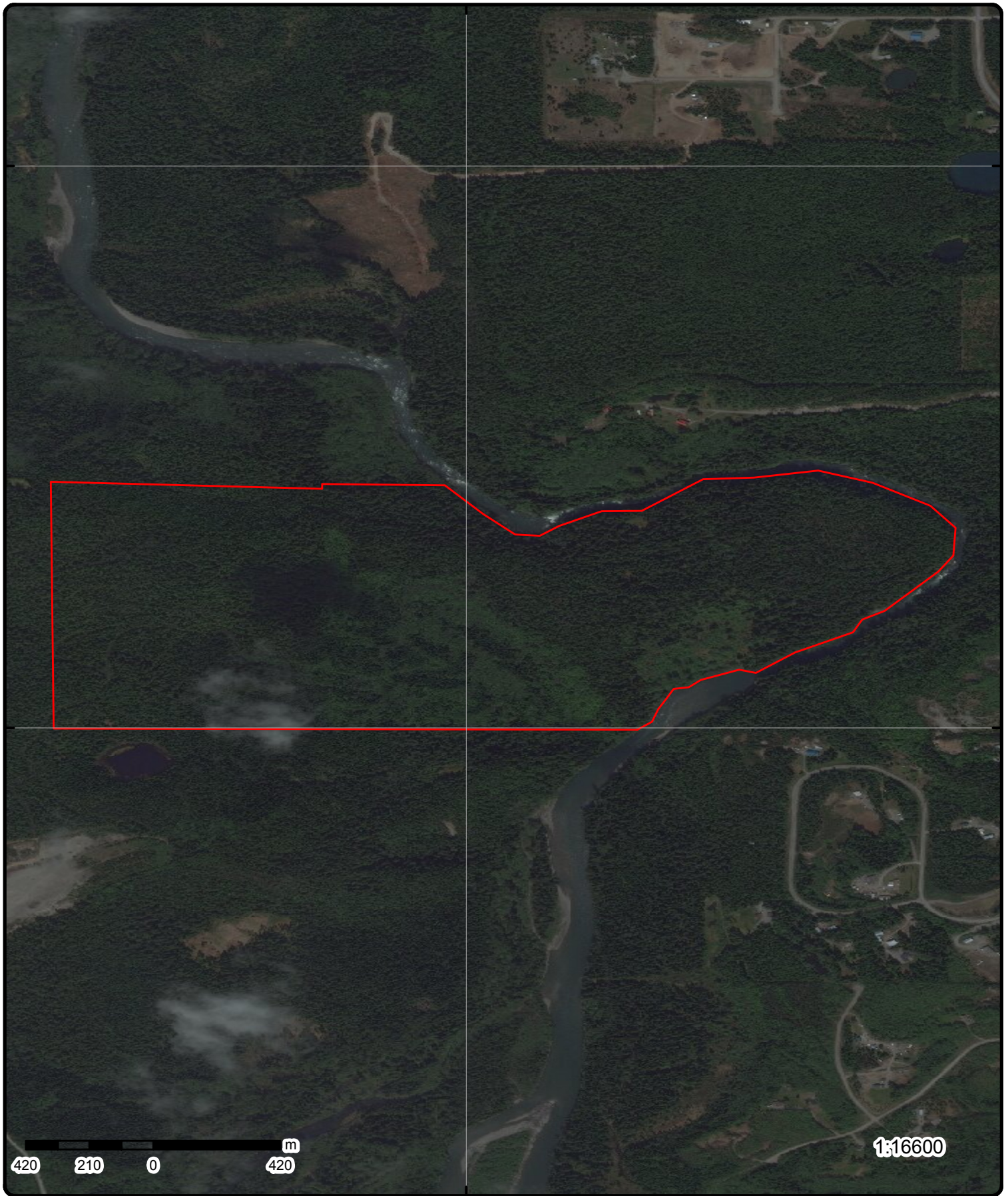
1:15500

Map

Order No: 20131101002

Address: 521595.07 m E, 6048816.33 m N, Dalk-Ka-Gila-Quoeux IR #2, BC

Project Property	Expressway	Industrial and Resource - Regions	National Park
Buffer Outline	Principal Highway	Main Line	Provincial or Territorial Park
Eris Sites with Higher Elevation	Secondary Highway	Sidetrack	Other Park
Eris Sites with Same Elevation	Major Road	Transit Line	Golf Course or Driving Range
Eris Sites with Lower Elevation	Local road	Abandoned Line	Park or Sports Field
Eris Sites with Unknown Elevation	Trail	Ferry Route/Ice Road	Other Recreation Area
	Proposed Road		



Aerial

Order No: 20131101002

Address: 521595.07 m E, 6048816.33 m N, Dalk-Ka-Gila-Quoeux IR #2, BC

Aerial

Aerial

Detail Report

Map Key	Number of Records	Elevation m	Site	DB																		
1	1 of 1	117.0	DEEP CREEK SUBDIVISION TERRACE BC	WWIS																		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Well Tag No.: 61616</p> <p>Owner's Well No.:</p> <p>Land District: COAST RANGE 5</p> <p>Lot: A</p> <p>District Lot: 1119</p> <p>Township:</p> <p>Legal Misc:</p> <p>PID:</p> <p>Longitude:</p> <p>Northing: 6048316</p> <p>Location Accuracy: D (100 m) Digitized from old Dept. of Lands, Forests and Water Resources maps</p> <p>Observ. Well No.:</p> <p>Chemistry Site Id:</p> <p>Construction Start Dt: 1989-07-09 00:00:00</p> <p>Construction Method: DRI</p> <p>Orientation of Well:</p> <p>Sub-Class of Well:</p> <p>Yield Units: USGM</p> <p>Artesian Units:</p> <p>Aquifer Lithology: Unconsolidated</p> <p>Water Depth: 94</p> <p>Final Well Depth: 125</p> <p>Surf Seal Flag:</p> <p>Surf Seal Material:</p> <p>Surf Seal Depth:</p> <p>General Remarks:</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Seq No.: 2</p> <p>BCGS Mapsheet: 1031057432</p> <p>Well Owner: NORM KENYON</p> <p>Plan: 11712</p> <p>Section:</p> <p>Range: 5</p> <p>Island:</p> <p>Latitude:</p> <p>Easting: 522306</p> <p>Zone: 9</p> <p>Well Status: New</p> <p>Observ. Well Status:</p> <p>Other Chemistry Data:</p> <p>Construction End Dt:</p> <p>Use: Private Domestic</p> <p>Class of Well:</p> <p>Est. Yield: 15</p> <p>Artesian Flow:</p> <p>Artesian Pressure:</p> <p>Bedrock Depth:</p> <p>Depth Well Drilled:</p> <p>Well Diameter: 0.0</p> <p>Surf Seal Method:</p> <p>Surf Seal Thickness:</p> <p>Aquifer No.:</p> </td> </tr> </table>					<p>Well Tag No.: 61616</p> <p>Owner's Well No.:</p> <p>Land District: COAST RANGE 5</p> <p>Lot: A</p> <p>District Lot: 1119</p> <p>Township:</p> <p>Legal Misc:</p> <p>PID:</p> <p>Longitude:</p> <p>Northing: 6048316</p> <p>Location Accuracy: D (100 m) Digitized from old Dept. of Lands, Forests and Water Resources maps</p> <p>Observ. Well No.:</p> <p>Chemistry Site Id:</p> <p>Construction Start Dt: 1989-07-09 00:00:00</p> <p>Construction Method: DRI</p> <p>Orientation of Well:</p> <p>Sub-Class of Well:</p> <p>Yield Units: USGM</p> <p>Artesian Units:</p> <p>Aquifer Lithology: Unconsolidated</p> <p>Water Depth: 94</p> <p>Final Well Depth: 125</p> <p>Surf Seal Flag:</p> <p>Surf Seal Material:</p> <p>Surf Seal Depth:</p> <p>General Remarks:</p>	<p>Seq No.: 2</p> <p>BCGS Mapsheet: 1031057432</p> <p>Well Owner: NORM KENYON</p> <p>Plan: 11712</p> <p>Section:</p> <p>Range: 5</p> <p>Island:</p> <p>Latitude:</p> <p>Easting: 522306</p> <p>Zone: 9</p> <p>Well Status: New</p> <p>Observ. Well Status:</p> <p>Other Chemistry Data:</p> <p>Construction End Dt:</p> <p>Use: Private Domestic</p> <p>Class of Well:</p> <p>Est. Yield: 15</p> <p>Artesian Flow:</p> <p>Artesian Pressure:</p> <p>Bedrock Depth:</p> <p>Depth Well Drilled:</p> <p>Well Diameter: 0.0</p> <p>Surf Seal Method:</p> <p>Surf Seal Thickness:</p> <p>Aquifer No.:</p>																
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Map Key	Number of Records	Elevation m	Site	DB
Lot:	J		Plan:	11712
District Lot:	1119		Section:	
Township:			Range:	
Legal Misc:			Island:	
PID:			Latitude:	
Longitude:			Easting:	522306
Northing:	6048236		Zone:	9
Location Accuracy:	J (unknown, accuracy based on parcel size) ICF cadastre, poor or no location sketch, arbitrarily located in center of parcel		Well Status:	New
Observ. Well No.:			Observ. Well Status:	
Chemistry Site Id:			Other Chemistry	
			Data:	
Construction Start Dt:	1995-08-17 00:00:00		Construction End Dt:	1995-08-17 00:00:00
Construction Method:			Use:	Private Domestic
Orientation of Well:	Vertical		Class of Well:	Water supply
Sub-Class of Well:	Domestic		Est. Yield:	15
Yield Units:	GPM		Artesian Flow:	
Artesian Units:			Artesian Pressure:	
Aquifer Lithology:			Bedrock Depth:	
Water Depth:	4		Depth Well Drilled:	75
Final Well Depth:	74		Well Diameter:	
Surf Seal Flag:	N		Surf Seal Method:	
Surf Seal Material:			Surf Seal Thickness:	
Surf Seal Depth:			Aquifer No.:	
General Remarks:	MEASUREMENTS FROM TOP OF CASING. TEST RATE 15 GPM.			
--- Details ---				
Depth:	From 0 To 10 Ft.		Material:	gravel
+				
Depth:	From 10 To 15 Ft.		Material:	sand
+				
Depth:	From 15 To 33 Ft.		Material:	COARSE SAND & GRAVEL
+				
Depth:	From 33 To 55 Ft.		Material:	blue clay
+				
Depth:	From 55 To 74 Ft.		Material:	GRAVEL & WATER WATER
+				
Depth:	From 75 To null Ft.		Material:	clay

3 **1 of 1** **182.7** **BC** [PRAI](#)

Index No.: G-01-023
NTS Sheet: 1031/10
Pit No.: 05
Status: ACTIVE
Status As Of: 1996
Terrain Designation: gsFGt
Texture: gravely sand
File No.: G-01-23
Easting: 522942
Northing: 6049317
Zone: 9
Location Error: +/- 200m

Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

Appendix: Database Descriptions

Ecolog Environmental Risk Information Services Ltd can search the following databases. The extent of Historical information varies with each database and current information is determined by what is publicly available to Ecolog ERIS at the time of update. **Note:** Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.

<u>Authorization Management System (formerly WASTE):</u>	1957-Jan 2012	Provincial	AMS
AMS is the Ministry of Environment's waste permit administration system. It maintains data related to the administration of permits issued under the Environmental Management Act and registrations under various regulations where the regulation requires a discharger to register. It will include information such as companies or individuals permitted to discharge waste; type of business and locations at which waste disposal is permitted; the types, amounts and frequency of waste products that are permitted to be discharged at given locations; issue date and more. This was previously referred to as the "WASTE" database.			
<u>Assessment Report Indexing System:</u>	1947-Jan 2012	Provincial	ARIS
Within British Columbia, the "Mineral Tenure Act Regulation", requires that all results of mineral exploration and development programs be submitted to the British Columbia Ministry of Employment and Investment, where they are then maintained and housed by the Geological Survey Branch. The assessment reports provided by the Geological Survey Branch contain summary information for reports approved to November 1998; on geology, geophysics, geochemistry, drilling, prospecting and physical work.			
<u>Automobile Wrecking & Supplies:</u>	2001-Jun 2010	Private	AUWR
This database provides an inventory of all known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.			
<u>All BCG Registered Firms:</u>		Provincial	BCG
The combination of Generators, Receivers and PCBs(Active and Inactive Generators) into one database since the data are no longer provided seperately.			
<u>BC Oil and Gas Wells:</u>	1918-Jan 2006*	Provincial	BOGW
The BC Oil and Gas Wells database was collected from the BC Oil and Gas Commission and is a comprehensive database that includes information regarding well number, well name, operator name, location, depth, status, as well as drill date and type. Please note that this database will not be updated, information on wells drilled after January 2006 can be found in the Oil and Gas Wells (OGW) database under the 'Private Source Database' section.			
<u>Chemical Register:</u>	1999-Jun 2010	Private	CHEM
This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.			
<u>Coal Tar Sites:</u>	1992*	Provincial	COAL
This one-time study is an inventory of all known and historical coal tar sites, identifying sites that produced coal tar and other related tars during the mid 1800's to the mid 1900's.			

Compliance and Enforcement Summary: 1990-2011 Provincial [CONV](#)
This database summarizes orders, tickets and convictions issued by the Ministry of the Environment under applicable ministry and federal legislation. Orders are issued when action is required to prevent or stop actual or potential impact to the environment. Tickets apply to all tickets paid, deemed guilty by non-payment or expiry, or contested in court and found guilty by a judge. Convictions apply to all court convictions of ministry legislation as well as federal legislation where the ministry has taken action. This reporting summary began in January 2006, replacing Non-Compliance Reports by the former Ministry of Water, Land & Air Protection. See the Non-Compliance Reports (NCPL) database below for more information. This database is part of a larger COORS (Conservation Officer On-Line Reporting System) database controlled by the Ministry of Environment in BC.

Wastewater Discharge Inventory: 1957-1995* Provincial [DIS](#)
This inventory contains information regarding direct dischargers of toxic pollutants for the following operations: Industrial; Commercial; Agricultural; Mining; Municipal; Urban; Aquaculture; and Pulp & Paper, operating under provincial permits. Please note that this program was discontinued and therefore the database will not be updated.

Environmental Effects Monitoring: 1992-2007* Federal [EEM](#)
The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

ERIS Historical Searches: 1999-Mar 2013 Private [EHS](#)
EcoLog ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Environmental Issues Inventory System: 1992-2001* Federal [EIS](#)
The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Federal Convictions: 1988-Jun 2007* Federal [FCON](#)
Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Contaminated Sites on Federal Land: June 2000-Jan 2013 Federal [FCS](#)
The Federal Contaminated Sites Inventory includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Commercial Fisheries: 1993-2010 Provincial [FISH](#)
The Fisheries, Aquaculture & Commercial Fisheries Branch of the Ministry of Water, Land & Air Protection maintains a database of fish processing plant approvals, licenses and activities. Each year, licenses need to be renewed.

Fisheries & Oceans Fuel Tanks:

1964-Sept 2003

Federal

[FOFT](#)

Fisheries & Oceans Canada maintains an inventory of all aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Waste Generators Summary:

1993-2010

Provincial

[GEN](#)

Within British Columbia, the Special Waste Regulation defines a waste generator as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number (BCG#), company name and address of registered generators; including the types of hazardous wastes generated and the form of treatment used in the handling of the waste. This information is a summary of all years from June 1993 to March 2006. Please note that a British Columbia Generator number (BCG#) are not unique to a company. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Indian & Northern Affairs Fuel Tanks:

1950-Aug 2003*

Federal

[IAFT](#)

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of all aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Lumber Mills:

1997-2009

Provincial

[LUM](#)

This database provides information regarding the general location and estimated annual output capacity of major timber processing facilities within the province of British Columbia.

Canadian Mine Locations:

1998-2009

Private

[MINE](#)

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Minerals Deposits Database:

1852-Apr 2012

Provincial

[MNR](#)

The Ministry of Energy and Mines maintains a database of more than 12,000 metallic mineral, industrial mineral and coal deposits and occurrences within British Columbia. Information within our report pertains to primary name, elevation, mining division, commodities, and status. Please note that as of January 27, 1999, information included within this database was divided into 2 categories: released and unreleased areas. Records for unreleased areas may contain incomplete, unedited, and/or inaccurate data.

National Analysis of Trends in Emergencies System (NATES):

1974-1994*

Federal

[NATE](#)

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Non-Compliance Reports: 1990-Mar 2001* Provincial [NCPL](#)
From 1990 to March 2001 the Ministry of Water, Land & Air Protection maintained a reporting system that identified any reported concern that pertained to compliance with authorized waste management permits or plans, approvals, orders, operational certificates and regulations, or any other activity under the Waste Management Act. This reporting system was discontinued in April of 2001; therefore there will be no updates to this database. However, beginning in January 2006 the Ministry of the Environment began publishing Compliance and Enforcement Summaries. See the Compliance and Enforcement Summary (CPL) database above for more information.

National Defence & Canadian Forces Fuel Tanks: Up to May 2001* Federal [NDFT](#)
The Department of National Defence and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

National Defence & Canadian Forces Spills: Mar 1999-Aug 2010 Federal [NDSP](#)
The Department of National Defence and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

National Defence & Canadian Forces Waste Disposal Sites: 2001-Apr 2007* Federal [NDWD](#)
The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

National Energy Board Wells: 1920-Feb 2003* Federal [NEBW](#)
The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

National Environmental Emergencies System (NEES): 1974-2003* Federal [NEES](#)
In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for all previous Environment Canada spill datasets. NEES is composed of the historic datasets 'or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

National PCB Inventory: 1988-2008* Federal [NPCB](#)
Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. All federal out-of-service PCB containing equipment and all PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites.

National Pollutant Release Inventory: 1993-2011 Federal [NPRI](#)
Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Oil and Gas Wells: 1988-Jun 2013 Private [OGW](#)
The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Canadian Pulp and Paper: 1999, 2002, 2004, 2005, 2009 Private [PAP](#)
This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Inventory of PCB Storage Sites: 1989, May 1993-2010 Provincial [PCB](#)
The Ministry of Water, Land & Air Protection maintains a database of all active PCB waste storage sites within the Special Waste Information System. Please note that there is no requirement to maintain an accurate listing of all inactive PCB waste storage equipment and/or disposal sites. The records within this database provide information regarding site name, location, an inventory of stored wastes and quantities, and status date (when site first active/inactive). Previous to May 1993, data was collected from a different source and is only available for 1989.

Parks Canada Fuel Storage Tanks: 1920-Jan 2005* Federal [PCFT](#)
Canadian Heritage maintains an inventory of all known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Pesticide Register: 1989-Apr 2010 Provincial [PES](#)
This is a database of individuals who apply for a service or vendor license for the use of registered pesticides. A service license is denoted by an "S" in the license number, likewise, a vendor license by a "V" in the license number.

Private Aggregate Inventory: 1975-1996* Provincial [PRAI](#)
Within British Columbia, aggregate pits are designated as mines; and as such, the Ministry of Energy and Mines is responsible for their planning, management and regulation, including permitting, health, safety and reclamation. Owners or operators of all private aggregate pits must file Notices of Work as part of the permitting and reclamation process. In 1994, the Geological Survey Branch initiated the Aggregate Program, in order to establish an inventory of natural and crushed aggregate pits. Information about each pit in the database file includes its location, NTS map sheet number, Notice of Work file number and status (active/inactive) and the type of landform hosting the pit. This database was a one-time inventory and will not be updated.

Public Aggregate Inventory: 1960-2001* Provincial [PUAI](#)
Information about public aggregate pits in British Columbia is collected and managed by the Ministry of Transportation and Highways. Data has been gathered on more than 2000 pits, in respect to pit name, type and geographical location.

Waste Receivers Summary: 1992-2010 Provincial [REC](#)
The Special Waste Regulation defines the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. A waste receiving location is any site or facility to which waste is transferred through a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

- Retail Fuel Storage Tanks:** 1999-Jun 2010 Private [RST](#)
 This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.
- Scott's Manufacturing Directory:** 1992-Mar 2011 Private [SCT](#)
 Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.
- Site Registry:** 1985-Oct 2012 Provincial [SREG](#)
 This information is collected from the Ministry of Environment's Site Registry. It is not a registry of contaminated sites, although some sites on the registry are contaminated. Most sites have already been investigated and require minor remediation, or have already been cleaned up to government requirements. The Registry also stores environmentally relevant historic information about sites including: names of participants, legal and administrative notations, references to pertinent documents submitted to the ministry, associations with other sites, and much more.
- Transport Canada Fuel Storage Tanks:** 1970-Mar 2007 Federal [TCFT](#)
 With the provinces of BC, MB, NB, NF, ON, PE, and QC; Transport Canada currently owns and operates 90 fuel storage tanks. Our inventory provides information on the site name, location, tank age, capacity and fuel type.
- Waste Disposal Site Inventory:** 1980-1998* Provincial [WDS](#)
 This inventory pertains to active, regulated waste disposal sites within the province of British Columbia. Registered companies may hold a permit or certificate for release of the following waste types: Effluent, Refuse, Air and Special Waste Storage. Information on Waste Disposal Sites after 1998 is contained within the Authorizations (AUTH) database.
- Water Well Information System:** 1880-Jul 2013 Provincial [WWIS](#)
 This database was collected from the Groundwater Information Center of the Ministry of Water, Land & Air Protection and contains over 90,000 records. Comprehensive information is available for each well including: well location (address/site area), latitude/longitude, legal description (section, lot, plan, district lot, range, township), BCGS Mapsheet No., depth of well, construction dates, well status and lithology. The accuracy of well locations is also provided, as well as the reference source for obtaining geographic coordinates.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries". All values are an approximation.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property, within the report search radius, and the surrounding area outside the search radius.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red upside down triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and were included as reference.



REPORT



Project Property: *Reserve
516898.00 m E, 6037343.00 m N
Zimagord IR #3 BC*

Report Type: *Custom-Build Your Own Report*

Order #: *20131101001*

Date: *November 11, 2013*

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Executive Summary

Property Information:

Project Property: Reserve
516898.00 m E, 6037343.00 m N Zimagord IR #3 BC

Order Information:

Order No.: 20131101001
Date Requested: 11/11/2013
Requested by: Golder Associates Ltd.
Report Type: Custom-Build Your Own Report

Additional Products:

Executive Summary: Report Summary

Database	Name	Selected	On Site	Boundary to 0.50KM	Total
AMS	Authorization Management System (formerly WASTE)	Y	0	0	0
ARIS	Assessment Report Indexing System	Y	0	0	0
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
BCG	All BCG Registered Firms	Y	0	0	0
BOGW	BC Oil and Gas Wells	Y	0	0	0
CHEM	Chemical Register	Y	0	0	0
COAL	Coal Tar Sites	Y	0	0	0
CONV	Compliance and Enforcement Summary	Y	0	0	0
DIS	Wastewater Discharge Inventory	Y	0	0	0
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	0	0	0
EIS	Environmental Issues Inventory System	Y	0	0	0
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	0	0	0
FISH	Commercial Fisheries	Y	0	6	6
FOFT	Fisheries & Oceans Fuel Tanks	Y	0	0	0
GEN	Waste Generators Summary	Y	0	0	0
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
LUM	Lumber Mills	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Minerals Deposits Database	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defence & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defence & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBW	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGW	Oil and Gas Wells	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCB	Inventory of PCB Storage Sites	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	0	0
PRAI	Private Aggregate Inventory	Y	0	0	0
PUAI	Public Aggregate Inventory	Y	0	1	1

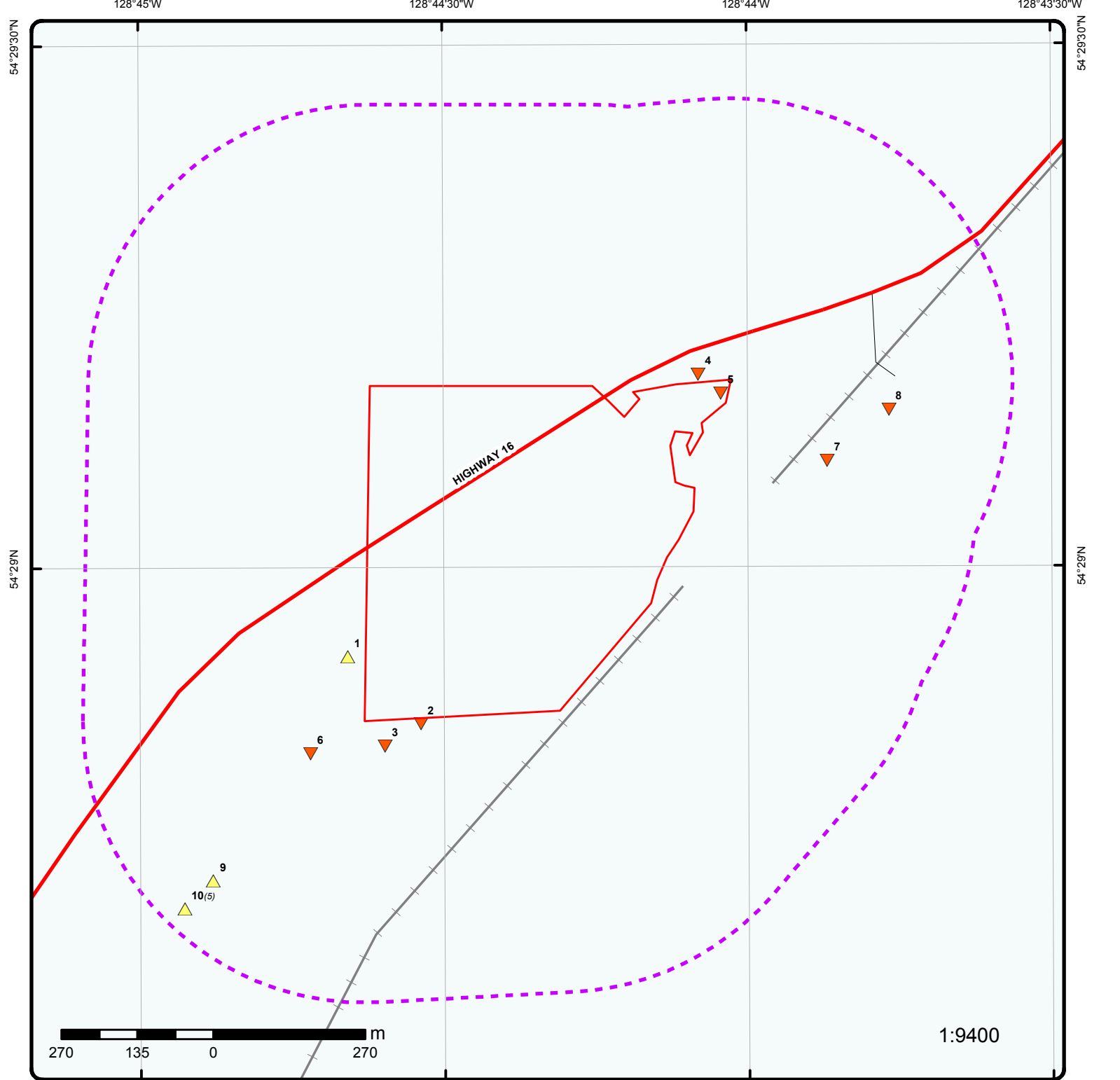
<i>Database</i>	<i>Name</i>	<i>Selected</i>	<i>On Site</i>	<i>Boundary to 0.50KM</i>	<i>Total</i>
REC	<i>Waste Receivers Summary</i>	Y	0	0	0
RST	<i>Retail Fuel Storage Tanks</i>	Y	0	0	0
SCT	<i>Scott's Manufacturing Directory</i>	Y	0	0	0
SREG	<i>Site Registry</i>	Y	0	0	0
TCFT	<i>Transport Canada Fuel Storage Tanks</i>	Y	0	0	0
WDS	<i>Waste Disposal Site Inventory</i>	Y	0	0	0
WWIS	<i>Water Well Information System</i>	Y	1	6	7
Total:			1	13	14

Executive Summary: Site Report Summary – Project Property

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Page Number</i>
5	WWIS		BC	9

Executive Summary: Site Report Summary – Surrounding Properties

Map Key	DB	Company/Site Name	Address	Page Number
1	WWIS		HIGHWAY BRIDGE ZYMAGOTITZ RIVER BC	9
2	WWIS		5108 GRAHAM AVENUE TERRACE BC V8G 1B5	10
3	FISH	YELLOW CEDAR LODGE	HIGHWAY 16 WEST TERRACE BC V8G4B5	11
4	WWIS		HWY 16 TERRACE BC	11
6	PUAI	Zymacord Pit	BC	12
7	WWIS		COAST RANGE 5 BC	12
8	WWIS		COAST RANGE 5 BC	12
9	WWIS		REMO BC	13
10	FISH	FISHERMAN'S B & B	PO BOX 612 TERRACE BC V8G 4A6	14
10	FISH	FISHERMAN'S B & B	PO BOX 612 TERRACE BC V8G 4A6	14
10	FISH	FISHERMAN'S #1 LODGE	13526 HIGHWAY 16 WEST TERRACE BC V8G0C9	14
10	FISH	FISHERMAN'S B & B	PO BOX 612 TERRACE BC V8G 4B8	14
10	FISH	FISHERMAN'S B & B	PO BOX 612 TERRACE BC V8G 4B8	14



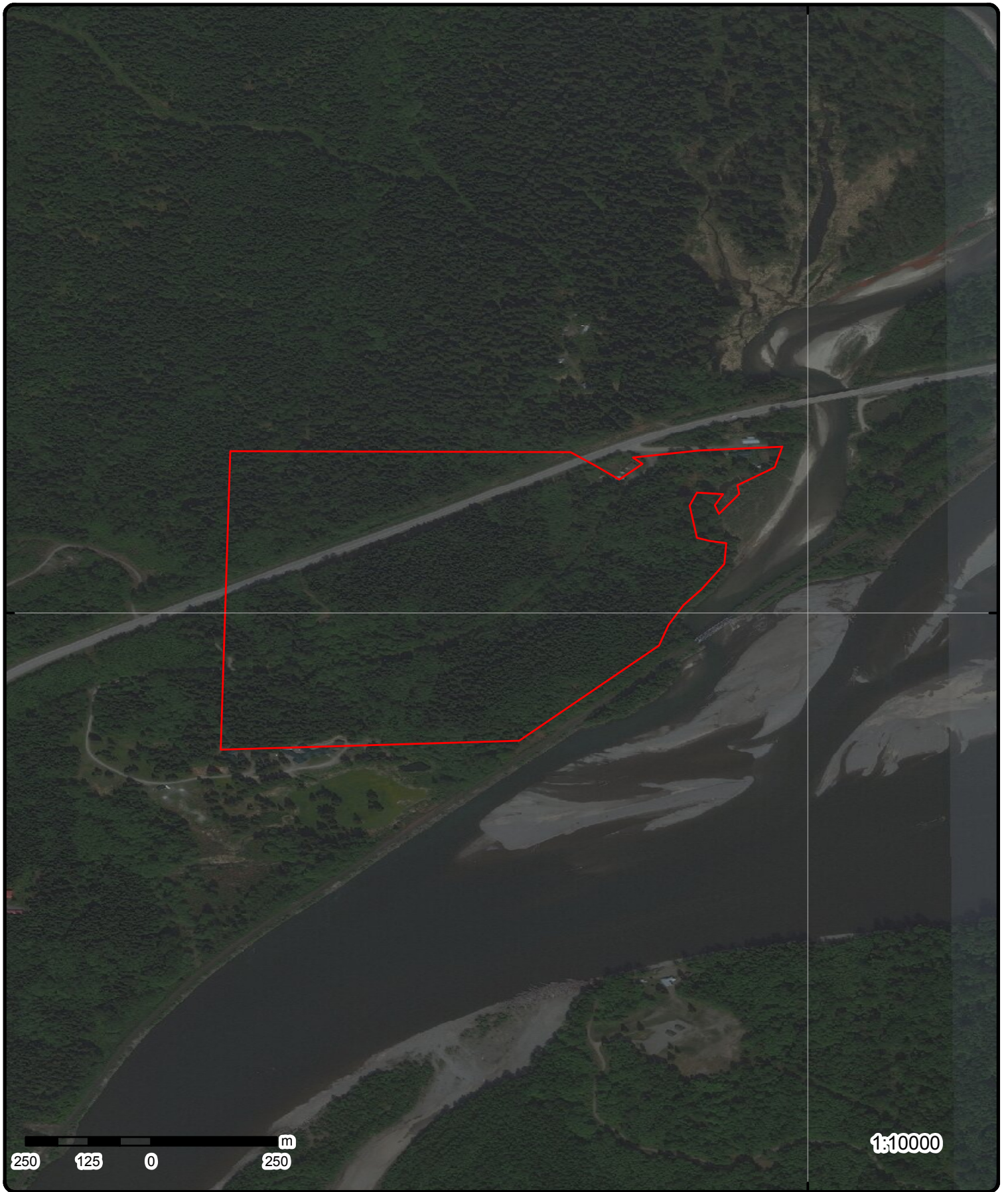
Map

Order No: 20131101001

Address: 516898.00 m E, 6037343.00 m N, Zimagord IR #3, BC

Project Property	Expressway	Industrial and Resource - Regions	National Park
Buffer Outline	Principal Highway	Main Line	Provincial or Territorial Park
Eris Sites with Higher Elevation	Secondary Highway	Sidetrack	Other Park
Eris Sites with Same Elevation	Major Road	Transit Line	Golf Course or Driving Range
Eris Sites with Lower Elevation	Local road	Abandoned Line	Park or Sports Field
Eris Sites with Unknown Elevation	Trail	Proposed Road	Other Recreation Area
	Proposed Road	Ferry Route/Ice Road	

Source: © 2012 DMTI Spatial Inc.



Aerial

Order No: 20131101001

Address: 516898.00 m E, 6037343.00 m N, Zimagord IR #3, BC

Detail Report

Map Key	Number of Records	Elevation m	Site	DB		
5	1 of 1	52.5	BC	<u>WWIS</u>		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Well Tag No.: 98901 Owner's Well No.: Land District: Lot: District Lot: Township: Legal Misc: PID: Longitude: Northing: 6037640 Location Accuracy: 1 (20 m) No ICF cadastre but good location sketch or good written description</p> <p>Observ. Well No.: Chemistry Site Id:</p> <p>Construction Start Dt: 2001-07-30 00:00:00 Construction Method: Orientation of Well: Vertical Sub-Class of Well: Domestic Yield Units: USGM Artesian Units: Aquifer Lithology: Bedrock Water Depth: 8 Final Well Depth: 235 Surf Seal Flag: N Surf Seal Material: Surf Seal Depth: General Remarks:</p> <p>--- Details --- Depth: From 0 To 9 Ft. + Depth: From 9 To 235 Ft.</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Seq No.: BCGS Mapsheet: 1031047341 Well Owner: Plan: 60713 Section: Range: Island: Latitude: Easting: 517228 Zone: 9 Well Status: New</p> <p>Observ. Well Status: Other Chemistry Data: Construction End Dt: 2001-07-30 00:00:00</p> <p>Use: Private Domestic Class of Well: Water supply Est. Yield: 1.75 Artesian Flow: Artesian Pressure: Bedrock Depth: 9 Depth Well Drilled: 235 Well Diameter: Surf Seal Method: Surf Seal Thickness: Aquifer No.:</p> <p>Material: SAND, GRAVEL Material: bedrock</p> </td> </tr> </table>					<p>Well Tag No.: 98901 Owner's Well No.: Land District: Lot: District Lot: Township: Legal Misc: PID: Longitude: Northing: 6037640 Location Accuracy: 1 (20 m) No ICF cadastre but good location sketch or good written description</p> <p>Observ. Well No.: Chemistry Site Id:</p> <p>Construction Start Dt: 2001-07-30 00:00:00 Construction Method: Orientation of Well: Vertical Sub-Class of Well: Domestic Yield Units: USGM Artesian Units: Aquifer Lithology: Bedrock Water Depth: 8 Final Well Depth: 235 Surf Seal Flag: N Surf Seal Material: Surf Seal Depth: General Remarks:</p> <p>--- Details --- Depth: From 0 To 9 Ft. + Depth: From 9 To 235 Ft.</p>	<p>Seq No.: BCGS Mapsheet: 1031047341 Well Owner: Plan: 60713 Section: Range: Island: Latitude: Easting: 517228 Zone: 9 Well Status: New</p> <p>Observ. Well Status: Other Chemistry Data: Construction End Dt: 2001-07-30 00:00:00</p> <p>Use: Private Domestic Class of Well: Water supply Est. Yield: 1.75 Artesian Flow: Artesian Pressure: Bedrock Depth: 9 Depth Well Drilled: 235 Well Diameter: Surf Seal Method: Surf Seal Thickness: Aquifer No.:</p> <p>Material: SAND, GRAVEL Material: bedrock</p>
<p>Well Tag No.: 98901 Owner's Well No.: Land District: Lot: District Lot: Township: Legal Misc: PID: Longitude: Northing: 6037640 Location Accuracy: 1 (20 m) No ICF cadastre but good location sketch or good written description</p> <p>Observ. Well No.: Chemistry Site Id:</p> <p>Construction Start Dt: 2001-07-30 00:00:00 Construction Method: Orientation of Well: Vertical Sub-Class of Well: Domestic Yield Units: USGM Artesian Units: Aquifer Lithology: Bedrock Water Depth: 8 Final Well Depth: 235 Surf Seal Flag: N Surf Seal Material: Surf Seal Depth: General Remarks:</p> <p>--- Details --- Depth: From 0 To 9 Ft. + Depth: From 9 To 235 Ft.</p>	<p>Seq No.: BCGS Mapsheet: 1031047341 Well Owner: Plan: 60713 Section: Range: Island: Latitude: Easting: 517228 Zone: 9 Well Status: New</p> <p>Observ. Well Status: Other Chemistry Data: Construction End Dt: 2001-07-30 00:00:00</p> <p>Use: Private Domestic Class of Well: Water supply Est. Yield: 1.75 Artesian Flow: Artesian Pressure: Bedrock Depth: 9 Depth Well Drilled: 235 Well Diameter: Surf Seal Method: Surf Seal Thickness: Aquifer No.:</p> <p>Material: SAND, GRAVEL Material: bedrock</p>					
1	1 of 1	73.4	HIGHWAY BRIDGE ZYMAGOTITZ RIVER BC	<u>WWIS</u>		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Well Tag No.: 41560 Owner's Well No.: Land District: COAST RANGE 5 Lot: District Lot: Township: Legal Misc: PID: Longitude: Northing: 6037172 Location Accuracy: C (50 m) Digitized from 1:20,000 mapping</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Seq No.: 3 BCGS Mapsheet: 1031047341 Well Owner: CLIFF BOLTON Plan: Section: Range: Island: Latitude: Easting: 516566 Zone: 9 Well Status: New</p> </td> </tr> </table>					<p>Well Tag No.: 41560 Owner's Well No.: Land District: COAST RANGE 5 Lot: District Lot: Township: Legal Misc: PID: Longitude: Northing: 6037172 Location Accuracy: C (50 m) Digitized from 1:20,000 mapping</p>	<p>Seq No.: 3 BCGS Mapsheet: 1031047341 Well Owner: CLIFF BOLTON Plan: Section: Range: Island: Latitude: Easting: 516566 Zone: 9 Well Status: New</p>
<p>Well Tag No.: 41560 Owner's Well No.: Land District: COAST RANGE 5 Lot: District Lot: Township: Legal Misc: PID: Longitude: Northing: 6037172 Location Accuracy: C (50 m) Digitized from 1:20,000 mapping</p>	<p>Seq No.: 3 BCGS Mapsheet: 1031047341 Well Owner: CLIFF BOLTON Plan: Section: Range: Island: Latitude: Easting: 516566 Zone: 9 Well Status: New</p>					

Map Key	Number of Records	Elevation m	Site	DB
Observ. Well No.:				Observ. Well Status:
Chemistry Site Id:				Other Chemistry
				Data:
Construction Start Dt:	1979-01-08 00:00:00			Construction End Dt:
Construction Method:	OTH			Use:
Orientation of Well:				Class of Well:
Sub-Class of Well:				Est. Yield:
Yield Units:	GPM			Artesian Flow:
Artesian Units:				Artesian Pressure:
Aquifer Lithology:	Bedrock			Bedrock Depth:
Water Depth:	10			Depth Well Drilled:
Final Well Depth:	68			Well Diameter:
Surf Seal Flag:				Surf Seal Method:
Surf Seal Material:				Surf Seal Thickness:
Surf Seal Depth:				Aquifer No.:
General Remarks:				788
--- Details ---				
Depth:	From 0 To 3 Ft.			Material:
+				silt
Depth:	From 3 To 4 Ft.			Material:
+				log
Depth:	From 4 To 8 Ft.			Material:
+				sand and loam
Depth:	From 8 To 16 Ft.			Material:
+				loose gravel to 2"
Depth:	From 16 To 21.5 Ft.			Material:
+				gravel to 3" with clay
Depth:	From 21.5 To 68 Ft.			Material:
				green bedrock "ultra basic rock"

2 **1 of 1** **61.7** **5108 GRAHAM AVENUE** **WWIS**
TERRACE BC V8G 1B5

Well Tag No.:	101709	Seq No.:	
Owner's Well No.:		BCGS Mapsheet:	1031047341
Land District:	COAST RANGE 5	Well Owner:	
Lot:	2	Plan:	8270
District Lot:	1707	Section:	
Township:		Range:	
Legal Misc:		Island:	
PID:		Latitude:	
Longitude:		Easting:	516696
Northing:	6037053	Zone:	9
Location Accuracy:	A (10 m) ICF cadastre and good location sketch	Well Status:	New
Observ. Well No.:		Observ. Well Status:	
Chemistry Site Id:		Other Chemistry	
		Data:	
Construction Start Dt:	1996-08-02 00:00:00	Construction End Dt:	1996-08-02 00:00:00
Construction Method:		Use:	Private Domestic
Orientation of Well:	Vertical	Class of Well:	Water supply
Sub-Class of Well:	Domestic	Est. Yield:	30
Yield Units:	GPM	Artesian Flow:	
Artesian Units:		Artesian Pressure:	
Aquifer Lithology:		Bedrock Depth:	
Water Depth:		Depth Well Drilled:	40
Final Well Depth:	40	Well Diameter:	

Map Key	Number of Records	Elevation m	Site	DB
Surf Seal Flag: Surf Seal Material: Surf Seal Depth: General Remarks:	N			Surf Seal Method: Surf Seal Thickness: Aquifer No.:
--- Details ---				
Depth:	From 0 To 15 Ft.		Material:	SAND & GRAVEL
+				
Depth:	From 15 To 29 Ft.		Material:	coarse SAND & GRAVEL
+				
Depth:	From 29 To 40 Ft.		Material:	silty SAND & GRAVEL
3	1 of 1	57.7	YELLOW CEDAR LODGE HIGHWAY 16 WEST TERRACE BC V8G4B5	FISH
Year:	2010			
Licence No.:	2010-000547			
--- Details ---				
Process Description:	SPORT-CAUGHT FISH PROCESSING			
4	1 of 1	55.0	HWY 16 TERRACE BC	WWIS
Well Tag No.:	56630		Seq No.:	5
Owner's Well No.:			BCGS Mapsheet:	1031047341
Land District:	COAST RANGE 5		Well Owner:	IND & NORTHN AFFAIRS
Lot:			Plan:	
District Lot:			Section:	
Township:			Range:	5
Legal Misc:			Island:	
PID:			Latitude:	
Longitude:			Easting:	517188
Northing:	6037675		Zone:	9
Location Accuracy:	C (50 m) Digitized from 1:20,000 mapping		Well Status:	New
Observ. Well No.:			Observ. Well Status:	
Chemistry Site Id:			Other Chemistry	
Construction Start Dt:	1986-10-10 00:00:00		Data:	
Construction Method:	DRI		Construction End Dt:	
Orientation of Well:			Use:	Private Domestic
Sub-Class of Well:			Class of Well:	
Yield Units:	GPM		Est. Yield:	12
Artesian Units:			Artesian Flow:	
Aquifer Lithology:	Bedrock		Artesian Pressure:	
Water Depth:			Bedrock Depth:	82
Final Well Depth:	125		Depth Well Drilled:	
Surf Seal Flag:			Well Diameter:	6.0
Surf Seal Material:			Surf Seal Method:	
Surf Seal Depth:			Surf Seal Thickness:	
General Remarks:			Aquifer No.:	788
--- Details ---				
Depth:	From 0 To 20 Ft.		Material:	clay
+				
Depth:	From 20 To 23 Ft.		Material:	gravel silt

Map Key	Number of Records	Elevation m	Site	DB
+				
Depth:		From 23 To 82 Ft.	Material:	clay rocks
+				
Depth:		From 82 To 125 Ft.	Material:	bedrock
6	1 of 1	63.2	Zymacord Pit	PUAI
			BC	
ID:		2061		
Type:		PIT		
Easting:		516500		
Northing:		6037000		
Zone:		9		
7	1 of 1	51.4	COAST RANGE 5 BC	WWIS
Well Tag No.:	4864		Seq No.:	1
Owner's Well No.:			BCGS Mapsheet:	1031047341
Land District:	COAST RANGE 5		Well Owner:	VISTICA
Lot:			Plan:	
District Lot:	2265		Section:	
Township:			Range:	
Legal Misc:			Island:	
PID:			Latitude:	
Longitude:			Easting:	517417
Northing:	6037522		Zone:	9
Location Accuracy:	C (50 m) Digitized from 1:20,000 mapping		Well Status:	New
Observ. Well No.:			Observ. Well Status:	
Chemistry Site Id:			Other Chemistry Data:	
Construction Start Dt:	1950-01-01 00:00:00		Construction End Dt:	
Construction Method:	DUG		Use:	Unknown Well Use
Orientation of Well:			Class of Well:	
Sub-Class of Well:			Est. Yield:	0
Yield Units:			Artesian Flow:	
Artesian Units:			Artesian Pressure:	
Aquifer Lithology:	Unconsolidated		Bedrock Depth:	
Water Depth:	6		Depth Well Drilled:	
Final Well Depth:	15		Well Diameter:	0.0
Surf Seal Flag:			Surf Seal Method:	
Surf Seal Material:			Surf Seal Thickness:	
Surf Seal Depth:			Aquifer No.:	789
General Remarks:	GOOD SUPPLY			
--- Details ---				
Depth:		From 0 To 6 Ft.	Material:	gravelly sand
+				
Depth:		From 6 To 15 Ft.	Material:	bouldery gravel
8	1 of 1	50.6	COAST RANGE 5 BC	WWIS
Well Tag No.:	4948		Seq No.:	2
Owner's Well No.:			BCGS Mapsheet:	1031047341

Map Key	Number of Records	Elevation m	Site	DB
Land District:	COAST RANGE 5		Well Owner:	KUREK
Lot:			Plan:	
District Lot:	2265		Section:	
Township:			Range:	
Legal Misc:			Island:	
PID:			Latitude:	
Longitude:			Easting:	517527
Northing:	6037612		Zone:	9
Location Accuracy:	C (50 m) Digitized from 1:20,000 mapping		Well Status:	New
Observ. Well No.:			Observ. Well Status:	
Chemistry Site Id:			Other Chemistry Data:	
Construction Start Dt:	1950-01-01 00:00:00		Construction End Dt:	
Construction Method:	DUG		Use:	Unknown Well Use
Orientation of Well:			Class of Well:	
Sub-Class of Well:			Est. Yield:	0
Yield Units:			Artesian Flow:	
Artesian Units:			Artesian Pressure:	
Aquifer Lithology:	Unconsolidated		Bedrock Depth:	
Water Depth:	8		Depth Well Drilled:	
Final Well Depth:	14		Well Diameter:	0.0
Surf Seal Flag:			Surf Seal Method:	
Surf Seal Material:			Surf Seal Thickness:	
Surf Seal Depth:			Aquifer No.:	789
General Remarks:	GOOD SUPPLY			
--- Details ---				
Depth:	From 0 To 14 Ft.		Material:	gravelly clay

9 **1 of 1** **94.7** **REMO BC** [WWIS](#)

Well Tag No.:	47007	Seq No.:	4
Owner's Well No.:		BCGS Mapsheet:	1031047341
Land District:	COAST RANGE 5	Well Owner:	PAUL BURTON & CECILE
Lot:	3	Plan:	8270
District Lot:	1707	Section:	
Township:		Range:	5
Legal Misc:		Island:	
PID:		Latitude:	
Longitude:		Easting:	516327
Northing:	6036774	Zone:	9
Location Accuracy:	C (50 m) Digitized from 1:20,000 mapping	Well Status:	New
Observ. Well No.:		Observ. Well Status:	
Chemistry Site Id:		Other Chemistry Data:	
Construction Start Dt:	1981-01-01 00:00:00	Construction End Dt:	
Construction Method:	DRI	Use:	Private Domestic
Orientation of Well:		Class of Well:	
Sub-Class of Well:		Est. Yield:	3
Yield Units:	GPM	Artesian Flow:	
Artesian Units:		Artesian Pressure:	
Aquifer Lithology:	Bedrock	Bedrock Depth:	35
Water Depth:		Depth Well Drilled:	
Final Well Depth:	180	Well Diameter:	6.0
Surf Seal Flag:		Surf Seal Method:	
Surf Seal Material:		Surf Seal Thickness:	
Surf Seal Depth:		Aquifer No.:	788
General Remarks:			

Map Key	Number of Records	Elevation m	Site	DB
--- Details ---				
Depth:	From 0 To 12 Ft.		Material:	silt
+				
Depth:	From 12 To 35 Ft.		Material:	clay, boulders
+				
Depth:	From 35 To 180 Ft.		Material:	bedrock - water bearing
10	1 of 5	100.1	FISHERMAN'S B & B PO BOX 612 TERRACE BC V8G 4A6	FISH
Year:	2004			
Licence No.:	2004-000643 CA			
--- Details ---				
Process Description:	SPORT-CAUGHT FISH PROCESSING			
10	2 of 5	100.1	FISHERMAN'S B & B PO BOX 612 TERRACE BC V8G 4A6	FISH
Year:	2003			
Licence No.:	2003-000786 CA			
--- Details ---				
Process Description:	SPORT-CAUGHT FISH PROCESSING			
10	3 of 5	100.1	FISHERMAN'S #1 LODGE 13526 HIGHWAY 16 WEST TERRACE BC V8G0C9	FISH
Year:	2010			
Licence No.:	2010-000573			
--- Details ---				
Process Description:	SPORT-CAUGHT FISH PROCESSING			
10	4 of 5	100.1	FISHERMAN'S B & B PO BOX 612 TERRACE BC V8G 4B8	FISH
Year:	2005			
Licence No.:	2005-000603			
--- Details ---				
Process Description:	SPORT-CAUGHT FISH PROCESSING			
10	5 of 5	100.1	FISHERMAN'S B & B PO BOX 612 TERRACE BC V8G 4B8	FISH
Year:	2004			
Licence No.:	2004-000643			
--- Details ---				
Process Description:	SPORT-CAUGHT FISH PROCESSING			

Unplottable Report

Site: Gateway Transfer
Hwy 16, West of Terrace Terrace BC

Database:
NEES

Incident Date: 11/29/00 11:00
Contaminant: undetermined contaminant
Amount:
Units:
Quantity: Unknown
Cause: Above Ground Tank Leak
Source: Other Motor Vehicle
Reason: Equipment Failure
Sector: Transportation

Appendix: Database Descriptions

Ecolog Environmental Risk Information Services Ltd can search the following databases. The extent of Historical information varies with each database and current information is determined by what is publicly available to Ecolog ERIS at the time of update. **Note:** Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.

<u>Authorization Management System (formerly WASTE):</u>	1957-Jan 2012	Provincial	AMS
AMS is the Ministry of Environment's waste permit administration system. It maintains data related to the administration of permits issued under the Environmental Management Act and registrations under various regulations where the regulation requires a discharger to register. It will include information such as companies or individuals permitted to discharge waste; type of business and locations at which waste disposal is permitted; the types, amounts and frequency of waste products that are permitted to be discharged at given locations; issue date and more. This was previously referred to as the "WASTE" database.			
<u>Assessment Report Indexing System:</u>	1947-Jan 2012	Provincial	ARIS
Within British Columbia, the "Mineral Tenure Act Regulation", requires that all results of mineral exploration and development programs be submitted to the British Columbia Ministry of Employment and Investment, where they are then maintained and housed by the Geological Survey Branch. The assessment reports provided by the Geological Survey Branch contain summary information for reports approved to November 1998; on geology, geophysics, geochemistry, drilling, prospecting and physical work.			
<u>Automobile Wrecking & Supplies:</u>	2001-Jun 2010	Private	AUWR
This database provides an inventory of all known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.			
<u>All BCG Registered Firms:</u>		Provincial	BCG
The combination of Generators, Receivers and PCBs(Active and Inactive Generators) into one database since the data are no longer provided seperately.			
<u>BC Oil and Gas Wells:</u>	1918-Jan 2006*	Provincial	BOGW
The BC Oil and Gas Wells database was collected from the BC Oil and Gas Commission and is a comprehensive database that includes information regarding well number, well name, operator name, location, depth, status, as well as drill date and type. Please note that this database will not be updated, information on wells drilled after January 2006 can be found in the Oil and Gas Wells (OGW) database under the 'Private Source Database' section.			
<u>Chemical Register:</u>	1999-Jun 2010	Private	CHEM
This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.			
<u>Coal Tar Sites:</u>	1992*	Provincial	COAL
This one-time study is an inventory of all known and historical coal tar sites, identifying sites that produced coal tar and other related tars during the mid 1800's to the mid 1900's.			

Compliance and Enforcement Summary: 1990-2011 Provincial [CONV](#)
This database summarizes orders, tickets and convictions issued by the Ministry of the Environment under applicable ministry and federal legislation. Orders are issued when action is required to prevent or stop actual or potential impact to the environment. Tickets apply to all tickets paid, deemed guilty by non-payment or expiry, or contested in court and found guilty by a judge. Convictions apply to all court convictions of ministry legislation as well as federal legislation where the ministry has taken action. This reporting summary began in January 2006, replacing Non-Compliance Reports by the former Ministry of Water, Land & Air Protection. See the Non-Compliance Reports (NCPL) database below for more information. This database is part of a larger COORS (Conservation Officer On-Line Reporting System) database controlled by the Ministry of Environment in BC.

Wastewater Discharge Inventory: 1957-1995* Provincial [DIS](#)
This inventory contains information regarding direct dischargers of toxic pollutants for the following operations: Industrial; Commercial; Agricultural; Mining; Municipal; Urban; Aquaculture; and Pulp & Paper, operating under provincial permits. Please note that this program was discontinued and therefore the database will not be updated.

Environmental Effects Monitoring: 1992-2007* Federal [EEM](#)
The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

ERIS Historical Searches: 1999-Mar 2013 Private [EHS](#)
EcoLog ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Environmental Issues Inventory System: 1992-2001* Federal [EIS](#)
The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Federal Convictions: 1988-Jun 2007* Federal [FCON](#)
Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Contaminated Sites on Federal Land: June 2000-Jan 2013 Federal [FCS](#)
The Federal Contaminated Sites Inventory includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Commercial Fisheries: 1993-2010 Provincial [FISH](#)
The Fisheries, Aquaculture & Commercial Fisheries Branch of the Ministry of Water, Land & Air Protection maintains a database of fish processing plant approvals, licenses and activities. Each year, licenses need to be renewed.

Fisheries & Oceans Fuel Tanks:

1964-Sept 2003

Federal

[FOFT](#)

Fisheries & Oceans Canada maintains an inventory of all aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Waste Generators Summary:

1993-2010

Provincial

[GEN](#)

Within British Columbia, the Special Waste Regulation defines a waste generator as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number (BCG#), company name and address of registered generators; including the types of hazardous wastes generated and the form of treatment used in the handling of the waste. This information is a summary of all years from June 1993 to March 2006. Please note that a British Columbia Generator number (BCG#) are not unique to a company. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Indian & Northern Affairs Fuel Tanks:

1950-Aug 2003*

Federal

[IAFT](#)

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of all aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Lumber Mills:

1997-2009

Provincial

[LUM](#)

This database provides information regarding the general location and estimated annual output capacity of major timber processing facilities within the province of British Columbia.

Canadian Mine Locations:

1998-2009

Private

[MINE](#)

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Minerals Deposits Database:

1852-Apr 2012

Provincial

[MNR](#)

The Ministry of Energy and Mines maintains a database of more than 12,000 metallic mineral, industrial mineral and coal deposits and occurrences within British Columbia. Information within our report pertains to primary name, elevation, mining division, commodities, and status. Please note that as of January 27, 1999, information included within this database was divided into 2 categories: released and unreleased areas. Records for unreleased areas may contain incomplete, unedited, and/or inaccurate data.

National Analysis of Trends in Emergencies System (NATES):

1974-1994*

Federal

[NATE](#)

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Non-Compliance Reports: 1990-Mar 2001* Provincial [NCPL](#)
From 1990 to March 2001 the Ministry of Water, Land & Air Protection maintained a reporting system that identified any reported concern that pertained to compliance with authorized waste management permits or plans, approvals, orders, operational certificates and regulations, or any other activity under the Waste Management Act. This reporting system was discontinued in April of 2001; therefore there will be no updates to this database. However, beginning in January 2006 the Ministry of the Environment began publishing Compliance and Enforcement Summaries. See the Compliance and Enforcement Summary (CPL) database above for more information.

National Defence & Canadian Forces Fuel Tanks: Up to May 2001* Federal [NDFT](#)
The Department of National Defence and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

National Defence & Canadian Forces Spills: Mar 1999-Aug 2010 Federal [NDSP](#)
The Department of National Defence and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

National Defence & Canadian Forces Waste Disposal Sites: 2001-Apr 2007* Federal [NDWD](#)
The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

National Energy Board Wells: 1920-Feb 2003* Federal [NEBW](#)
The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

National Environmental Emergencies System (NEES): 1974-2003* Federal [NEES](#)
In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for all previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

National PCB Inventory: 1988-2008* Federal [NPCB](#)
Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. All federal out-of-service PCB containing equipment and all PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites.

National Pollutant Release Inventory: 1993-2011 Federal [NPRI](#)
Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Oil and Gas Wells: 1988-Jun 2013 Private [OGW](#)
The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Canadian Pulp and Paper: 1999, 2002, 2004, 2005, 2009 Private [PAP](#)
This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Inventory of PCB Storage Sites: 1989, May 1993-2010 Provincial [PCB](#)
The Ministry of Water, Land & Air Protection maintains a database of all active PCB waste storage sites within the Special Waste Information System. Please note that there is no requirement to maintain an accurate listing of all inactive PCB waste storage equipment and/or disposal sites. The records within this database provide information regarding site name, location, an inventory of stored wastes and quantities, and status date (when site first active/inactive). Previous to May 1993, data was collected from a different source and is only available for 1989.

Parks Canada Fuel Storage Tanks: 1920-Jan 2005* Federal [PCFT](#)
Canadian Heritage maintains an inventory of all known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Pesticide Register: 1989-Apr 2010 Provincial [PES](#)
This is a database of individuals who apply for a service or vendor license for the use of registered pesticides. A service license is denoted by an "S" in the license number, likewise, a vendor license by a "V" in the license number.

Private Aggregate Inventory: 1975-1996* Provincial [PRAI](#)
Within British Columbia, aggregate pits are designated as mines; and as such, the Ministry of Energy and Mines is responsible for their planning, management and regulation, including permitting, health, safety and reclamation. Owners or operators of all private aggregate pits must file Notices of Work as part of the permitting and reclamation process. In 1994, the Geological Survey Branch initiated the Aggregate Program, in order to establish an inventory of natural and crushed aggregate pits. Information about each pit in the database file includes its location, NTS map sheet number, Notice of Work file number and status (active/inactive) and the type of landform hosting the pit. This database was a one-time inventory and will not be updated.

Public Aggregate Inventory: 1960-2001* Provincial [PUAI](#)
Information about public aggregate pits in British Columbia is collected and managed by the Ministry of Transportation and Highways. Data has been gathered on more than 2000 pits, in respect to pit name, type and geographical location.

Waste Receivers Summary: 1992-2010 Provincial [REC](#)
The Special Waste Regulation defines the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. A waste receiving location is any site or facility to which waste is transferred through a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Retail Fuel Storage Tanks:

1999-Jun 2010

Private

[RST](#)

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Scott's Manufacturing Directory:

1992-Mar 2011

Private

[SCT](#)

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Site Registry:

1985-Oct 2012

Provincial

[SREG](#)

This information is collected from the Ministry of Environment's Site Registry. It is not a registry of contaminated sites, although some sites on the registry are contaminated. Most sites have already been investigated and require minor remediation, or have already been cleaned up to government requirements. The Registry also stores environmentally relevant historic information about sites including: names of participants, legal and administrative notations, references to pertinent documents submitted to the ministry, associations with other sites, and much more.

Transport Canada Fuel Storage Tanks:

1970-Mar 2007

Federal

[TCFT](#)

With the provinces of BC, MB, NB, NF, ON, PE, and QC; Transport Canada currently owns and operates 90 fuel storage tanks. Our inventory provides information on the site name, location, tank age, capacity and fuel type.

Waste Disposal Site Inventory:

1980-1998*

Provincial

[WDS](#)

This inventory pertains to active, regulated waste disposal sites within the province of British Columbia. Registered companies may hold a permit or certificate for release of the following waste types: Effluent, Refuse, Air and Special Waste Storage. Information on Waste Disposal Sites after 1998 is contained within the Authorizations (AUTH) database.

Water Well Information System:

1880-Jul 2013

Provincial

[WWIS](#)

This database was collected from the Groundwater Information Center of the Ministry of Water, Land & Air Protection and contains over 90,000 records. Comprehensive information is available for each well including: well location (address/site area), latitude/longitude, legal description (section, lot, plan, district lot, range, township), BCGS Mapsheet No., depth of well, construction dates, well status and lithology. The accuracy of well locations is also provided, as well as the reference source for obtaining geographic coordinates.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries". All values are an approximation.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property, within the report search radius, and the surrounding area outside the search radius.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red upside down triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and were included as reference.



REPORT



Project Property: *Reserve
436707.05 m E, 6001361.60 m N
Port Essington BC*

Report Type: *Custom-Build Your Own Report*

Order #: *20131101003*

Date: *November 11, 2013*

EcoLog ERIS Ltd.
Environmental Risk
Information Service Ltd. (ERIS)
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Executive Summary

Property Information:

Project Property: Reserve
436707.05 m E, 6001361.60 m N Port Essington BC

Order Information:

Order No.: 20131101003
Date Requested: 11/11/2013
Requested by: Golder Associates Ltd.
Report Type: Custom-Build Your Own Report

Additional Products:

Executive Summary: Report Summary

Database	Name	Selected	On Site	Boundary to 0.50KM	Total
AMS	Authorization Management System (formerly WASTE)	Y	0	0	0
ARIS	Assessment Report Indexing System	Y	0	0	0
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
BCG	All BCG Registered Firms	Y	0	0	0
BOGW	BC Oil and Gas Wells	Y	0	0	0
CHEM	Chemical Register	Y	0	0	0
COAL	Coal Tar Sites	Y	0	0	0
CONV	Compliance and Enforcement Summary	Y	0	0	0
DIS	Wastewater Discharge Inventory	Y	0	0	0
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	0	0	0
EIS	Environmental Issues Inventory System	Y	0	0	0
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	0	0	0
FISH	Commercial Fisheries	Y	0	0	0
FOFT	Fisheries & Oceans Fuel Tanks	Y	0	0	0
GEN	Waste Generators Summary	Y	0	0	0
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
LUM	Lumber Mills	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Minerals Deposits Database	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defence & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defence & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBW	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGW	Oil and Gas Wells	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCB	Inventory of PCB Storage Sites	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	0	0
PRAI	Private Aggregate Inventory	Y	0	0	0
PUAI	Public Aggregate Inventory	Y	0	0	0

<i>Database</i>	<i>Name</i>	<i>Selected</i>	<i>On Site</i>	<i>Boundary to 0.50KM</i>	<i>Total</i>
REC	<i>Waste Receivers Summary</i>	Y	0	0	0
RST	<i>Retail Fuel Storage Tanks</i>	Y	0	0	0
SCT	<i>Scott's Manufacturing Directory</i>	Y	0	0	0
SREG	<i>Site Registry</i>	Y	0	0	0
TCFT	<i>Transport Canada Fuel Storage Tanks</i>	Y	0	0	0
WDS	<i>Waste Disposal Site Inventory</i>	Y	0	0	0
WWIS	<i>Water Well Information System</i>	Y	0	0	0
<hr/>					
		Total:	0	0	0

Executive Summary: Site Report Summary – Project Property

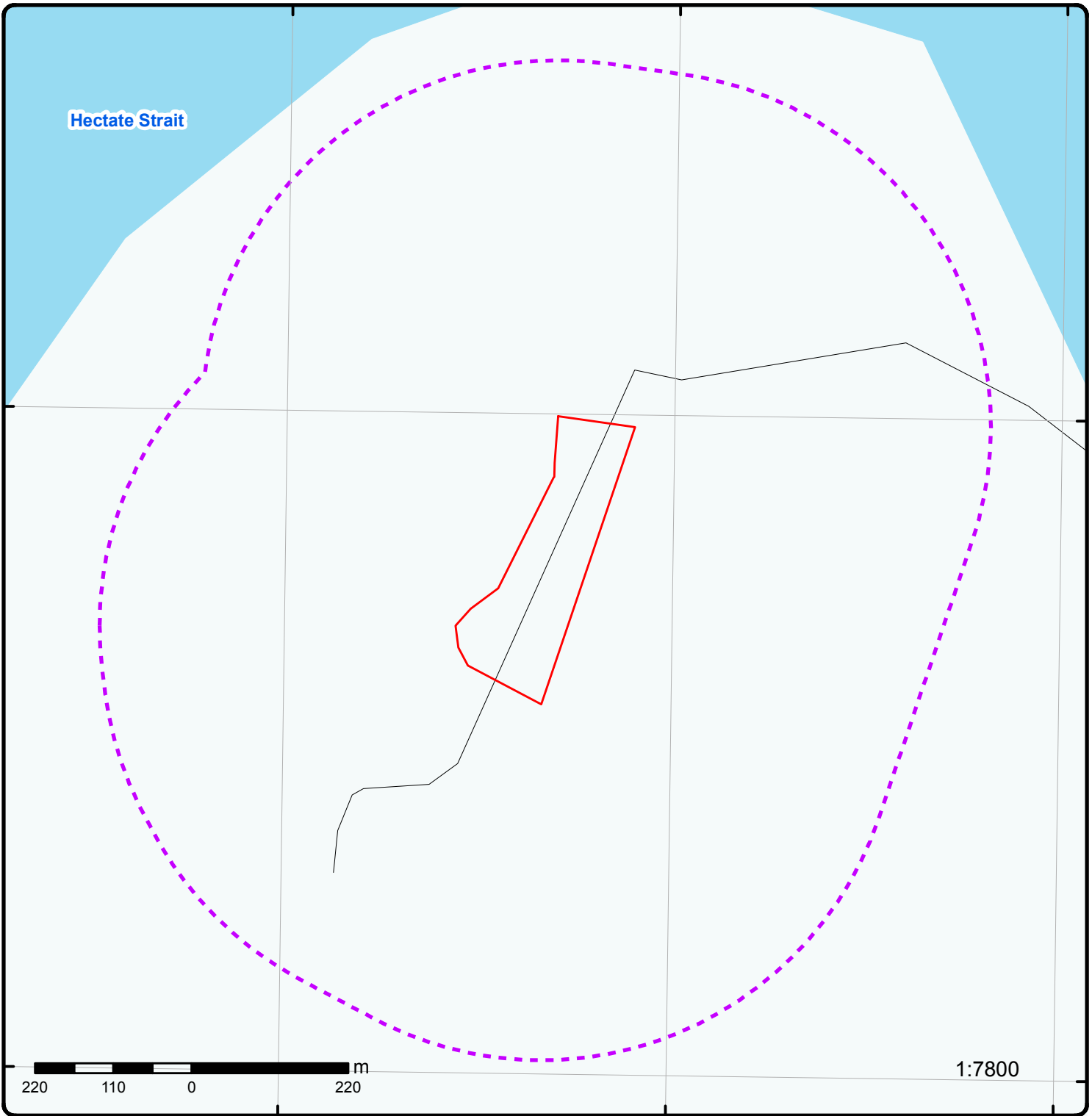
<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Page Number</i>
--------------------	-----------	--------------------------	----------------	------------------------

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary – Surrounding Properties

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Page Number</i>
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No records found in the selected databases for the surrounding properties.



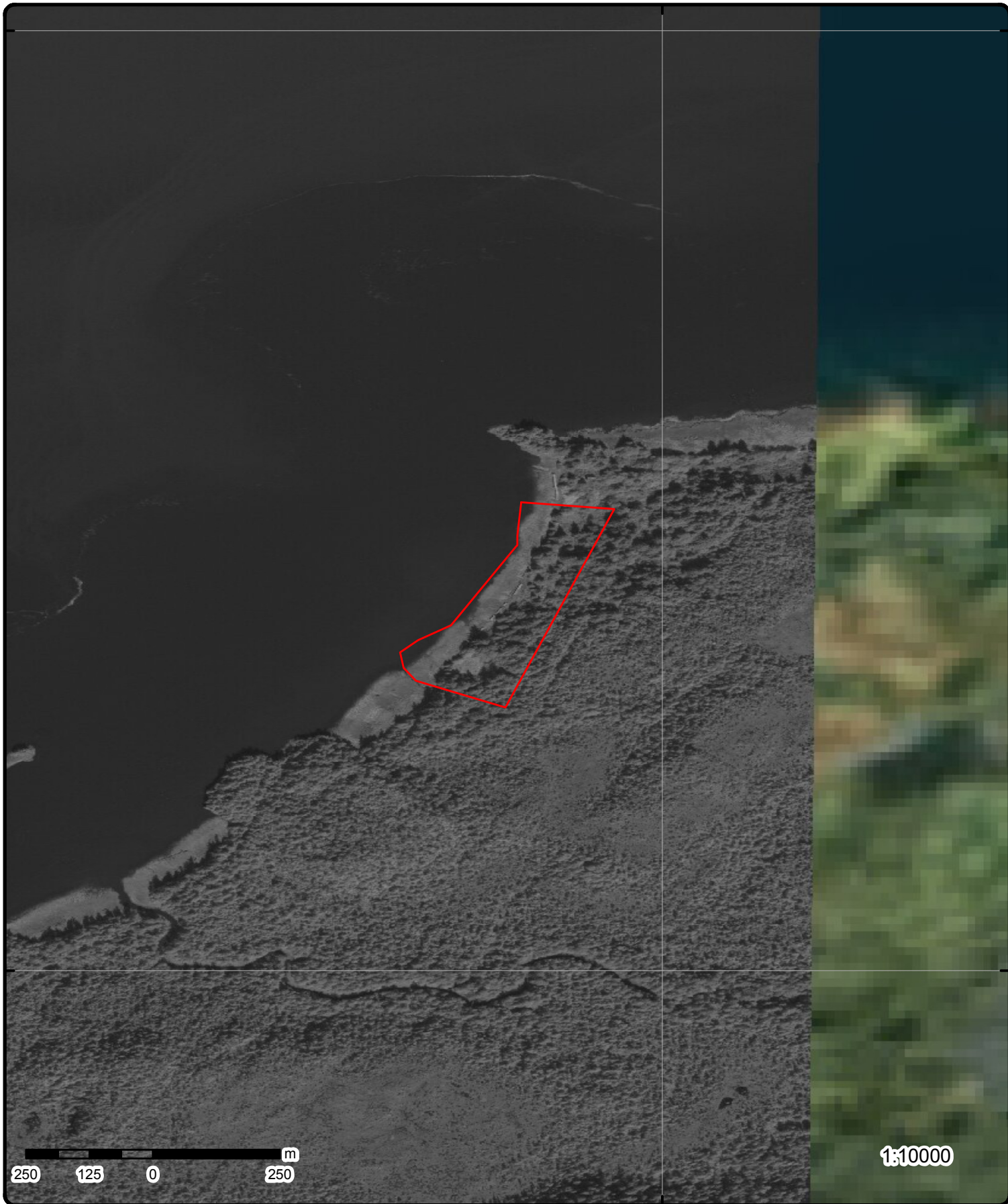
1:7800

Map

Order No: 20131101003

Address: 436707.05 m E, 6001361.60 m N, Port Essington, BC

Project Property	Expressway	Industrial and Resource - Regions	National Park
Buffer Outline	Principal Highway	Main Line	Provincial or Territorial Park
Eris Sites with Higher Elevation	Secondary Highway	Sidetrack	Other Park
Eris Sites with Same Elevation	Major Road	Transit Line	Golf Course or Driving Range
Eris Sites with Lower Elevation	Local road	Abandoned Line	Park or Sports Field
Eris Sites with Unknown Elevation	Trail	Ferry Route/Ice Road	Other Recreation Area
	Proposed Road		



Aerial

Order No: 20131101003

Address: 436707.05 m E, 6001361.60 m N, Port Essington, BC

Detail Report

<i>Map Key</i>	<i>Number of Records</i>	<i>Elevation m</i>	<i>Site</i>	<i>DB</i>
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No records found in the selected databases for the project property or surrounding properties.

Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

Appendix: Database Descriptions

Ecolog Environmental Risk Information Services Ltd can search the following databases. The extent of Historical information varies with each database and current information is determined by what is publicly available to Ecolog ERIS at the time of update. **Note:** Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.

<u>Authorization Management System (formerly WASTE):</u>	1957-Jan 2012	Provincial	AMS
AMS is the Ministry of Environment's waste permit administration system. It maintains data related to the administration of permits issued under the Environmental Management Act and registrations under various regulations where the regulation requires a discharger to register. It will include information such as companies or individuals permitted to discharge waste; type of business and locations at which waste disposal is permitted; the types, amounts and frequency of waste products that are permitted to be discharged at given locations; issue date and more. This was previously referred to as the "WASTE" database.			
<u>Assessment Report Indexing System:</u>	1947-Jan 2012	Provincial	ARIS
Within British Columbia, the "Mineral Tenure Act Regulation", requires that all results of mineral exploration and development programs be submitted to the British Columbia Ministry of Employment and Investment, where they are then maintained and housed by the Geological Survey Branch. The assessment reports provided by the Geological Survey Branch contain summary information for reports approved to November 1998; on geology, geophysics, geochemistry, drilling, prospecting and physical work.			
<u>Automobile Wrecking & Supplies:</u>	2001-Jun 2010	Private	AUWR
This database provides an inventory of all known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.			
<u>All BCG Registered Firms:</u>		Provincial	BCG
The combination of Generators, Receivers and PCBs(Active and Inactive Generators) into one database since the data are no longer provided seperately.			
<u>BC Oil and Gas Wells:</u>	1918-Jan 2006*	Provincial	BOGW
The BC Oil and Gas Wells database was collected from the BC Oil and Gas Commission and is a comprehensive database that includes information regarding well number, well name, operator name, location, depth, status, as well as drill date and type. Please note that this database will not be updated, information on wells drilled after January 2006 can be found in the Oil and Gas Wells (OGW) database under the 'Private Source Database' section.			
<u>Chemical Register:</u>	1999-Jun 2010	Private	CHEM
This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.			
<u>Coal Tar Sites:</u>	1992*	Provincial	COAL
This one-time study is an inventory of all known and historical coal tar sites, identifying sites that produced coal tar and other related tars during the mid 1800's to the mid 1900's.			

Compliance and Enforcement Summary: 1990-2011 Provincial [CONV](#)
This database summarizes orders, tickets and convictions issued by the Ministry of the Environment under applicable ministry and federal legislation. Orders are issued when action is required to prevent or stop actual or potential impact to the environment. Tickets apply to all tickets paid, deemed guilty by non-payment or expiry, or contested in court and found guilty by a judge. Convictions apply to all court convictions of ministry legislation as well as federal legislation where the ministry has taken action. This reporting summary began in January 2006, replacing Non-Compliance Reports by the former Ministry of Water, Land & Air Protection. See the Non-Compliance Reports (NCPL) database below for more information. This database is part of a larger COORS (Conservation Officer On-Line Reporting System) database controlled by the Ministry of Environment in BC.

Wastewater Discharge Inventory: 1957-1995* Provincial [DIS](#)
This inventory contains information regarding direct dischargers of toxic pollutants for the following operations: Industrial; Commercial; Agricultural; Mining; Municipal; Urban; Aquaculture; and Pulp & Paper, operating under provincial permits. Please note that this program was discontinued and therefore the database will not be updated.

Environmental Effects Monitoring: 1992-2007* Federal [EEM](#)
The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

ERIS Historical Searches: 1999-Mar 2013 Private [EHS](#)
EcoLog ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Environmental Issues Inventory System: 1992-2001* Federal [EIS](#)
The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Federal Convictions: 1988-Jun 2007* Federal [FCON](#)
Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Contaminated Sites on Federal Land: June 2000-Jan 2013 Federal [FCS](#)
The Federal Contaminated Sites Inventory includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Commercial Fisheries: 1993-2010 Provincial [FISH](#)
The Fisheries, Aquaculture & Commercial Fisheries Branch of the Ministry of Water, Land & Air Protection maintains a database of fish processing plant approvals, licenses and activities. Each year, licenses need to be renewed.

Fisheries & Oceans Fuel Tanks:

1964-Sept 2003

Federal

[FOFT](#)

Fisheries & Oceans Canada maintains an inventory of all aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Waste Generators Summary:

1993-2010

Provincial

[GEN](#)

Within British Columbia, the Special Waste Regulation defines a waste generator as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number (BCG#), company name and address of registered generators; including the types of hazardous wastes generated and the form of treatment used in the handling of the waste. This information is a summary of all years from June 1993 to March 2006. Please note that a British Columbia Generator number (BCG#) are not unique to a company. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Indian & Northern Affairs Fuel Tanks:

1950-Aug 2003*

Federal

[IAFT](#)

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of all aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Lumber Mills:

1997-2009

Provincial

[LUM](#)

This database provides information regarding the general location and estimated annual output capacity of major timber processing facilities within the province of British Columbia.

Canadian Mine Locations:

1998-2009

Private

[MINE](#)

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Minerals Deposits Database:

1852-Apr 2012

Provincial

[MNR](#)

The Ministry of Energy and Mines maintains a database of more than 12,000 metallic mineral, industrial mineral and coal deposits and occurrences within British Columbia. Information within our report pertains to primary name, elevation, mining division, commodities, and status. Please note that as of January 27, 1999, information included within this database was divided into 2 categories: released and unreleased areas. Records for unreleased areas may contain incomplete, unedited, and/or inaccurate data.

National Analysis of Trends in Emergencies System (NATES):

1974-1994*

Federal

[NATE](#)

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Non-Compliance Reports: 1990-Mar 2001* Provincial [NCPL](#)
From 1990 to March 2001 the Ministry of Water, Land & Air Protection maintained a reporting system that identified any reported concern that pertained to compliance with authorized waste management permits or plans, approvals, orders, operational certificates and regulations, or any other activity under the Waste Management Act. This reporting system was discontinued in April of 2001; therefore there will be no updates to this database. However, beginning in January 2006 the Ministry of the Environment began publishing Compliance and Enforcement Summaries. See the Compliance and Enforcement Summary (CPL) database above for more information.

National Defence & Canadian Forces Fuel Tanks: Up to May 2001* Federal [NDFT](#)
The Department of National Defence and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

National Defence & Canadian Forces Spills: Mar 1999-Aug 2010 Federal [NDSP](#)
The Department of National Defence and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

National Defence & Canadian Forces Waste Disposal Sites: 2001-Apr 2007* Federal [NDWD](#)
The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

National Energy Board Wells: 1920-Feb 2003* Federal [NEBW](#)
The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

National Environmental Emergencies System (NEES): 1974-2003* Federal [NEES](#)
In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for all previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

National PCB Inventory: 1988-2008* Federal [NPCB](#)
Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. All federal out-of-service PCB containing equipment and all PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites.

National Pollutant Release Inventory: 1993-2011 Federal [NPRI](#)
Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Oil and Gas Wells: 1988-Jun 2013 Private [OGW](#)
The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Canadian Pulp and Paper: 1999, 2002, 2004, 2005, 2009 Private [PAP](#)
This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Inventory of PCB Storage Sites: 1989, May 1993-2010 Provincial [PCB](#)
The Ministry of Water, Land & Air Protection maintains a database of all active PCB waste storage sites within the Special Waste Information System. Please note that there is no requirement to maintain an accurate listing of all inactive PCB waste storage equipment and/or disposal sites. The records within this database provide information regarding site name, location, an inventory of stored wastes and quantities, and status date (when site first active/inactive). Previous to May 1993, data was collected from a different source and is only available for 1989.

Parks Canada Fuel Storage Tanks: 1920-Jan 2005* Federal [PCFT](#)
Canadian Heritage maintains an inventory of all known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Pesticide Register: 1989-Apr 2010 Provincial [PES](#)
This is a database of individuals who apply for a service or vendor license for the use of registered pesticides. A service license is denoted by an "S" in the license number, likewise, a vendor license by a "V" in the license number.

Private Aggregate Inventory: 1975-1996* Provincial [PRAI](#)
Within British Columbia, aggregate pits are designated as mines; and as such, the Ministry of Energy and Mines is responsible for their planning, management and regulation, including permitting, health, safety and reclamation. Owners or operators of all private aggregate pits must file Notices of Work as part of the permitting and reclamation process. In 1994, the Geological Survey Branch initiated the Aggregate Program, in order to establish an inventory of natural and crushed aggregate pits. Information about each pit in the database file includes its location, NTS map sheet number, Notice of Work file number and status (active/inactive) and the type of landform hosting the pit. This database was a one-time inventory and will not be updated.

Public Aggregate Inventory: 1960-2001* Provincial [PUAI](#)
Information about public aggregate pits in British Columbia is collected and managed by the Ministry of Transportation and Highways. Data has been gathered on more than 2000 pits, in respect to pit name, type and geographical location.

Waste Receivers Summary: 1992-2010 Provincial [REC](#)
The Special Waste Regulation defines the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. A waste receiving location is any site or facility to which waste is transferred through a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Retail Fuel Storage Tanks:

1999-Jun 2010

Private

[RST](#)

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Scott's Manufacturing Directory:

1992-Mar 2011

Private

[SCT](#)

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Site Registry:

1985-Oct 2012

Provincial

[SREG](#)

This information is collected from the Ministry of Environment's Site Registry. It is not a registry of contaminated sites, although some sites on the registry are contaminated. Most sites have already been investigated and require minor remediation, or have already been cleaned up to government requirements. The Registry also stores environmentally relevant historic information about sites including: names of participants, legal and administrative notations, references to pertinent documents submitted to the ministry, associations with other sites, and much more.

Transport Canada Fuel Storage Tanks:

1970-Mar 2007

Federal

[TCFT](#)

With the provinces of BC, MB, NB, NF, ON, PE, and QC; Transport Canada currently owns and operates 90 fuel storage tanks. Our inventory provides information on the site name, location, tank age, capacity and fuel type.

Waste Disposal Site Inventory:

1980-1998*

Provincial

[WDS](#)

This inventory pertains to active, regulated waste disposal sites within the province of British Columbia. Registered companies may hold a permit or certificate for release of the following waste types: Effluent, Refuse, Air and Special Waste Storage. Information on Waste Disposal Sites after 1998 is contained within the Authorizations (AUTH) database.

Water Well Information System:

1880-Jul 2013

Provincial

[WWIS](#)

This database was collected from the Groundwater Information Center of the Ministry of Water, Land & Air Protection and contains over 90,000 records. Comprehensive information is available for each well including: well location (address/site area), latitude/longitude, legal description (section, lot, plan, district lot, range, township), BCGS Mapsheet No., depth of well, construction dates, well status and lithology. The accuracy of well locations is also provided, as well as the reference source for obtaining geographic coordinates.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries". All values are an approximation.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property, within the report search radius, and the surrounding area outside the search radius.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red upside down triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and were included as reference.



APPENDIX D

BC Site Registry Search

1. Ki tsumkal um. txt

As Of: OCT 27, 2013

BC Online: Site Registry

13/10/31

Folio: 13-1475-0024

For: PA59614 GOLDER ASSOCIATES LTD. (BURNABY)

17:04:18

Page 1

Area Nil Search

As of OCT 27, 2013, no records from Site Registry fall within 0.5 kilometers of coordinates Latitude 54 degrees, 31 minutes, 31.1 seconds, and Longitude 128 degrees, 40 minutes, 25.7 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

2. Dal k-KA-Gi l a-Quoeux. txt

As Of: OCT 27, 2013

BC Online: Site Registry

13/10/31

Folio: 13-1475-0024

For: PA59614 GOLDER ASSOCIATES LTD. (BURNABY)

17:03:17

Page 1

Area Nil Search

As of OCT 27, 2013, no records from Site Registry fall within 0.5 kilometers of coordinates Latitude 54 degrees, 35 minutes, 9.96 seconds, and Longitude 128 degrees, 40 minutes, 3.57 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

3. Zimagord.txt

As Of: OCT 27, 2013

BC Online: Site Registry

13/10/31

Folio: 13-1475-0024

For: PA59614 GOLDER ASSOCIATES LTD. (BURNABY)

17:02:31

Page 1

Area Nil Search

As of OCT 27, 2013, no records from Site Registry fall within 0.5 kilometers of coordinates Latitude 54 degrees, 29 minutes, 0.39 seconds, and Longitude 128 degrees, 44 minutes, 21.0 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

4. Port Essington.txt

As Of: OCT 27, 2013

BC Online: Site Registry

13/10/31

Folio: 13-1475-0024

For: PA59614 GOLDER ASSOCIATES LTD. (BURNABY)

17:03:50

Page 1

Area Nil Search

As of OCT 27, 2013, no records from Site Registry fall within 0.5 kilometers of coordinates Latitude 54 degrees, 9 minutes, 22.4 seconds, and Longitude 129 degrees, 58 minutes, 10.0 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 E

Reserve Reconnaissance Photographs



IR#1 PHOTOGRAPHS



Photograph 1: Band Maintenance Shed.



Photograph 2: Band Maintenance Shed Entrance.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 3: Maintenance Shed Contents.



Photograph 4: Maintenance Shed Contents.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 5: Truck and Unused Tanks.



Photograph 6: Metal Debris.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 7: Discolored Surface Water.



Photograph 8: Metal Debris.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 9: Metal Debris.



Photograph 10: Metal Debris.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 11: Metal Debris and Drum on Stand.



Photograph 12: Metal and Mixed Waste.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 13: Metal Debris at Stream.



Photograph 14: Metal Debris at Stream.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 15: Abandoned Vehicle.



Photograph 16: Valard Laydown Area.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 17: Valard Laydown Area.



Photograph 18: Valard Laydown Area with AST.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 19: Valard AST.



Photograph 20: Former Kalum Products Mill Site.



APPENDIX E
Reserve Reconnaissance Photographs



Photograph 21: Tempo Gas Bar.



Photograph 22: Propane Dispenser at Tempo.



APPENDIX E

Reserve Reconnaissance Photographs



Photograph 23: Tempo Gas Bar ASTs.



Photograph 24: Tempo Gas Bar ASTs.



IR#2 PHOTOGRAPHS



Figure 25: View of Road and Cover Conditions.



Figure 26: View of Road.



IR#3 PHOTOGRAPHS



Figure 27: Residential Area.



Figure 28: Residential Area - Propane Tank.



APPENDIX E

Reserve Reconnaissance Photographs



Figure 29: Abandoned Vehicles.



Figure 30: Dumpsite.



APPENDIX E

Reserve Reconnaissance Photographs



Figure 31: Dumpsite.



Figure 32: Dumpsite.



APPENDIX E

Reserve Reconnaissance Photographs



Figure 33: Dumpsite.



Figure 34: Dumpsite.

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APPENDIX F

Level C Cost Estimates

Table F1. Class C Cost Estimates for Phase II Investigations

Site/Area	Description	Phase II Investigations Estimated Costs*
APEC 1 – Historic Log Sorting and Re-loading Area	Test pit investigation at 20 locations across 32 acre area (use KFN staff and equipment if available); Drilling for further delineation and well installation; Groundwater sampling existing and new wells; Sediment and surface water sampling; Work plan development and reporting.	\$180,000 - \$225,000
APEC 2 – Historic Diesel USTs on Valard Construction Ltd. Site	Test pit assessment with soil sampling in fueling area adjacent to AST. Work plan development and reporting. Further assessment dependent on soil results.	\$19,000 - \$25,000 (soil investigation only); \$51,000 - \$64,000 (including groundwater investigation)
APEC 3 – Maintenance Shed	Test pit assessment with soil sampling. Work plan development and reporting. Further assessment dependent on soil results. Coordinate timing with KFN plans for shed removal.	\$17,000 - \$21,000 (soil investigation only); \$43,000 - \$54,000 (including groundwater investigation)
APEC 4 – West Kalum Road Ditch	Test pit assessment with soil sampling. Work plan development and reporting. Further assessment dependent on soil results.	\$10,000 - \$13,000
APEC 5 – Current and Historical ASTs in a Residential Area	Evaluate condition of each AST reported by residences. Determine further assessments based on observations, location and history.	--
APEC 6 – Old Quarry Road Dumpsite	Test pit assessment with soil sampling. Work plan development and reporting. Further assessment dependent on soil results.	\$20,000 - \$25,000 (soil investigation only); \$54,000 - \$67,000 (including groundwater investigation)
APEC 7 – Tempo Gas Station	Soil gas survey to evaluate subsurface conditions in fueling areas and along piping layout between ASTs and fueling pumps. Work plan development and reporting. Further assessment dependent on results of soil gas survey.	\$31,000 - \$38,000
APEC 8 – Offsite: Former Kalum Forest Products Mill Site	Soil and groundwater investigation through installation of three new monitoring wells along northern boundary of IR#1. Evaluate groundwater flow direction in relative to former mill site. Evaluate subsurface conditions through soil and groundwater sampling. Work plan development and reporting.	\$51,000 - \$63,000
APEC 9 – Zymagord Dumpsite	Test pit assessment with soil sampling. Further assessment dependent on soil results. Work plan development and reporting.	\$15,000 - \$19,000 (soil investigation only); \$39,000 - \$49,000 (including groundwater investigation)

* - Cost Estimate ranges include a 25% contingency calculation.

Notes:

Class C costs estimates are provided for planning purposes only.

Actual costs will depend on refined scope of work, and other factors including, but not limited to, site conditions, updated subcontractor quotes, extent of contamination revealed during the investigations, and conditions encountered in the field.



APPENDIX G

Email Correspondence Deactivating Logging Roads

Baltz, Kelly

From: Steve Roberts <sroberts@kitsumkalum.bc.ca>
Sent: Tuesday, March 04, 2014 2:47 PM
To: Wayne Arnold
Cc: Baltz, Kelly; 'Cynthia Bohn'; 'Don T. Roberts'; Kathy C. Wesley; 'Lisa L. Wesley'; 'Susan Spalding'; Tracy Sam; Troy Sam; 'Wayne Bolton'; Alex Bolton, Sim'oogit Hataxgm Lii Midiik; 'Allan Bolton'; 'Lynn Bolton'
Subject: Deactivation Old Logging Roads
Attachments: Deactivating_Old_Logging_Roads.pdf

Wayne Arnold, RPF
Natural Resources Specialist
Environment and Natural Resources
Lands and Economic Development, BC Region
Aboriginal Affairs and Northern Development Canada
1138 Melville St., Suite 600
Vancouver BC
V6E 4S3

Telephone: 604-775-6239
Fax: 604-666-6474

Via E-mail: Wayne.Arnold@aandc-aadnc.gc.ca

Hi Wayne,

Kitsumkalum noticed a problem with groundwater draining into the cemetery late last month when a grave was dug.

There is some speculation that the high groundwater is a result of the old logging roads not being deactivated after logging activities in the 1940s and 1950s.

All of Kitsumkalum IR #1 was surrendered to the Crown for logging in the 1940s and 1950s, these surrenders are still active in Aboriginal Affairs' records.

Can we look forward to Aboriginal Affairs documenting this problem with the old logging roads and developing a prescription for deactivating and put the mountain streams back in their natural locations?

I copy this e-mail to Kelly Baltz for this issue to be included in the TRM.

Cheers,

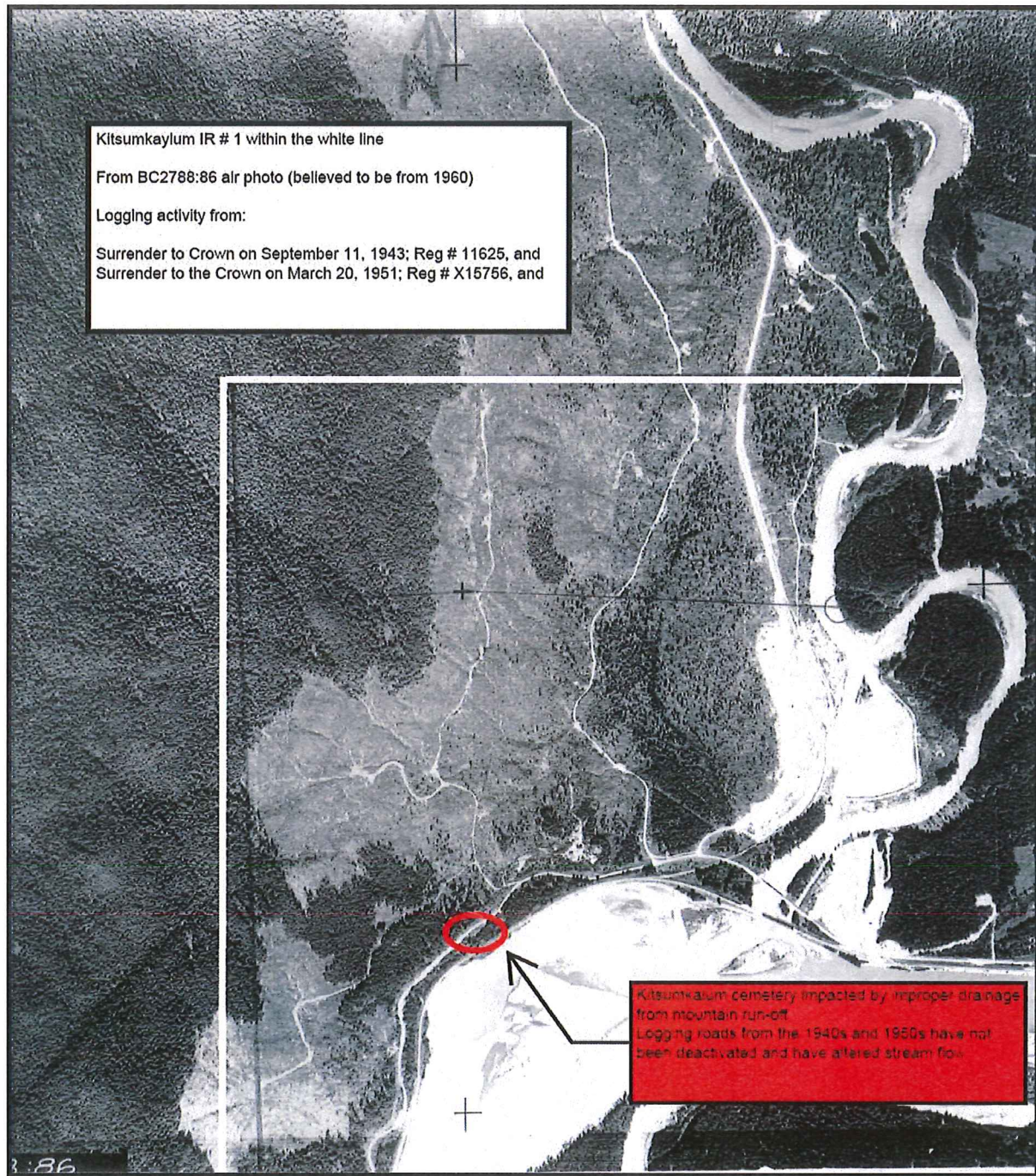
Steven W. Roberts
Band Manager
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P.O. Box 544
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Kitsumkalum Cemetery is being impacted by unconfined stream flow due to an alteration of stream flow by logging roads that were constructed in the 1940s and 1950s.

Kitsumkalum Band Council proposes that Aboriginal Affairs deactivate the old logging roads and put the mountain streams back in their natural water course.



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