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**Ministry of Energy and Mines**
BC Geological Survey

**Assessment Report**
**Title Page and Summary**

**TYPE OF REPORT [type of survey(s)]:**

**TOTAL COST:** $4,569.34

**AUTHOR(S):** Kelly Krueger, Geo. I.T., Dustin Hayes, Geo. I.T. **SIGNATURE(S):**

**NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):** Not required **YEAR OF WORK:** 2015

**STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):** Event No.'s 5581135 & 5581136 (December 9, 2015)

**PROPERTY NAME:** Cluxewe Property, Kilpala Property

**CLAIM NAME(S) (on which the work was done):** CLUXEWE, KILPALA, KILPALA 2

**COMMODITIES SOUGHT:** Limestone

**MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:**

**MINING DIVISION:** Nanaimo Mining Division **NTS/BCGS:** 92L11

**LATITUDE:** 50 ° 33 ' 19 " **LONGITUDE:** 127 ° 5 ' 52 " **(at centre of work)**

**OWNER(S):**
1) Graymont Western Canada Inc. 2)

**MAILING ADDRESS:**
Suite 260, 4311-12 Street N.E.
Calgary, Alberta T2E 4P9

**OPERATOR(S) [who paid for the work]:**
1) Graymont Western Canada Inc. 2)

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**PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):**
Carbonates, limestone, Triassic, Quatsino, Karmutsen, Parsons Bay

**REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:** N/A

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| TYPE OF WORK IN THIS REPORT | EXTENT OF WORK (IN METRIC UNITS) | ON WHICH CLAIMS | PROJECT COSTS APPORTIONED (incl. support) |
|---|---|---|---|
| **GEOLOGICAL (scale, area)** | | | |
| Ground, mapping | 1:25,000; entire properties | CLUXEWE, KILPALA, KILPALA 2 | $3,064.84 |
| Photo interpretation | | | |
| **GEOPHYSICAL (line-kilometres)** | | | |
| Ground | | | |
| Magnetic | | | |
| Electromagnetic | | | |
| Induced Polarization | | | |
| Radiometric | | | |
| Seismic | | | |
| Other | | | |
| Airborne | | | |
| **GEOCHEMICAL (number of samples analysed for...)** | | | |
| Soil | | | |
| Silt | | | |
| Rock | 51 samples analyzed for whole rock constituents | CLUXEWE, KILPALA, KILPALA 2 | $1,504.50 |
| Other | | | |
| **DRILLING (total metres; number of holes, size)** | | | |
| Core | | | |
| Non-core | | | |
| **RELATED TECHNICAL** | | | |
| Sampling/assaying | | | |
| Petrographic | | | |
| Mineralographic | | | |
| Metallurgic | | | |
| **PROSPECTING (scale, area)** | | | |
| **PREPARATORY / PHYSICAL** | | | |
| Line/grid (kilometres) | | | |
| Topographic/Photogrammetric (scale, area) | | | |
| Legal surveys (scale, area) | | | |
| Road, local access (kilometres)/trail | | | |
| Trench (metres) | | | |
| Underground dev. (metres) | | | |
| Other | | | |
| | | **TOTAL COST:** | $4,569.34 |

**GRAYMONT WESTERN CANADA INC.**

# 2015 EXPLORATION AND FIELDWORK ON THE KILPALA AND CLUXEWE PROPERTIES

## NORTHERN VANCOUVER ISLAND, BRITISH COLUMBIA

Nanaimo Mining Division

KILPALA, KILPALA 1, CLUXEWE

Geographic Coordinates
50°32’ N to 50°34’ N
127°00’ W to 127°10' W

NTS Sheet 92 L/11

Owner: J. Dahrouge
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Edmonton, Alberta T6E 1X7

Operator: Graymont Western Canada Inc.
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Date Submitted: March 2, 2016

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# 1. INTRODUCTION

The Kilpala and Cluxewe claims were staked in March and April 2015 to cover exposures of Quatsino Formation south of Highway 19 and Port McNeill. Dahrouge Geological Consulting Ltd. (Dahrouge) and Graymont Western Canada Inc. (Graymont) completed surface sampling and mapping on the claims from June $5^{th}$ to $6^{th}$, 2015. Both claims were staked via the BC Mineral Titles online staking system.

Exploration on the Kilpala Property involved mapping and collecting nine hand samples of Quatsino Formation limestones. The purpose of the work on the Kilpala Property was to map stratigraphic contacts with adjacent units and collect samples to test the limestone quality.

Work on the Cluxewe Property involved the collection of 42 limestone samples, which were assayed to test for limestone quality. Exploration focused on mapping geological contacts and collecting hand samples. This report describes the 2015 exploration and provides an interpretation of the results. Appendix 1 is an itemized cost breakdown of the 2015 work completed on the properties. The 2015 exploration was authorized by Darren Anderson of Graymont.

Two statements of work have been filed with respect to the exploration described in this report (event numbers 5581135 & 5581136).

## 1.1 GEOGRAPHIC SETTING

### 1.1.1 Location and Access

The Kilpala and Cluxewe properties are within the Insular Belt near the northern end of Vancouver Island, south-western British Columbia. The Kilpala Property lies approximately 5.5 km south-southeast of Port McNeill and 40 km east of Port Hardy. It can be accessed from E Main Logging Road, south of Highway 19. The Cluxewe claim covers a portion of Cluxewe River, and is located approximately 8 km southwest of the town of Port McNeill (Fig.’s 1.1 & 1.2).

Port Hardy, with a population of about 5,000, is approximately 450 km from Victoria via Highways 1 and 19 (Fig. 1.1). Port Hardy is serviced by daily air transport from Vancouver and has facilities and services expected for a community of its size. The regional economy, and that of the local communities, is primarily based on forestry, fishing, and tourism.

Port McNeill, with year-round facilities, is about 40 km southeast of Port Hardy via Highway 19. It is located on Broughton Strait, near the north end of the inside passage of Vancouver Island. It has a population of about 2,700 and is a service centre for the forestry and fishing industries, with several motels and restaurants.

From Port McNeill, the Kilpala Property is accessed by driving westerly on Highway 19 (Island Highway), for about 1 km, then turning south onto E Main Logging Road. Approximately 1.5 km southeasterly along this forestry road is the northwest corner of the Kilpala Property. A relatively small network of logging roads in the vicinity provides excellent access throughout the Property (Fig. 1.2).

The Cluxewe Property is accessed by driving west from Port McNeill along Highway 19 for approximately 3.75 km, then south for 1.75 km along the well-maintained unpaved Keogh Main. The southern part of the Property can be reached by turning either west onto W Road or east onto Keogh Road. Many other logging roads and spurs in the area do not reach the Property but provide excellent access for regional exploration (Fig. 1.2).

The network of logging roads that traverse the Kilpala and Cluxewe properties, and the surrounding area, are owned and maintained by Western Forest Products Ltd. Access to the roads and other surface rights are not restricted; however, contacting the companies prior to utilizing the roads is highly recommended.

### 1.1.2 Topography, Vegetation and Climate

Topography in the Kilpala and Cluxewe property areas is characterized by discontinuous knobs and ridges of low relief. Elevations in the Kilpala Property range from 70 m to the north up to approximately 250 m near the southern boundary of the Property. In the Cluxewe Property, elevation reaches 250 m near the southern boundary, and drops to 70 m in areas cut by Cluxewe River (Fig.'s 1.3 & 1.4).

Much of the Kilpala and Cluxewe areas have been logged within the last 50 years. Portions that have been logged more than 10 years ago are covered by decomposing slash and a very thick cover of secondary growth. The remainder of the properties are covered with mature forest. Forest vegetation is variable and consists of tall stands of Alder, Balsam, Cedar, Hemlock, Douglas Fir, Poplar, and Spruce. Spruce and Cedar are predominant in areas of lower relief with poor drainage, while Douglas Fir and Hemlock are more common in areas with well-developed drainage. Tree cover is widely spaced with fairly open undergrowth. Near impenetrable underbrush is formed locally by Alder and Salal, or by immature Cedar and Spruce in areas of recent logging.

The area is considered part of the coastal rainforest climatic zone with generally mild and wet conditions. Temperatures rarely exceed 25°C during summer months and less than -20°C during winter months. Precipitation is considered heavy throughout the region, with average annual precipitation of 180 cm. Most precipitation occurs during winter months, however heavy and prolonged rainfall during summer months is not uncommon.

## 1.2 PROPERTY

The Kilpala and Cluxewe properties are being held in trust for Graymont by J. Dahrouge of Dahrouge Geological Consulting Ltd., based out of Edmonton, AB. The Kilpala Property consists of 2 contiguous claims (Table 1.1, Fig. 1.5). The KILPALA claim was staked by J. Dahrouge in late March 2015 through the BC Mineral Titles online staking system. In mid-April, KILPALA 2 was staked in the same manner by J. Dahrouge. The Cluxewe Property consists of 1 claim and was staked by J. Dahrouge through the BC Mineral Titles online staking system in mid-April (Table 1.2, Fig. 1.6).

**TABLE 1.1: LIST OF KILPALA CLAIMS**

| Claim Name | Tenure Number | Record Date | Current Expiry Date | Expected Expiry Date |
|---|---|---|---|---|
| KILPALA | 1035119 | 2015 03 31 | 2016 03 31 | 2016 12 31 |
| KILPALA 2 | 1035512 | 2015 04 17 | 2016 04 17 | 2016 12 31 |

**TABLE 1.2: LIST OF CLUXEWE CLAIMS**

| Claim Name | Tenure Number | Record Date | Current Expiry Date | Expected Expiry Date |
|---|---|---|---|---|
| CLUXEWE | 1035513 | 2015 04 17 | 2016 04 17 | 2016 12 31 |

## 1.3 HISTORY AND PREVIOUS INVESTIGATIONS

To the knowledge of the authors, no previous exploration for high-calcium limestone has been conducted on the Kilpala and Cluxewe properties. There is, however, a large blasted pit adjacent to the Kilpala Property, currently held by Actus Minerals Corp. and operated by Western Forest Products. A large volume of marble has been recovered from the pit, presumably for use in road construction.

Initial exploration on the Kilpala Property occurred in February 2015, with a traverse of approximately 15 km completed to map geological contacts. In June 2015, nine hand samples were collected and analyzed. The Cluxewe Property was initially explored in June 2015, with the collection of 42 limestone samples and mapping of geological contacts.

## 1.4 PURPOSE OF WORK

The 2015 exploration program on the Kilpala and Cluxewe properties was primarily conducted in order to determine the limestone quality in the area. Mapping outcrop areas, checking access roads and identifying the presence of Tertiary intrusives were secondary objectives.

## 1.5 SUMMARY OF WORK

From June 5th to 6th, 2015, Dahrouge, on behalf of Graymont, conducted sampling of carbonate lithotypes within and surrounding the Kilpala and Cluxewe properties. Exploration on the properties consisted of surface sampling, checking access and geological mapping.

Nine samples from the Kilpala Property (Fig. 1.3, Appendix 4) and 42 samples from the Cluxewe Property (Fig. 1.4, Appendix 5) were collected. Samples were collected by chipping outcrops perpendicular to defined or assumed bedding. Bedding was commonly difficult to see due to the very-fine-grained homogeneous nature of the limestone. Where bedding was uncertain or had been obscured by structure, stratigraphic thicknesses were calculated using orientations from adjacent units. Where more than one bedding orientation was measured, the mean orientation was used.

Geological observations were recorded, including lithologic information, measurements of structural elements, and other pertinent details (Appendices 4 & 5). A solution of 10% HCl was used to assess carbonate quality in the field. Samples were shipped to Graymont's Central lab in Salt Lake City, Utah for preparation and analyses by standard ICP techniques, and LOI. Analytical procedures are described in Appendix 2 and complete assay results are provided in Appendix 3.

Field maps were created on 1:10,000 and 1:30,000 scale map sheets and concentrated on the Kilpala and Cluxewe claim areas. A magnetic declination of 18° east was used. Areas with visibly abundant or highly concentrated Tertiary dykes were noted.

Personnel were based in a motel in Port McNeill. Access to and from the properties was by a rented four-wheel-drive vehicle. Access throughout the properties was by four-wheel-drive truck where possible, and by extensive hiking. Notes were compiled regarding access and current road status, as roads in the area are commonly rehabilitated and overgrown or reactivated for logging purposes.

# 2. REGIONAL GEOLOGY

The Insular Belt of the Pacific Margin comprises several discrete terranes of disparate origin, the largest of which are Alexander and Wrangellia terranes (Gabrielse et al., 1991). The Wrangellia Terrane is a complex of Paleozoic through Cenozoic volcanic arc, oceanic, and clastic wedge assemblages comprising the modern Pacific Continental Margin from Vancouver Island northward to Queen Charlotte Islands. It is disrupted by north-westerly trending, dextral, transcurrent faults, westerly verging thrust faults, plutonic rocks, and anticlinoria.

Within the Insular Belt of south-western British Columbia, high-calcium limestone has previously been noted in the Mount Mark Formation of the Sicker Group, and the Quatsino and Parsons Bay formations of the Vancouver Group (Table 2.1).

## 2.1 STRATIGRAPHY

### 2.1.1 Mount Mark (Buttle Lake) Formation

The Pennsylvanian Mount Mark Formation of the Buttle Lake Group (Massey and Friday, 1988) conformably overlies and grades into the Cameron River Formation of the Sicker Group (Table 2.1). The Mount Mark Formation is equivalent to the Buttle Lake Formation (Massey and Friday, 1988). It consists of massive, fine- to coarse-grained, crinoidal limestone beds with minor argillaceous and chert interbeds. Significant outcrops of Mount Mark Formation are found within the Cowichan uplift of south-eastern Vancouver Island, near Tofino along the west coast, within the Buttle Lake Uplift between 50 and 100 km southeast of Nimpkish Lake, and along the southern part of Texada Island. It reaches thicknesses of 150 m near Buttle Lake and up to 300 m within the Cowichan uplift.

### 2.1.2 Quatsino Formation

The Upper Triassic Quatsino Formation of the Vancouver Group para-conformably overlies and is interbedded with volcanic and limestone litho-types of the Karmutsen Formation. The Karmutsen Formation includes basaltic and andesitic flows, tuffs, agglomerates, and breccias, with minor interbedded limestone (Hoadley, 1953). The Karmutsen is widely exposed along the southwest Pacific margin (Muller et al., 1974).

Outcrops of the Quatsino Formation are known from both Texada and Vancouver islands. Within the northern part of Vancouver Island, the formation is exposed along three parallel belts (Fig. 2.1):

| Belt * | Length | Location |
|---|---|---|
| (West) Quatsino-Tlupana | 165 km | from Quatsino Sound to Tlupana Inlet |
| (Central) Nimpkish | 39 km | east and south of Nimpkish Lake |
| (East) Bonanza | 30 km | west of Telegraph Cove to Bonanza Lake |

* After McCammon (1968)

The Quatsino Formation attains a maximum thickness of 760 m at a location south of Alice Lake, within the western belt (Fischl, 1992). Near Nimpkish Lake, within the central belt, Coffin and Soux (1988) reported a drill intersection thickness of about 135 m for the lower part of the Quatsino Formation. Within northern Vancouver Island, the Quatsino is divisible into lower and upper parts (Hoadley, 1953 and Muller et al., 1974). The lower part, with highly variable thickness (Table 2.2), is characterized as a thick-bedded to massive, brownish-grey to black, fine-grained to microcrystalline limestone (Muller et al., 1974) and a few thin interbeds of andesite or basalt (Hoadley, 1953).

**TABLE 2.1: STRATIGRAPHY OF THE NORTHERN PART OF VANCOUVER ISLAND***

| Period | Stratigraphic Unit | | | |
|---|---|---|---|---|
| | **Group** | **Formation** | **Lithology** | **Approx. Thick. (m)** |
| Tertiary | - | Tertiary Volcanics and Sediments | | 305 |
| | - | Tertiary Intrusions | Quartz diorite | - |
| Cretaceous | Nanaimo | | clastics, coal | 125 |
| | Queen Charlotte | | clastics, coal | 305 - 1050 |
| | - | Longarm | clastics | 60 - 400 |
| | - | Pacific Rim Sequence | clastics | - |
| Jurassic | - | Island Intrusions | granitic intrusives | - |
| | Vancouver | Bonanza | volcanics | 305 - 5650 |
| Triassic | | Harbledown | clastics and tuffs | |
| | | Parsons Bay[1] - Sutton | calcareous clastics and limestone | 305 - 710 |
| | | Quatsino[1] | limestone | 30 - 750 |
| | | Karmutsen | volcanics | 3000 - 6100 |
| | | Sediment Sill Unit | clastics and volcanics | 750 |
| Pennsylvanian | Buttle Lake° | Mount Mark (Buttle Lake) | limestone | 215 |

* Modified after Muller et al. (1974) and Fischl (1992)
° Formerly of the Sicker Gp. (Massey and Friday, 1988)
[1] Equivalent to the Sutton Fm. of western Vancouver Island (Jeletzky,1970)
[2] In part, previously mapped as Sutton Fm. on southern Vancouver Island and equivalent to the Marble Bay Fm. of Texada Island (Fischl, 1992)

The upper part of the Quatsino Formation consists of thin-bedded limestone with black calcareous siltstone interbeds and laminations. Upwards, laminae and interbeds of calcareous black shale increase in frequency and thickness. Toward the top of the unit, the limestone is increasingly dark-grey or black, due to increasing quantities of carbonaceous matter (Hoadley, 1953). Bedding and color banding is distinctive and well preserved. Locally the upper part contains abundant ammonites and pelecypods (Muller et al., 1974).

Toward central and southern Vancouver Island, the Quatsino Formation thins considerably and is complicated by intense faulting and folding. According to Fischl (1992), it is less than 75 m thick at Cowichan Lake, about 40 km south of Nanaimo.

On Texada Island, the Quatsino Formation is divisible into a northern and southern belt. The northern belt is up to 3 km wide by 13 km long and the southern belt, which is located on the southwest coast, is up to 6 km long. Based on chemical composition, Mathews and McCammon (1957) divided the northern belt into three members, each up to 200 m thick. The lowermost member is composed predominantly of high-calcium limestone; the middle member is predominantly high-calcium limestone with some dolomitic interbeds; the upper member is dominantly dolomite and dolomitic limestone.

**TABLE 2.2: MEASURED THICKNESS OF THE QUATSINO FORMATION FROM THE NORTHERN PART OF VANCOUVER ISLAND***

| Location | Quatsino Formation * | | Description |
|---|---|---|---|
| | **Lower Part** Approx. Thick. (m) | **Upper Part** Approx. Thick. (m) | |
| **Western Belt** | | | |
| Alice Lake | 488 | 302 | - immediately south of Alice Lake |
| Klaskino | 25 | 49 | - along north side of Klaskino Inlet (50°18'50", 127°51'50") |
| **Central Nimpkish Belt** | | | |
| Tsulton Property° | ~ 135 | - | - opposite halfway Islands on Nimpkish Lake |
| **Eastern Belt** | | | |
| Beaver Cove | 76 + | 140 | - along a tributary of Tsulton River south of Beaver Cove (50°29'50", 126°53'20") |

* Modified after Muller et al. (1974)
° After Coffin and Soux (1988; Appendix 2)

### 2.1.3 Parsons Bay Formation

The Parsons Bay Formation of the Vancouver Group conformably overlies and is interbedded with limestones of the underlying Quatsino Formation (Fig. 2.1). The lower part consists of light-grey limestone with laminae and thin interbeds of calcareous black shale (Muller et al., 1974). The Parsons Bay Formation has a similar distribution to the Quatsino Formation. Near Alice Lake, it is up to 610 m thick and is only about 60 m thick near Beaver Cove (Muller et al., 1974).

Along the west-central part of Vancouver Island, near Checleset Bay, the Parsons Bay

Formation includes a massive limestone unit between 18 and 27 m thick within its upper part, which was termed the ‘Sutton Limestone Formation’ by Jeletzky (1970). Near Smith Cove, on the southern side of Quatsino Inlet, the Sutton Formation is divisible into upper and lower members. Jeletzky (1976) described the Upper Limestone Member as predominately quite pure, grey, well-bedded limestone up to 45 m thick.

### 2.1.4 Suquash Formation

The Suquash Formation of the Nanaimo Group directly overlies the Karmutsen Formation volcanics (Fig. 2.1). Muller et al. (1974) described it as a sedimentary unit dominantly comprised of pebble-conglomerate, shale and coal. Although no type locality has been identified for the Suquash Formation, it has been observed to typically be up to 107 m thick. The coal seams within the Suquash Formation are separated by shales and interbedded with fine-grained sandstone (Massey et al., 2005).

## 2.2 INTRUSIONS

### 2.2.1 Island Intrusions

Within the northern part of Vancouver Island, Jurassic dykes, sills, stocks, and batholiths are widespread. The Island Intrusions (Eastwood, 1965), which have invaded all rock types, are medium to coarse-grained and range in composition from gabbro to quartz monzonite. Typically elongate in a north-westerly direction, they form narrow 3 km to 8 km wide north-westerly trending belts separated by Upper Triassic volcanic and sedimentary rocks (Hoadley, 1953). The intrusive belts are up to 80 km in length and show a pronounced decrease in size towards the western part of Vancouver Island. Localized recurrent folding of the Quatsino Formation, along north-westerly axes, was accompanied by emplacement of andesitic sills and dykes (Carlisle, 1972). According to Hoadley (1953),

> “The fact that the lineation is more or less parallel with the general fold structure of the invaded rocks indicates that the intrusions were associated with orogenic disturbances, and that they were intruded at about the time the invaded rocks were folded. They were probably guided in part by contemporaneous faults.”

Intense metamorphism associated within the emplacement of large scale batholiths and stocks is common. Most bodies exhibit well-developed intrusive breccias within marginal zones. Within a few kilometres of the intrusive bodies, limestone lithotypes can be strongly contorted, fractured, and jointed, cut by numerous dykes, and altered to calc-silicate minerals. Skarn mineralization is common; however, it rarely results in the complete alteration of limestone bodies (Eastwood, 1965).

Smaller stocks, sills, and dykes genetically related to the Island Intrusions generally exhibit limited metamorphism and sharp contacts with the surrounding country rock. However, these intrusive bodies are most abundant within the contact aureole of the larger batholiths.

### 2.2.2 Nimpkish Intrusions

The Nimpkish Batholith is an irregular-shaped intrusive situated between Nimpkish Lake south-easterly to Woss Lake, where it is in tectonic contact with the Vernon Batholith. Muller et al. (1974) include the Bonanza Batholith along the eastern shore of Bonanza Lake and several smaller plutons in the vicinity of Beaver Cove within this group. These intrusives are evident throughout the entire Vancouver Group.

Contacts of the Nimpkish Batholith are highly irregular and include a large number of small sills and dykes (Gunning, 1932b), which are

> “...frequently much contorted, fractured, and sheared near the intrusive and in a number of places are silicified and mineralized with pyrite, pyrrhotite and calcite. In a few places, and particularly where the granodiorite intrudes limestone, contact metamorphic silicates, magnetite, and copper, iron or zinc sulphides are quite extensively developed.”

### 2.2.3 Tertiary Intrusions

Small Tertiary stocks to medium intrusive bodies, commonly as dykes, sills and small plutons, are exposed throughout the entire length of Vancouver Island. These rocks vary widely in size, texture, and mineralogical composition and include medium- to coarse-grained granite porphyry, diorite porphyry, gabbro, and finer-grained dacitic rocks.

According to Hoadley (1953), the Tertiary intrusions are most commonly dark-green to black, diabasic gabbro dykes, which vary in width from a few centimetres up to 5 m. Furthermore (Hoadley, 1953),

> “where these dykes occur in Vancouver Group rocks they are almost impossible to distinguish in the field from dykes associated with the Triassic volcanic rocks.”

Near Port Alberni, Massey and Friday (1988) note that these intrusives occur as dykes up to 3 m wide and are commonly found along fault zones, which may have acted as conduits for emplacement.

## 2.3 STRUCTURE

The northern part of Vancouver Island is dominated by north to north-westerly trending anticlinoria, which are flanked by fault blocks with outward dipping stratigraphy. The region is cut by steep normal or strike-slip vertical faults. Detailed accounts of regional structure are available in Hoadley (1953) and Muller et al. (1974).

The main structural elements of the Nimpkish Lake Block from northeast to southwest are Bonanza Fault, Nimpkish Syncline, and Nimpkish Fault. Bonanza and Nimpkish faults define the respective eastern and western boundaries of Nimpkish Block. Both structures have variable amounts of displacement and are in part defined by valley lineaments.

# 3. PROPERTY GEOLOGY

## 3.1 STRATIGRAPHY AND LITHOLOGY

During exploration, two lithological units were identified and mapped on the Kilpala and Cluxewe properties: the Karmutsen and Quatsino formations. The Karmutsen Formation is comprised of incompletely metamorphosed basaltic and andesitic flows, tuffs, agglomerates, and breccias, with minor inter-bedded limestone (Hoadley, 1953). The high-quality limestone occurrences on/near the Kilpala and Cluxewe properties are part of the Quatsino Formation of the Vancouver Group. Though the Parsons Bay and Suquash formations border both the Kilpala and Cluxewe properties, neither were examined in detail during the 2015 exploration. The following is a brief summary of the units encountered on or near the properties.

### 3.1.1 Karmutsen Formation

Exposures of the Karmutsen Formation can be traced from the eastern shore of Nimpkish Lake south-easterly towards Noomas rail crossing. The southerly contact of the Karmutsen Formation with the overlying Quatsino Formation is well exposed along a forestry road leading westerly from Noomas rail crossing (Fig. 2.1). The uppermost part of the Karmutsen Formation consists of rusty-brown to brown weathered, green fresh, medium-grained volcanics. Outcrops are typically recessive and deeply weathered. The Karmutsen Formation forms southerly contacts with the overlying Quatsino Formation limestones on both Kilpala and Cluxewe properties.

### 3.1.2 Quatsino Formation

As previously indicated in Section 2.1.2, the most detailed published work on the stratigraphy of the Quatsino Formation is that of Hoadley (1953) and Muller et al. (1974); they indicate that the Quatsino is divisible into a lower and an upper part. The lower part, with highly variable thickness, is thick-bedded to massive, brownish-grey to black, fine-grained to microcrystalline limestone with a few thin interbeds of andesite or basalt. The upper part consists of thin-bedded limestone with black calcareous siltstone interbeds and laminations. Laminae and interbeds of calcareous black shale increase in frequency and thickness upwards.

The lower part of the Quatsino Formation is the main limestone unit that outcrops on the properties. The majority consists of variably recrystallized, massive to thick-bedded, grey weathered, dark-grey to black fresh, micritic limestone with rare patches of chert.

The upper part of the Quatsino Formation is variably buff to medium-grey weathered, very dark grey to black fresh, thick-bedded, interbedded micritic limestone and buff dolomite.

Within the lower part of the Quatsino Formation, clear bedding surfaces or sedimentary laminae are rare. Definitive bedding surfaces generally indicate shallow north to north-easterly dips. Variations are common due to wavy bedding planes.

The lack of a readily recognized marker horizon within the massive limestones of the Quatsino Formation hinders stratigraphic correlations. Therefore, thickness determinations must be taken with caution as the continuity of stratigraphy across vast covered intervals with probable concealed internal structures is uncertain. Slight variations in major and minor constituents may aid in correlating stratigraphy.

### 3.1.3 Intrusions

Throughout the area, dykes and sills, presumably part of the Tertiary Suite of intrusives, vary from a few centimetres to more than 5 m thick. The intrusives appear preferentially aligned along the pre-existing structural fabric which is dominantly steeply dipping to vertical, and northwest to northeast. Several dykes and sills occur at other orientations. The intrusives are typically recessive and generally only evident in well exposed outcrops of massive limestone.

The intrusives are commonly rusty-brown weathered, green fresh, and fine- to medium-grained. Commonly, they exhibit strong jointing parallel to intrusive alignment.

Associated alteration includes thin haloes to several metres of thermal recrystallization with negligible chemical alteration, and thin zones of skarnification adjacent to intrusives. A large intrusive body was mapped in 2015 in the central portion of the Kilpala Property, which has caused marbelization of much of the limestone (Fig. 1.3).

## 3.2 RECENT SEDIMENTS AND WEATHERING

Much of the region is covered by a veneer of unconsolidated glacial sediments, which range in thickness up to several metres. Within upland areas, bedrock exposures are common. It is expected that within valleys such as at Cluxewe River, unconsolidated sediments may be tens of metres thick. Surficial weathering has resulted in a weathering profile that varies from a few centimetres up to several metres thickness. Many of the erosional (topographic) features appear elongate along the pre-existing structural trend. Locally, the bedrock surface is highly irregular.

### 3.3 STRUCTURE

Structural measurements were collected from numerous locations on the properties (Appendices 4 & 5). Where unequivocally determined, original bedding is generally shallow dipping, whereas joints and cleavages are steeply dipping or near vertical. Intensity of deformation within the limestone unit varies, so that individual outcrops may display either mentioned planar structures or none of them.

## 4. RESULTS OF 2015 EXPLORATION

The 2015 exploration program on the Kilpala Property was primarily conducted in order to sample the limestones and determine their quality. Outlining outcrop areas and checking access roads were secondary objectives. The 2015 exploration on the Kilpala Property concentrated on/near the claims KILPALA and KILPALA 2 (Fig. 1.3).

The 2015 exploration program on the Cluxewe Property was conducted to determine limestone quality and extent. Checking access roads was a secondary objective.

All samples from the 2015 program were shipped from Campbell River, BC to Graymont's Central lab in Salt Lake City, Utah for preparation and analyses by standard ICP techniques, and LOI (Appendices 2 & 3).

The nine Quatsino samples from the Kilpala Property were similar in quality, generally ranging from 95.65% to 99.15% $CaCO_3$, 0.23% to 0.98% $MgCO_3$, and 0.37% to 3.22% $SiO_2$. In total, 12.5 m of Quatsino Formation were sampled on the Kilpala Property.

The 42 Quatsino Formation samples from the Cluxewe Property had a wide range from 20.94% to 99.18% $CaCO_3$, 0.38% to 5.4% $MgCO_3$, and 0.18% to 34.26% $SiO_2$. Of the 42 Quatsino samples collected from the Cluxewe Property, 33 returned values greater than 95% $CaCO_3$. The best section was 2015-02 (Appendix 5) which averaged 97.50% $CaCO_3$, 1.39% $MgCO_3$, and 0.46% $SiO_2$ over approximately 31.75 m. In total, 107.25 m of Quatsino Formation was sampled on the Cluxewe Property. Section 2015-01 and samples 82115-6, collected from the center of the Cluxewe Property, returned relatively low $CaCO_3$ percentages and higher $MgCO_3$ and $SiO_2$ values, possibly due to localized intrusive dykes which were not visible in outcrop.

## 5. DISCUSSION AND CONCLUSIONS

A total of 51 surface samples were collected on the Kilpala and Cluxewe properties; as distinct stratigraphic markers are difficult to identify within the Quatsino Formation, it is likely only a portion of the lower part of the formation was sampled. In addition, the properties were examined to identify new access routes and outcrop locations.

Surface sampling of outcrops on the properties returned high-quality results, often in excess of 95% $CaCO_3$ with relatively minor amounts of $MgCO_3$ and $SiO_2$, except for where major structures and/or intrusives are present. Quatsino Formation samples that returned values below 95% $CaCO_3$, above 5% $MgCO_3$ and/or relatively high $SiO_2$ are likely the result of cross-cutting dykes or structures.

The excellent quality and ideal logistical location of Quatsino Formation carbonates within the Kilpala and Cluxewe properties warrant further examination. Both properties are located minutes away from a major highway, and within a few kilometres of potential loading terminals along the coast.

Further exploration in the central portion of both properties would be beneficial to confirm the quality of the Quatsino Formation limestone. The next phase of exploration on the Kilpala and Cluxewe properties should consist of additional detailed geologic mapping, ground magnetic surveys to identify intrusive bodies and limestone sampling. Diamond drilling is also recommended on both properties, to follow up on promising exploration results.

K. Krueger, B.Sc., Geo. I.T.

D. Hayes, B.Sc., Geo. I.T.

Edmonton, Alberta
2016 03 02

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## APPENDIX 1: ITEMIZED COST STATEMENT FOR THE 2015 EXPLORATION

**a) Personnel**

| | | | | | | |
|---|---|---|---|---|---|---|
| J. Dahrouge, geologist | | | | | | |
| 0.04 | days | | project supervision | | | |
| 0.04 | days | @ | $ 990.00 | $ 39.60 | | |
| P. Kluczny, geologist | | | | | | |
| 0.07 | days | | project planning & preparations, reporting | | | |
| 0.07 | days | @ | $ 795.00 | $ 57.24 | | |
| K. Krueger, geologist | | | | | | |
| 0.84 | days | | field work and travel June 5 - 6 | | | |
| 0.43 | days | | project planning & preparations, reporting | | | |
| 1.27 | days | @ | $ 520.00 | $ 661.19 | | |
| D. Hayes, geologist | | | | | | |
| 0.84 | days | | field work and travel June 5 - 6 | | | |
| 0.49 | days | | project planning & preparations, data entry | | | |
| 1.33 | days | @ | $ 475.00 | $ 630.28 | | |
| C. Salame, assistant | | | | | | |
| 0.84 | days | | field work and travel June 5 - 6 | | | |
| 0.06 | days | | project planning & preparations, data entry | | | |
| 0.90 | days | @ | $ 350.00 | $ 315.74 | | |
| A. Syed, assistant | | | | | | |
| 0.56 | days | | field work and travel June 5 - 6 | | | |
| 0.02 | days | | project planning & preparations, data entry | | | |
| 0.58 | days | @ | $ 350.00 | $ 204.40 | | |
| A. Molella, receptionist | | | | | | |
| 0.33 | hrs | | logistics, prepare shipments | | | |
| 0.33 | hrs | @ | $ 42.00 | $ 13.73 | | |
| | | | | | $ 1,922.17 | |

**b) Food and Accommodation**

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | man-days | @ | $ 136.16 | accommodations | $ 330.87 | |
| 4 | man-days | @ | $ 60.50 | meals | $ 271.04 | |
| | | | | | | $ 601.91 |

**c) Transportation**

| | | | |
|---|---|---|---|
| Vehicles: | Truck rental | $ 103.15 | |
| | Magnetometers | $ 231.12 | |
| | Welding Services/ Equipment Repair | $ 16.31 | |
| | Flights | $ 68.07 | |
| | Taxi | $ 1.85 | |
| | Fuel | $ 29.06 | |
| | | | $ 449.55 |

**d) Instrument Rental**

| | | |
|---|---|---|
| GPS (2) | $ 4.48 | |
| SPOT Locators (2) | $ 5.23 | |
| Laptop (1) | $ 6.35 | |
| Radios (4) | $ 6.16 | |
| | | $ 22.21 |

**e) Drilling** n/a

**f) Analyses** Central Lab of Graymont Western U.S. Inc.
(51 rock samples)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 51 | samples | @ | $ 4.50 | preparation fee | $ 229.50 | | |
| 51 | samples | @ | $ 25.00 | sample analysis | $ 1,275.00 | | |
| | | | | | | $ | 1,504.50 |

**g) Other**

| | | | |
|---|---|---|---|
| Courier and Shipping | $ 25.69 | | |
| Software Rental (ArcGIS) | $ 5.88 | | |
| Disposable Supplies | $ 30.07 | | |
| Plots | $ 7.35 | | |
| | | $ | 68.99 |

| | | |
|---|---|---|
| **Total** | $ | 4,569.34 |

Kelly Krueger, B.Sc., Geo.I.T.

Edmonton, Alberta
March 2, 2016

# APPENDIX 2: ANALYTICAL LABORATORY INFORMATION AND TECHNIQUES

Name and Address of the Lab:

Graymont Western US Inc., Central Laboratory.
670 East 3900 South, Suite 205
Salt Lake City, Utah, 84107

Statement of Qualifications:

Jared Leikam obtained a B.S. in Chemistry from the University of Utah in the class of 2003. Jared started working for Graymont in February of 2004 and has been working with the ICP Spectrometer for two and a half years, under the direct supervision of Carl Paystrup (Lab Supervisor).

Vonda Stuart obtained a B.S. in Chemistry from Weber State University in 2004. Vonda started with Graymont in August of 2007 and started working in the ICP Lab the following September.

Sample Preparation, Procedures, Reagents, Equipment, etc.:

For the ICP sample preparation, 0.5 grams of the sample is mixed with 3 g of lithium carbonate. The sample and the lithium carbonate are then fused together in a muffle furnace at 850°C. Following the fusion process, the samples are dissolved in 1:1 HCl; a total of 40 mL 1:1 HCl is used in the dissolving process. The samples are then diluted to 200 mL and spiked with 10 ppm Co. Cobalt is used as an internal standard. At this point the samples are ready for analysis on the Perkin Elmer, Optima 7300V.

Mesh Size Fraction, Split and Weight of Sample:

Upon receiving the samples, the prep room technician riffles and then splits the stone down to a manageable size (roughly 200 g). The stone is then dried in an oven at 120ºC. Once the samples have been dried they get pulverized to a -200 mesh size. A split of this pulverized material is then sent for testing in the main part of the lab.

Quality Control Procedures:

The ICP spectrometer is calibrated with two certified reference materials prior to analyzing a batch of samples. A batch typically contains 96 samples. Every $12^{th}$ sample in a batch is a certified limestone reference sample. In addition to the 8 reference samples imbedded in the batch, there are 2 limestone reference samples analyzed at the beginning and at the end of the batch to ensure the accuracy of our Na and P numbers. Every element being analyzed in a sample is backed up by data from the certified reference materials. We also use an internal standard (10 ppm Co) to further ensure the quality and accuracy of the analysis.

| Lab ID | Sample Date | Plant | Property | Sample Type | Remarks | CaCO3 % | MgCO3 % | Fe2O3 % | Al2O3 % | SrO ppm | MnO ppm | SiO2 % | BaO ppm | K2O ppm | Na2O ppm | P2O5 ppm | TiO2 ppm | ICP Tot. % | S % | LOI(1000) % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015069632 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82109 | 97.66 | 0.42 | 0.118 | 0.077 | 654 | 151 | 1.05 | 3 | 79 | 117 | 1155 | 15 | 99.5424 | <.005 | 43.56 |
| 2015069633 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82110 | 20.94 | 5.4 | 4.938 | 3.829 | 693 | 656 | 28.53 | 555 | 5285 | 15272 | 6942 | 3974 | 66.9747 | 2.24 | 10.04 |
| 2015069634 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82111 | 24.02 | 3.77 | 3.811 | 3.288 | 598 | 755 | 27.5 | 504 | 6701 | 9725 | 2839 | 2667 | 64.7679 | 1.71 | 12.69 |
| 2015069635 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82112 | 31.39 | 2.26 | 2.321 | 2.244 | 518 | 979 | 29.39 | 486 | 8048 | 7066 | 3064 | 1727 | 69.7938 | 1.11 | 16.17 |
| 2015069636 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82113 | 29.09 | 2.74 | 2.754 | 2.968 | 524 | 1002 | 28.39 | 422 | 6568 | 9464 | 11323 | 1955 | 69.0678 | 1.27 | 13.63 |
| 2015069637 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82114 | 28.16 | 4.64 | 3.52 | 4.029 | 298 | 1737 | 34.26 | 109 | 1920 | 10996 | 4436 | 1948 | 76.7534 | 0.204 | 14.22 |
| 2015069638 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82115 | 23.18 | 4.46 | 2.712 | 3.635 | 602 | 756 | 28.69 | 465 | 4624 | 22188 | 1062 | 1695 | 65.8162 | 1.24 | 11.84 |
| 2015069639 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82116 | 8.07 | 10.71 | 6.693 | 6.64 | 1180 | 1124 | 30.71 | 538 | 8731 | 21190 | 2857 | 7609 | 67.1459 | 0.015 | 4.95 |
| 2015069640 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82117 | 95.68 | 1.4 | 2.393 | 0.142 | 523 | 496 | 0.64 | 7 | 109 | 281 | <100 | 52 | 100.4018 | 0.027 | 43.93 |
| 2015069641 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82118 | 96.43 | 3.43 | 0.098 | 0.082 | 452 | 52 | 0.18 | 7 | 33 | 259 | <100 | 14 | 100.3017 | <.005 | 44.04 |
| 2015069642 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82119 | 97.34 | 1.38 | 0.19 | 0.127 | 496 | 108 | 0.41 | 9 | 90 | 224 | <100 | 39 | 99.5436 | 0.048 | 43.82 |
| 2015069643 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82120 | 98.24 | 0.61 | 0.149 | 0.115 | 530 | 63 | 0.43 | 7 | 74 | 180 | <100 | 21 | 99.6315 | 0.016 | 43.83 |
| 2015069644 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82121 | 98.52 | 0.48 | 0.117 | 0.096 | 467 | 84 | 0.62 | 7 | 66 | 106 | <100 | 19 | 99.9079 | <.005 | 43.56 |
| 2015069645 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82122 | 97.84 | 0.56 | 0.176 | 0.13 | 547 | 151 | 0.68 | 5 | 89 | 116 | 109 | 26 | 99.4903 | 0.014 | 43.67 |
| 2015069646 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82123 | 95.83 | 2.87 | 0.167 | 0.097 | 1293 | 163 | 0.43 | 3 | 43 | 154 | <100 | 2 | 99.5598 | 0.021 | 43.96 |
| 2015069647 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82124 | 96.86 | 1.76 | 0.225 | 0.13 | 1263 | 176 | 0.56 | 8 | 41 | 104 | <100 | 45 | 99.6987 | 0.027 | 43.73 |
| 2015069648 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82125 | 95.9 | 2.34 | 0.211 | 0.104 | 1217 | 115 | 1.04 | 3 | 54 | 158 | <100 | 13 | 99.751 | 0.015 | 43.54 |
| 2015069649 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82126 | 95.9 | 2.2 | 0.152 | 0.127 | 1238 | 91 | 1.4 | 4 | 49 | 162 | <100 | 21 | 99.9355 | 0.009 | 43.27 |
| 2015069650 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82127 | 97.86 | 1.17 | 0.145 | 0.126 | 767 | 96 | 0.79 | 129 | 41 | 187 | <100 | 23 | 100.2153 | 0.038 | 43.62 |
| 2015069651 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82128 | 97.08 | 0.67 | 0.126 | 0.254 | 1406 | 114 | 1.08 | 108 | 595 | 169 | <100 | 54 | 99.4546 | 0.04 | 43.45 |
| 2015069652 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82129 | 96.97 | 0.65 | 0.128 | 0.168 | 830 | 125 | 1.56 | 5 | 317 | 163 | <100 | 14 | 99.6214 | 0.018 | 43.3 |
| 2015069653 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82130 | 97.77 | 0.61 | 0.118 | 0.097 | 1475 | 118 | 0.9 | 3 | 142 | 133 | <100 | 14 | 99.6835 | 0.011 | 43.58 |
| 2015069654 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82131 | 98.06 | 0.56 | 0.11 | 0.099 | 1128 | 148 | 0.64 | 2 | 114 | 131 | <100 | 22 | 99.6235 | 0.005 | 43.72 |
| 2015069655 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82132 | 98 | 0.61 | 0.135 | 0.156 | 1075 | 133 | 0.49 | 1 | 157 | 82 | <100 | 16 | 99.5374 | 0.011 | 43.76 |
| 2015069656 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82133 | 97.9 | 0.56 | 0.135 | 0.137 | 740 | 122 | 0.74 | 2 | 137 | 56 | <100 | 46 | 99.5823 | 0.009 | 43.71 |
| 2015069657 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82134 | 96.45 | 2.07 | 0.162 | 0.078 | 1602 | 138 | 0.57 | 3 | 66 | 96 | <100 | 4 | 99.5209 | 0.036 | 43.89 |
| 2015069658 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82135 | 97.13 | 0.65 | 0.106 | 0.086 | 2352 | 85 | 1.26 | 4 | 120 | 110 | 186 | 27 | 99.5204 | 0.012 | 43.45 |
| 2015069659 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82136 | 95.02 | 3.68 | 0.192 | 0.094 | 937 | 147 | 0.6 | 12 | 53 | 104 | <100 | 15 | 99.7128 | 0.015 | 43.91 |
| 2015069660 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82137 | 96.17 | 0.38 | 0.158 | 0.189 | 2662 | 108 | 2.79 | 45 | 408 | 118 | <100 | 62 | 100.0273 | 0.009 | 42.36 |
| 2015069661 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82138 | 97.13 | 0.69 | 0.177 | 0.522 | 797 | 228 | 1.39 | 5 | 467 | 99 | <100 | 147 | 100.0833 | <.005 | 42.87 |
| 2015069662 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82139 | 95.65 | 0.23 | 0.273 | 0.171 | 1463 | 150 | 3.22 | 11 | 255 | 69 | <100 | 14 | 99.7402 | 0.007 | 42.3 |
| 2015069663 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82140 | 99.15 | 0.48 | 0.094 | 0.131 | 864 | 89 | 1.16 | 5 | 99 | 79 | 339 | 26 | 101.1651 | <.005 | 42.68 |
| 2015069664 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82141 | 96.72 | 0.42 | 0.134 | 0.1 | 756 | 95 | 3.04 | 3 | 188 | 111 | 200 | 11 | 100.5504 | <.005 | 42.1 |
| 2015069665 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82142 | 95.67 | 0.98 | 0.365 | 0.484 | 1455 | 177 | 2 | 10 | 994 | 651 | 149 | 304 | 99.873 | 0.063 | 42.54 |
| 2015069666 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82143 | 81.9 | 2.91 | 1.57 | 0.36 | 315 | 408 | 10.86 | 1048 | 75 | 75 | 1246 | 142 | 97.9309 | 0.038 | 38.3 |
| 2015069667 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82144 | 97.79 | 0.63 | 0.175 | 0.116 | 1818 | 78 | 0.68 | 8 | 208 | 113 | 627 | 17 | 99.6779 | 0.007 | 43.59 |
| 2015069668 | 6/13/2015 | 202 | Kilpala | Limestone | Dahrouge_-_Vancouver_Island_-_82145 | 98.38 | 0.48 | 0.142 | 0.066 | 1691 | 101 | 0.37 | 3 | 85 | 58 | 238 | 45 | 99.6601 | <.005 | 43.82 |
| 2015070307 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82176 | 97.79 | 0.67 | 0.101 | 0.166 | 1582 | 160 | 0.44 | 5 | 281 | 147 | <100 | 497 | 99.4342 | 0.01 | 43.72 |
| 2015070308 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82177 | 99.18 | 0.5 | 0.077 | 0.057 | 1884 | 144 | 0.31 | 3 | 63 | 91 | <100 | 44 | 100.3469 | 0.005 | 43.42 |
| 2015070309 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82178 | 98.65 | 0.52 | 0.06 | 0.062 | 1762 | 192 | 0.33 | 4 | 65 | 58 | <100 | 38 | 99.8339 | <.005 | 43.76 |
| 2015070310 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82179 | 81.78 | 4.64 | 1.498 | 2.146 | 1088 | 224 | 7.71 | 14 | 1054 | 1125 | 686 | 1976 | 98.3907 | 0.243 | 37.36 |
| 2015070311 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82180 | 97.5 | 0.75 | 0.151 | 0.127 | 1479 | 204 | 1.08 | 5 | 117 | 127 | <100 | 3 | 99.8015 | 0.038 | 43.38 |
| 2015070312 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82181 | 98.29 | 0.5 | 0.112 | 0.065 | 1728 | 103 | 0.53 | 3 | 58 | 67 | <100 | 40 | 99.6969 | 0.005 | 43.69 |
| 2015070314 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82182 | 96.97 | 1.69 | 0.156 | 0.099 | 1436 | 156 | 0.53 | 3 | 48 | 89 | <100 | 12 | 99.6194 | 0.02 | 43.81 |
| 2015070315 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82183 | 96.9 | 0.38 | 0.192 | 0.229 | 344 | 487 | 1.79 | 3 | 374 | 99 | <100 | 74 | 99.6291 | 0.034 | 43.07 |
| 2015070316 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82184 | 96.31 | 0.73 | 0.227 | 0.367 | 387 | 399 | 1.89 | 4 | 604 | 167 | <100 | 190 | 99.6991 | 0.121 | 42.81 |
| 2015070317 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82185 | 96.4 | 1.4 | 0.125 | 0.219 | 736 | 68 | 1.24 | 9 | 347 | 84 | <100 | 35 | 99.5119 | 0.042 | 43.48 |
| 2015070318 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82186 | 97.22 | 0.98 | 0.116 | 0.199 | 945 | 76 | 0.93 | 8 | 416 | 110 | <100 | 42 | 99.6047 | 0.05 | 43.55 |
| 2015070319 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82187 | 98.29 | 0.56 | 0.097 | 0.115 | 1526 | 87 | 0.51 | 6 | 154 | 81 | <100 | 7 | 99.7581 | 0.029 | 43.63 |
| 2015070320 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82188 | 95.67 | 2.99 | 0.13 | 0.117 | 754 | 95 | 0.77 | 3 | 71 | 55 | <100 | 11 | 99.7759 | 0.045 | 43.76 |
| 2015070321 | 6/13/2015 | 202 | Cluxewe | Limestone | Dahrouge_-_Vancouver_Island_-_82189 | 93.97 | 4.87 | 0.123 | 0.182 | 754 | 92 | 0.84 | 10 | 257 | 68 | <100 | 20 | 100.1051 | 0.053 | 43.64 |

# APPENDIX 4: SAMPLE DESCRIPTIONS AND ASSAY RESULTS FROM THE KILPALA PROPERTY

DAHROUGE GEOLOGICAL CONSULTING LTD.

GRAYMONT

Notes: Stratigraphic thicknesses are based on measured attitudes of bedding listed below, with appropriate interpolations. Attitudes are strike and dip (right-hand rule). Sections are listed in numerical order of samples, which does not necessarily represent stratigraphic order. Most samples consist of chips at 30 cm intervals. UTM coordinates are NAD83, Zone 9N. Section locations are shown in Figure 1.3. Stratigraphy Abbreviations (Tq - Triassic Quatsino Formation; Tbp - Triassic Parsons Bay Formation)

**Isolated Samples**

| Sample | Strat Unit | Strat Tkns (m) | Description | $CaCO_3$ (%) | $MgCO_3$ (%) | $SiO_2$ (%) | $Al_2O_3$ (%) | $Fe_2O_3$ (%) | SrO (ppm) | MnO (ppm) | $P_2O_5$ (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 82137<br>UTM 636799E, 5601975N | Tq | 3 | **Marble,** medium grey weathered, white fresh, cryptocrystalline, moderately-bedded, resistant, hard, very strong HCl reaction, structure(s): joint, local-scale, 13/81 SE; bedding (possible), local-scale, 119/47 SW; bedding (possible), local-scale, 110/29 SW | 96.17 | 0.38 | 2.79 | 0.189 | 0.158 | 2662 | 108 | 50 |
| 82138<br>UTM 636921E, 5601961N | Tq | grab | **Lime Mudstone,** light grey to medium grey weathered, medium grey fresh, micritic, massive, resistant, strong HCl reaction, structure(s): calcite vein, undetermined-scale, moderate | 97.13 | 0.69 | 1.39 | 0.522 | 0.177 | 797 | 228 | 50 |
| 82139<br>UTM 636232E, 5601928N | Tq | 3 | **Marble,** tan to light grey weathered, white fresh, cryptocrystalline, massive, resistant, very strong HCl reaction | 95.65 | 0.23 | 3.22 | 0.171 | 0.273 | 1463 | 150 | 50 |
| 82140<br>UTM 638836E, 5602285N | Tq | grab | **Marble,** white to medium grey weathered and fresh, cryptocrystalline, massive, resistant, hard, alteration: oxide, pervasive, very strong HCl reaction | 99.15 | 0.48 | 1.16 | 0.131 | 0.094 | 864 | 89 | 339 |
| 82141<br>UTM 638819E, 5602290N | Tq | 3.5 | **Lime Mudstone,** dark grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, moderately-bedded, resistant, strong HCl reaction, structure(s): fracture, undetermined-scale, very strong; calcite veinlet, undetermined-scale, moderate; bedding (possible), local-scale, 13/69 SE | 96.72 | 0.42 | 3.04 | 0.100 | 0.134 | 756 | 95 | 200 |
| 82142<br>UTM 639142E, 5601861N | Tq | grab | **Marble to Lime Mudstone,** medium grey weathered, white to medium grey fresh, cryptocrystalline, massive, resistant, hard, strong HCl reaction | 95.67 | 0.98 | 2.00 | 0.484 | 0.365 | 1455 | 177 | 149 |
| 82143<br>UTM 638164E, 5602626N | Tq | grab | **Argillaceous Lime Mudstone,** medium grey weathered, medium grey to dark grey fresh, cryptocrystalline, resistant, alteration: oxide, fracture-related, strong HCl reaction, structure(s): calcite vein, undetermined-scale, moderate | 81.90 | 2.91 | 10.86 | 0.360 | 1.570 | 315 | 408 | 1246 |
| 82144<br>UTM 637993E, 5602621N | Tq | 3 | **Lime Mudstone,** tan to light grey weathered, medium grey fresh, micritic, resistant, weak fetid odour, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 97.79 | 0.63 | 0.68 | 0.116 | 0.175 | 1818 | 78 | 627 |
| 82145<br>UTM 638011E, 5602590N | Tq | grab | **Lime Mudstone,** light grey to medium grey weathered, medium grey fresh, micritic, moderately-bedded to massively-bedded, resistant, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak; bedding (possible), local-scale, 330/62 NE | 98.38 | 0.48 | 0.37 | 0.066 | 0.142 | 1691 | 101 | 238 |

# APPENDIX 5: SAMPLE DESCRIPTIONS AND ASSAY RESULTS FROM THE CLUXEWE PROPERTY

DAHROUGE GEOLOGICAL CONSULTING LTD.

GRAYMONT

Notes: Stratigraphic thicknesses are based on measured attitudes of bedding listed below, with appropriate interpolations. Attitudes are strike and dip (right-hand rule). Sections are listed in numerical order of samples, which does not necessarily represent stratigraphic order. Most samples consist of chips at 30 cm intervals. UTM coordinates are NAD83, Zone 9N. Section locations are shown in Figure 1.4. Stratigraphy Abbreviations (Tq - Triassic Quatsino Formation; Tbp - Triassic Parsons Bay Formation)

**Isolated Samples**

| Sample | Strat Unit | Strat Tkns (m) | Description | $CaCO_3$ (%) | $MgCO_3$ (%) | $SiO_2$ (%) | $Al_2O_3$ (%) | $Fe_2O_3$ (%) | SrO (ppm) | MnO (ppm) | $P_2O_5$ (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 82109 UTM 631364E, 5601505N | Tq | 3 | **Lime Mudstone,** very-light grey to tan weathered, medium grey to dark grey fresh, micritic to very fine-grained, moderately-bedded, homogeneous, alteration: oxide, fracture-related, strong HCl reaction, structure(s): bedding (possible), local-scale, 310/78 NE | 97.66 | 0.42 | 1.05 | 0.077 | 0.118 | 654 | 151 | 1155 |
| 82115 UTM 631523E, 5601750N | Tq | 0.5 | **Mudstone,** black to dark grey weathered and fresh, micritic, fissile, weak HCl reaction, structure(s): calcite vein, undetermined-scale, moderate; bedding (undulatory), local-scale, 160/25 W | 23.18 | 4.46 | 28.69 | 3.635 | 2.712 | 602 | 756 | 1062 |
| 82116 UTM 631545E, 5601766N | Tq | 1 | **Mudstone to Strongly Dolomitic Lime Wackestone,** light grey weathered, light grey to medium grey fresh, fine-grained to medium-grained, thinly-bedded, resistant, weak HCl reaction, structure(s): dyke, undetermined-scale; calcite vein, undetermined-scale, weak; bedding (possible), local-scale, 284/64 NE | 8.07 | 10.71 | 30.71 | 6.640 | 6.693 | 1180 | 1124 | 2857 |
| 82127 UTM 631438E, 5601322N | Tq | 3 | **Carbonaceous Lime Mudstone,** medium grey weathered and fresh, micritic to very fine-grained, massive, resistant, hard, homogeneous, moderate HCl reaction, structure(s): calcite vein, undetermined-scale, weak | 97.86 | 1.17 | 0.79 | 0.126 | 0.145 | 767 | 96 | 50 |
| 82128 UTM 631401E, 5601300N | Tq | grab | **Carbonaceous Lime Mudstone,** medium grey weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, resistant, hard, alteration: oxide, fracture-related, strong HCl reaction | 97.08 | 0.67 | 1.08 | 0.254 | 0.126 | 1406 | 114 | 50 |
| 82134 UTM 631296E, 5601175N | Tq | 3 | **Carbonaceous Lime Mudstone,** dark grey to tan weathered, medium brown-grey fresh, micritic, massive, resistant, strong HCl reaction, structure(s): fracture, undetermined-scale, weak; calcite veinlet, undetermined-scale, weak | 96.45 | 2.07 | 0.57 | 0.078 | 0.162 | 1602 | 138 | 50 |
| 82135 UTM 631308E, 5601192N | Tq | grab | **Carbonaceous Lime Mudstone,** dark grey weathered, dark grey to medium grey fresh, micritic, massive, resistant, pockety, strong HCl reaction, structure(s): fracture, undetermined-scale, weak; calcite veinlet, undetermined-scale, weak | 97.13 | 0.65 | 1.26 | 0.086 | 0.106 | 2352 | 85 | 186 |
| 82136 UTM 631310E, 5601248N | Tq | 3 | **Carbonaceous Lime Mudstone to Slightly Dolomitic Lime Mudstone,** dark grey weathered and fresh, micritic, moderately-bedded, resistant, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak; bedding (possible), local-scale, 180/26 W | 95.02 | 3.68 | 0.60 | 0.094 | 0.192 | 937 | 147 | 50 |
| 82183 UTM 631435E, 5601129N | Tq | grab | **Lime Mudstone,** tan to very-light grey weathered, medium grey fresh, micritic, massive, resistant, pockety, vuggy (calcite-filled), moderate HCl reaction, structure(s): fracture, undetermined-scale, moderate; calcite vein, undetermined-scale, moderate | 96.90 | 0.38 | 1.79 | 0.229 | 0.192 | 344 | 487 | 50 |
| 82184 UTM 631491E, 5601071N | Tq | 1.75 | **Lime Mudstone,** tan weathered, light grey to medium grey fresh, cryptocrystalline to micritic, resistant, pockety, vuggy (calcite-filled), strong HCl reaction, structure(s): dyke, undetermined-scale; calcite veinlet, undetermined-scale, moderate | 96.31 | 0.73 | 1.89 | 0.367 | 0.227 | 387 | 399 | 50 |

| Sample | Strat Unit | Strat Tkns (m) | Description | $CaCO_3$ (%) | $MgCO_3$ (%) | $SiO_2$ (%) | $Al_2O_3$ (%) | $Fe_2O_3$ (%) | SrO (ppm) | MnO (ppm) | $P_2O_5$ (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Section 2015-01 (UTM 631499E, 5601736N)** | | | | | | | | | | | |
| 82110 | Tq | 2 | **Mudstone,** dark grey to dark brown-grey weathered, very-dark grey to black fresh, cryptocrystalline to micritic, laminated, fissile, argillaceous, banded, alteration: oxide, fracture-related, moderate HCl reaction, structure(s): fracture, undetermined-scale, strong; calcite veinlet, undetermined-scale, strong; bedding (undulatory), local-scale, 190/22 W; bedding (undulatory), local-scale, 186/40 W | 20.94 | 5.40 | 28.53 | 3.829 | 4.938 | 693 | 656 | 6942 |
| 82111 | Tq | 1 | **Mudstone,** dark grey to dark brown-grey weathered, very-dark grey to black fresh, cryptocrystalline to micritic, laminated, fissile, argillaceous, banded, alteration: oxide, fracture-related, moderate HCl reaction, structure(s): fracture, undetermined-scale, strong; calcite veinlet, undetermined-scale, strong; bedding (undulatory), local-scale, 200/34 NW | 24.02 | 3.77 | 27.50 | 3.288 | 3.811 | 598 | 755 | 2839 |
| 82112 | Tq | 2 | **Mudstone,** dark grey to dark brown-grey weathered, very-dark grey to black fresh, cryptocrystalline to micritic, sandy, silty, alteration: oxide, fracture-related, moderate HCl reaction, structure(s): fracture, undetermined-scale, strong; calcite veinlet, undetermined-scale, strong; bedding (undulatory), local-scale, 179/26 W; bedding (undulatory), local-scale, 178/22 W | 31.39 | 2.26 | 29.39 | 2.244 | 2.321 | 518 | 979 | 3064 |
| 82113 | Tq | 2 | **Mudstone,** dark grey to dark brown-grey weathered, very-dark grey to black fresh, cryptocrystalline to micritic, laminated, fissile, argillaceous, banded, alteration: oxide, fracture-related, moderate HCl reaction, structure(s): fracture, undetermined-scale, strong; calcite veinlet, undetermined-scale, strong; bedding (undulatory), local-scale, 171/20 SW | 29.09 | 2.74 | 28.39 | 2.968 | 2.754 | 524 | 1002 | 11323 |
| 82114 | Tq | 2.5 | **Mudstone,** dark grey to dark brown-grey weathered, very-dark grey to black fresh, cryptocrystalline to micritic, laminated, fissile, argillaceous, banded, alteration: oxide, fracture-related, moderate HCl reaction, structure(s): fracture, undetermined-scale, strong; calcite veinlet, undetermined-scale, strong; bedding (undulatory), local-scale, 190/22 W; bedding (undulatory), local-scale, 186/40 W | 28.16 | 4.64 | 34.26 | 4.029 | 3.520 | 298 | 1737 | 4436 |
| **Section 2015-02 (UTM 631790E, 5602088N)** | | | | | | | | | | | |
| 82117 | Tq | 1.5 | **Carbonaceous Lime Mudstone,** very-light grey to tan weathered, dark grey to medium grey fresh, micritic, thickly-bedded to massively-bedded, resistant, pockety, homogeneous, strong HCl reaction, structure(s): calcite vein, undetermined-scale, weak | 95.68 | 1.40 | 0.64 | 0.142 | 2.393 | 523 | 496 | 50 |
| 82118 | Tq | 7 | **Carbonaceous Lime Mudstone to Slightly Dolomitic Lime Mudstone,** very-light grey to tan weathered, dark grey to medium grey fresh, micritic, thickly-bedded to massively-bedded, resistant, pockety, homogeneous, strong HCl reaction, structure(s): calcite vein, undetermined-scale, weak | 96.43 | 3.43 | 0.18 | 0.082 | 0.098 | 452 | 52 | 50 |
| 82119 | Tq | 6 | **Carbonaceous Lime Mudstone,** very-light grey to tan weathered, dark grey to medium grey fresh, micritic, fossils: crinoid ossicle, rare, thickly-bedded to massively-bedded, resistant, pockety, homogeneous, strong HCl reaction, structure(s): calcite vein, undetermined-scale, weak | 97.34 | 1.38 | 0.41 | 0.127 | 0.190 | 496 | 108 | 50 |
| 82120 | Tq | 6.75 | **Carbonaceous Lime Mudstone,** very-light grey to tan weathered, dark grey to medium grey fresh, micritic, thickly-bedded to massively-bedded, resistant, pockety, homogeneous, strong HCl reaction, structure(s): calcite vein, undetermined-scale, weak | 98.24 | 0.61 | 0.43 | 0.115 | 0.149 | 530 | 63 | 50 |
| 82121 | Tq | 4 | **Carbonaceous Lime Mudstone,** very-light grey to tan weathered, dark grey to medium grey fresh, micritic, thickly-bedded to massively-bedded, resistant, pockety, homogeneous, strong HCl reaction, structure(s): dyke, undetermined-scale, weak; calcite vein, undetermined-scale, weak; bedding (possible), local-scale, 170/33 W; bedding (possible), local-scale, 166/32 SW | 98.52 | 0.48 | 0.62 | 0.096 | 0.117 | 467 | 84 | 50 |

| Sample | Strat Unit | Strat Tkns (m) | Description | $CaCO_3$ (%) | $MgCO_3$ (%) | $SiO_2$ (%) | $Al_2O_3$ (%) | $Fe_2O_3$ (%) | SrO (ppm) | MnO (ppm) | $P_2O_5$ (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 82122 | Tq | 6.5 | **Carbonaceous Lime Mudstone,** very-light grey to tan weathered, dark grey to medium grey fresh, micritic, thickly-bedded to massively-bedded, resistant, pockety, homogeneous, strong HCl reaction, structure(s): dyke, undetermined-scale; calcite vein, undetermined-scale, weak | 97.84 | 0.56 | 0.68 | 0.130 | 0.176 | 547 | 151 | 109 |
| **Section 2015-03 (UTM 631425E, 5601462N)** | | | | | | | | | | | |
| 82123 | Tq | 1.5 | **Slightly Dolomitic Lime Mudstone,** light grey to tan weathered, medium grey fresh, cryptocrystalline to micritic, massive, resistant, homogeneous, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 95.83 | 2.87 | 0.43 | 0.097 | 0.167 | 1293 | 163 | 50 |
| 82124 | Tq | 3.75 | **Lime Mudstone,** light grey to tan weathered, medium grey fresh, cryptocrystalline to micritic, massive, resistant, homogeneous, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 96.86 | 1.76 | 0.56 | 0.130 | 0.225 | 1263 | 176 | 50 |
| 82125 | Tq | 2 | **Slightly Dolomitic Lime Mudstone,** light grey to tan weathered, medium grey fresh, cryptocrystalline to micritic, massive, resistant, homogeneous, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 95.90 | 2.34 | 1.04 | 0.104 | 0.211 | 1217 | 115 | 50 |
| 82126 | Tq | 2 | **Lime Mudstone,** light grey to tan weathered, medium grey fresh, cryptocrystalline to micritic, massive, resistant, homogeneous, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 95.90 | 2.20 | 1.40 | 0.127 | 0.152 | 1238 | 91 | 50 |
| **Section 2015-04 (UTM 631401E, 5601340N)** | | | | | | | | | | | |
| 82129 | Tq | 1.75 | **Carbonaceous Lime Mudstone,** light grey to tan weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded, resistant, homogeneous, strong HCl reaction, structure(s): fracture, undetermined-scale, weak; calcite veinlet, undetermined-scale, weak; bedding (undulatory), local-scale, 203/32 NW; bedding (undulatory), local-scale, 201/34 NW | 96.97 | 0.65 | 1.56 | 0.168 | 0.128 | 830 | 125 | 50 |
| 82130 | Tq | 2.5 | **Carbonaceous Lime Mudstone,** light grey to tan weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded, resistant, homogeneous, strong HCl reaction, structure(s): fracture, undetermined-scale, weak; calcite veinlet, undetermined-scale, weak | 97.77 | 0.61 | 0.90 | 0.097 | 0.118 | 1475 | 118 | 50 |
| 82131 | Tq | 1 | **Carbonaceous Lime Mudstone,** light grey to tan weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded, resistant, homogeneous, pockety, strong HCl reaction, structure(s): fracture, undetermined-scale, weak; calcite veinlet, undetermined-scale, weak; bedding (undulatory), local-scale, 220/42 NW | 98.06 | 0.56 | 0.64 | 0.099 | 0.110 | 1128 | 148 | 50 |
| 82132 | Tq | 2 | **Carbonaceous Lime Mudstone,** light grey to tan weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded, resistant, homogeneous, pockety, strong HCl reaction, structure(s): fracture, undetermined-scale, weak; calcite veinlet, undetermined-scale, weak | 98.00 | 0.61 | 0.49 | 0.156 | 0.135 | 1075 | 133 | 50 |
| 82133 | Tq | 2.25 | **Carbonaceous Lime Mudstone,** light grey to tan weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded, resistant, homogeneous, strong HCl reaction, structure(s): fracture, undetermined-scale, weak; calcite veinlet, undetermined-scale, weak | 97.90 | 0.56 | 0.74 | 0.137 | 0.135 | 740 | 122 | 50 |
| **Section 2015-05 (UTM 631380E, 5601264N)** | | | | | | | | | | | |
| 82176 | Tq | 3 | **Lime Mudstone,** medium grey weathered and fresh, micritic, thickly-bedded, resistant, homogeneous, moderate HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 97.79 | 0.67 | 0.44 | 0.166 | 0.101 | 1582 | 160 | 50 |
| 82177 | Tq | 3 | **Lime Mudstone,** very-light grey weathered, medium grey fresh, cryptocrystalline to micritic, thickly-bedded, resistant, homogeneous, moderate HCl reaction, structure(s): fracture, undetermined-scale, weak; calcite veinlet, undetermined-scale, weak | 99.18 | 0.50 | 0.31 | 0.057 | 0.077 | 1884 | 144 | 50 |

| Sample | Strat Unit | Strat Tkns (m) | Description | $CaCO_3$ (%) | $MgCO_3$ (%) | $SiO_2$ (%) | $Al_2O_3$ (%) | $Fe_2O_3$ (%) | SrO (ppm) | MnO (ppm) | $P_2O_5$ (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 82178 | Tq | 3 | **Lime Mudstone,** light grey weathered, medium grey to medium brown-grey fresh, cryptocrystalline to micritic, thickly-bedded, resistant, homogeneous, moderate HCl reaction, structure(s): fracture, undetermined-scale; calcite veinlet, undetermined-scale, weak | 98.65 | 0.52 | 0.33 | 0.062 | 0.060 | 1762 | 192 | 50 |
| 82179 | Tq | 3 | **Argillaceous Lime Mudstone,** light grey to tan weathered, medium grey fresh, cryptocrystalline to micritic, thickly-bedded, resistant, homogeneous, moderate HCl reaction, structure(s): dyke, undetermined-scale; calcite veinlet, undetermined-scale, weak | 81.78 | 4.64 | 7.71 | 2.146 | 1.498 | 1088 | 224 | 686 |
| 82180 | Tq | 3 | **Lime Mudstone,** light grey weathered, medium grey to medium brown-grey fresh, cryptocrystalline to micritic, thickly-bedded, resistant, homogeneous, moderate HCl reaction, structure(s): fracture, undetermined-scale; calcite veinlet, undetermined-scale, weak | 97.50 | 0.75 | 1.08 | 0.127 | 0.151 | 1479 | 204 | 50 |
| 82181 | Tq | 3 | **Lime Mudstone,** light grey weathered, medium grey to medium brown-grey fresh, cryptocrystalline to micritic, thickly-bedded, resistant, homogeneous, moderate HCl reaction, structure(s): fracture, undetermined-scale; calcite veinlet, undetermined-scale, weak | 98.29 | 0.50 | 0.53 | 0.065 | 0.112 | 1728 | 103 | 50 |
| 82182 | Tq | 3 | **Lime Mudstone,** light grey weathered, medium grey to medium brown-grey fresh, cryptocrystalline to micritic, thickly-bedded, resistant, homogeneous, strong HCl reaction, structure(s): fracture, undetermined-scale; calcite veinlet, undetermined-scale, weak | 96.97 | 1.69 | 0.53 | 0.099 | 0.156 | 1436 | 156 | 50 |
| **Section 2015-06 (UTM 631356E, 5601166N)** | | | | | | | | | | | |
| 82185 | Tq | 2.75 | **Lime Mudstone,** very-light grey to light grey weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded to thickly-bedded, resistant, hard, very strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak; bedding (undulatory), local-scale, 170/31 SW | 96.40 | 1.40 | 1.24 | 0.219 | 0.125 | 736 | 68 | 50 |
| 82186 | Tq | 1.75 | **Lime Mudstone,** very-light grey to light grey weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded to thickly-bedded, resistant, hard, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 97.22 | 0.98 | 0.93 | 0.199 | 0.116 | 945 | 76 | 50 |
| 82187 | Tq | 2.25 | **Lime Mudstone,** very-light grey to light grey weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded to thickly-bedded, resistant, hard, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 98.29 | 0.56 | 0.51 | 0.115 | 0.097 | 1526 | 87 | 50 |
| 82188 | Tq | 2 | **Slightly Dolomitic Lime Mudstone,** very-light grey to light grey weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded to thickly-bedded, resistant, hard, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 95.67 | 2.99 | 0.77 | 0.117 | 0.130 | 754 | 95 | 50 |
| 82189 | Tq | 2.25 | **Dolomitic Lime Mudstone,** very-light grey to light grey weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded to thickly-bedded, resistant, hard, strong HCl reaction, structure(s): calcite veinlet, undetermined-scale, weak | 93.97 | 4.87 | 0.84 | 0.182 | 0.123 | 754 | 92 | 50 |

## APPENDIX 6: STATEMENT OF QUALIFICATIONS

K. Krueger is a geological consultant with Dahrouge Geological Consulting Ltd. based in Edmonton, Alberta. She obtained a degree in Geology from the University of Alberta, Edmonton in 2012 and has been employed in the mineral exploration industry since. She is registered as a Geo. I.T. with the Association of Professional Engineers and Geoscientists of Alberta.

D. Hayes is a geological consultant with Dahrouge Geological Consulting Ltd. based in Edmonton, Alberta. He obtained a degree in Geology from the University of Alberta, Edmonton in 2014 and has been employed in the mineral exploration industry intermittently since. He is registered as a Geo. I.T. with the Association of Professional Engineers and Geoscientists of Alberta.

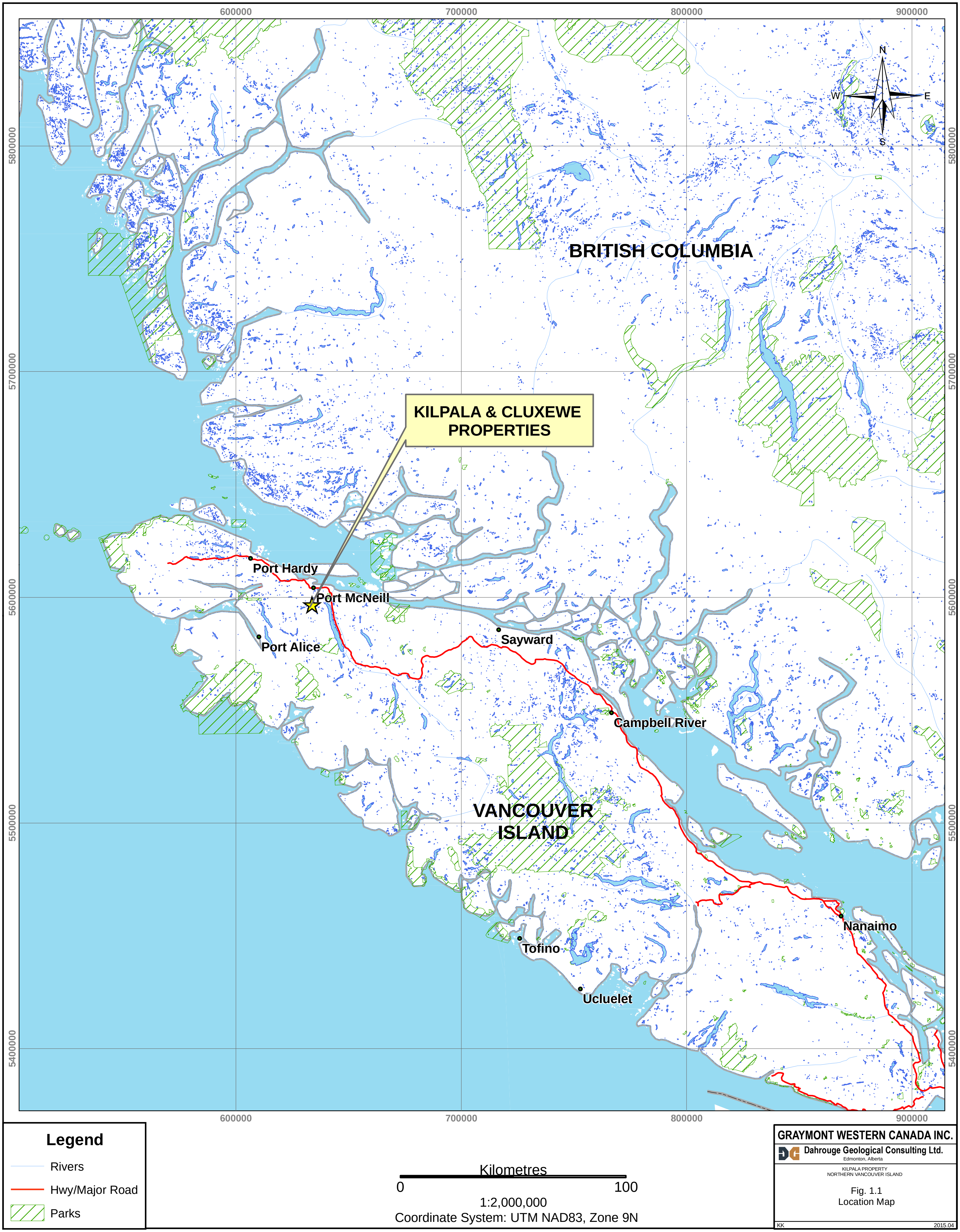
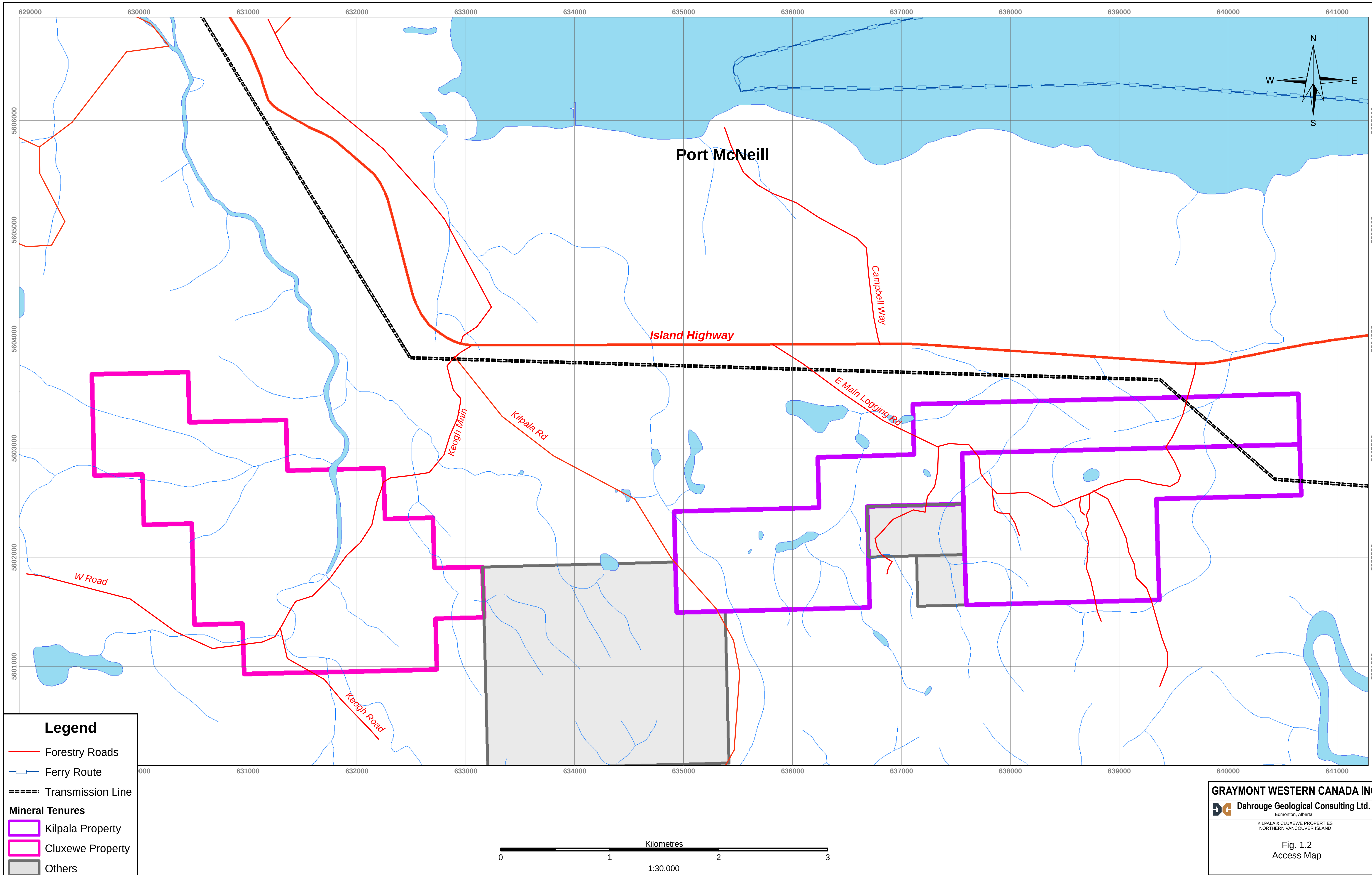



Fig. 1.1
Location Map

F2


Port McNeill
Island Highway
Campbell Way
E Main Logging Rd
Kilpala Rd
Keogh Main
W Road
Keogh Road
N
S
E
W
Legend
Forestry Roads
Ferry Route
Transmission Line
Mineral Tenures
Kilpala Property
Cluxewe Property
Others
Kilometres
0
1
2
3
1:30,000
Coordinate System: UTM NAD83, Zone 9N
GRAYMONT WESTERN CANADA INC.
Dahrouge Geological Consulting Ltd.
Edmonton, Alberta
KILPALA & CLUXEWE PROPERTIES
NORTHERN VANCOUVER ISLAND
Fig. 1.2
Access Map
KK
2016.02

F3

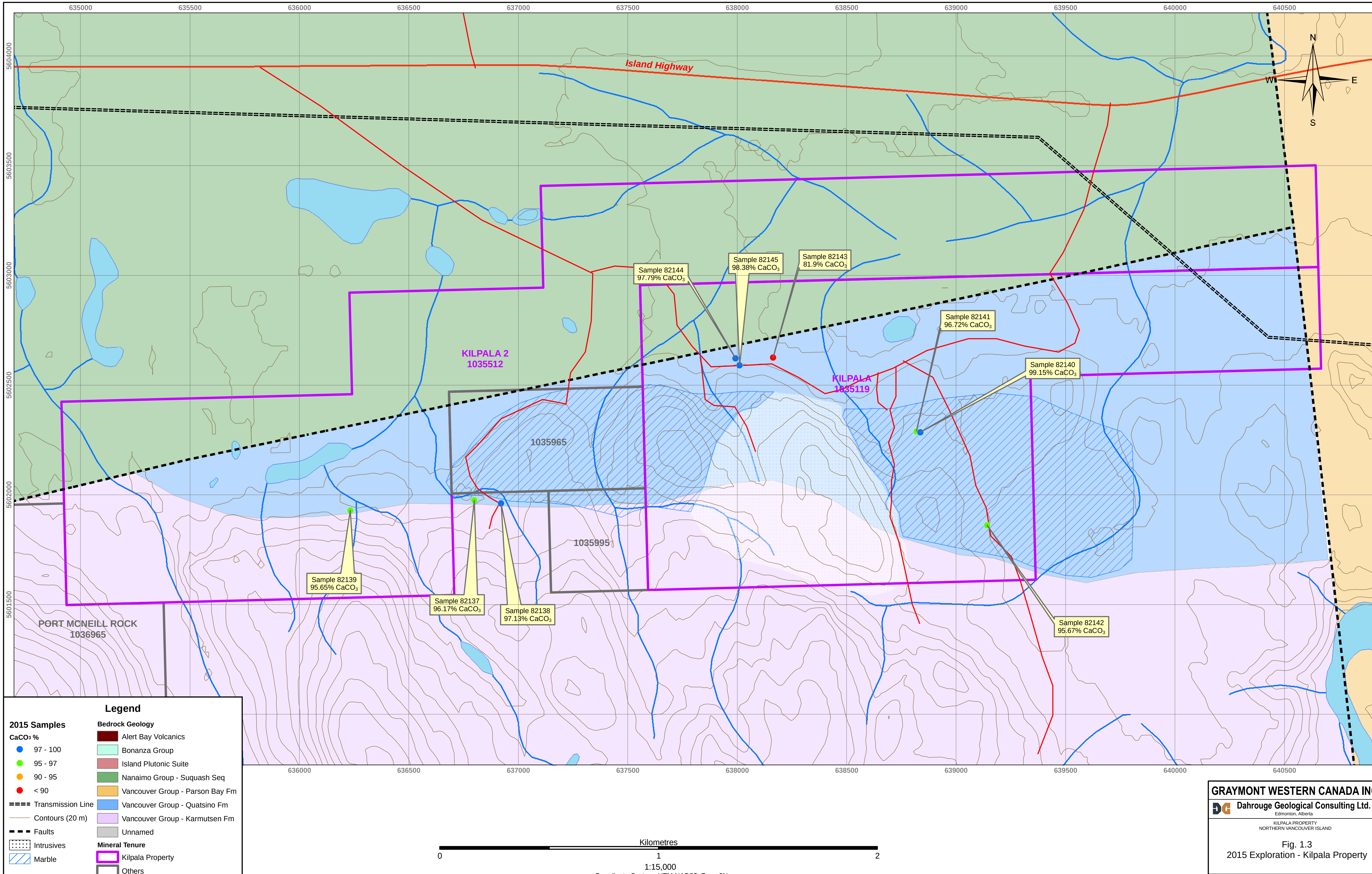



Fig. 1.3
2015 Exploration - Kilpala Property

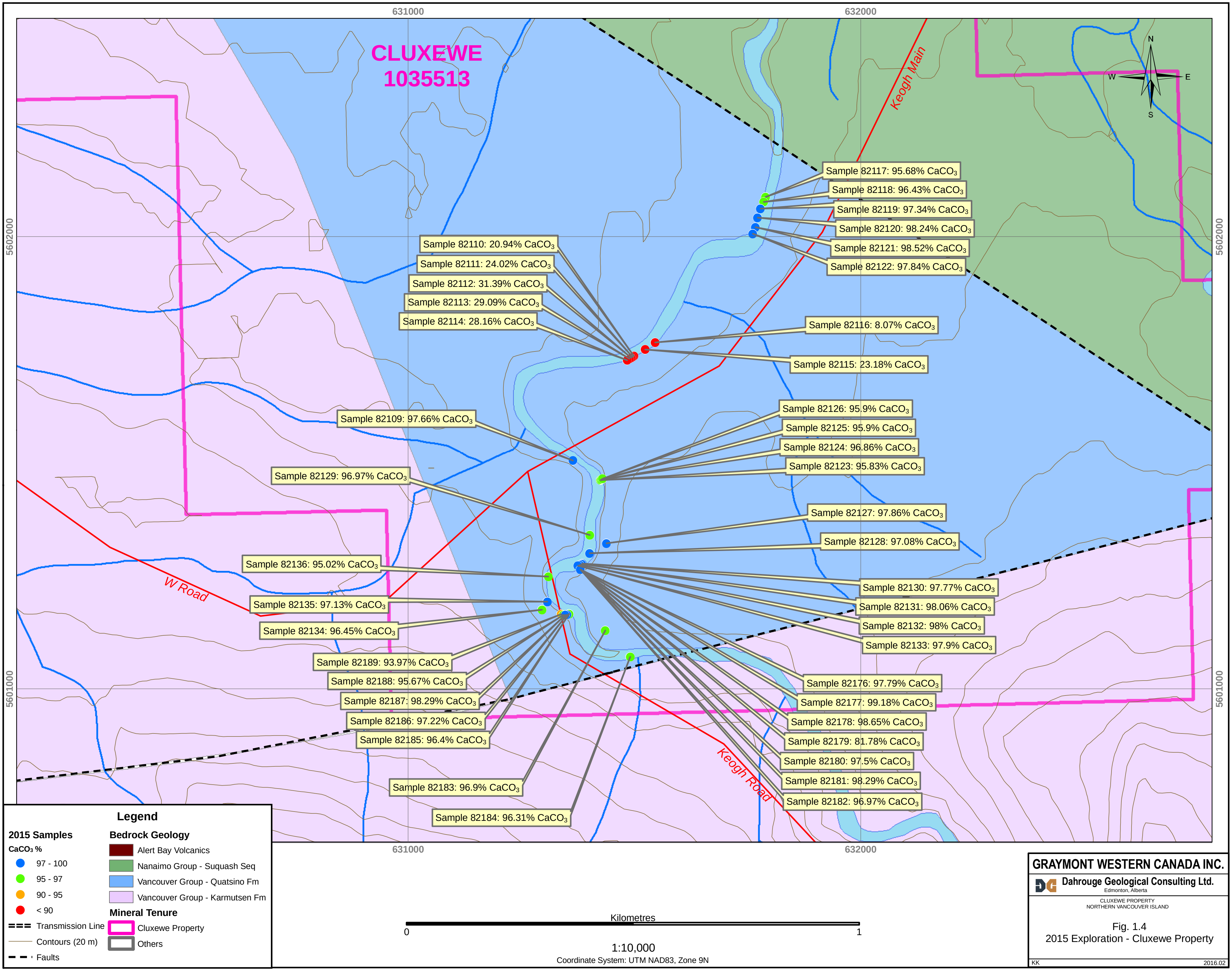



Fig. 1.4
2015 Exploration - Cluxewe Property

F4

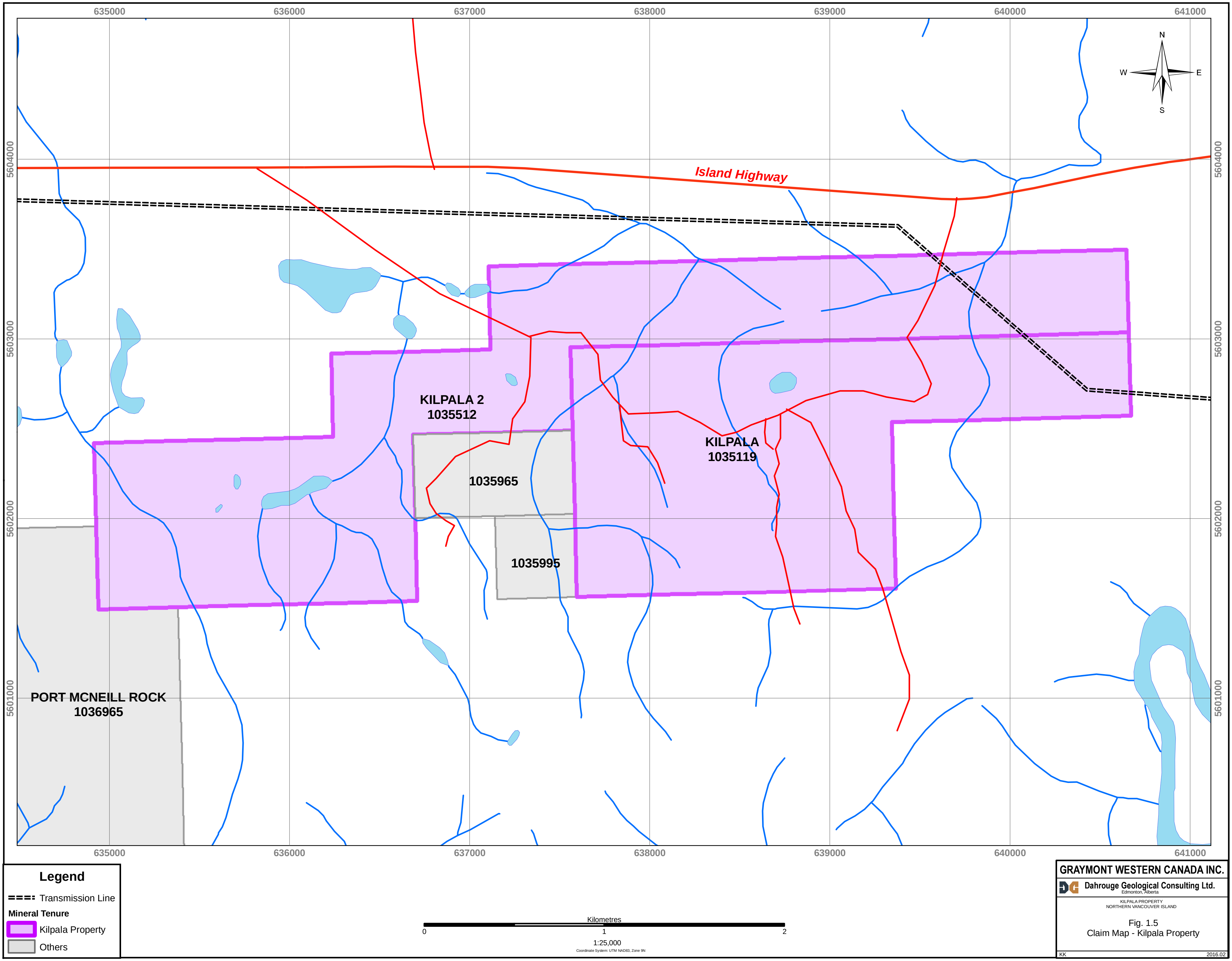
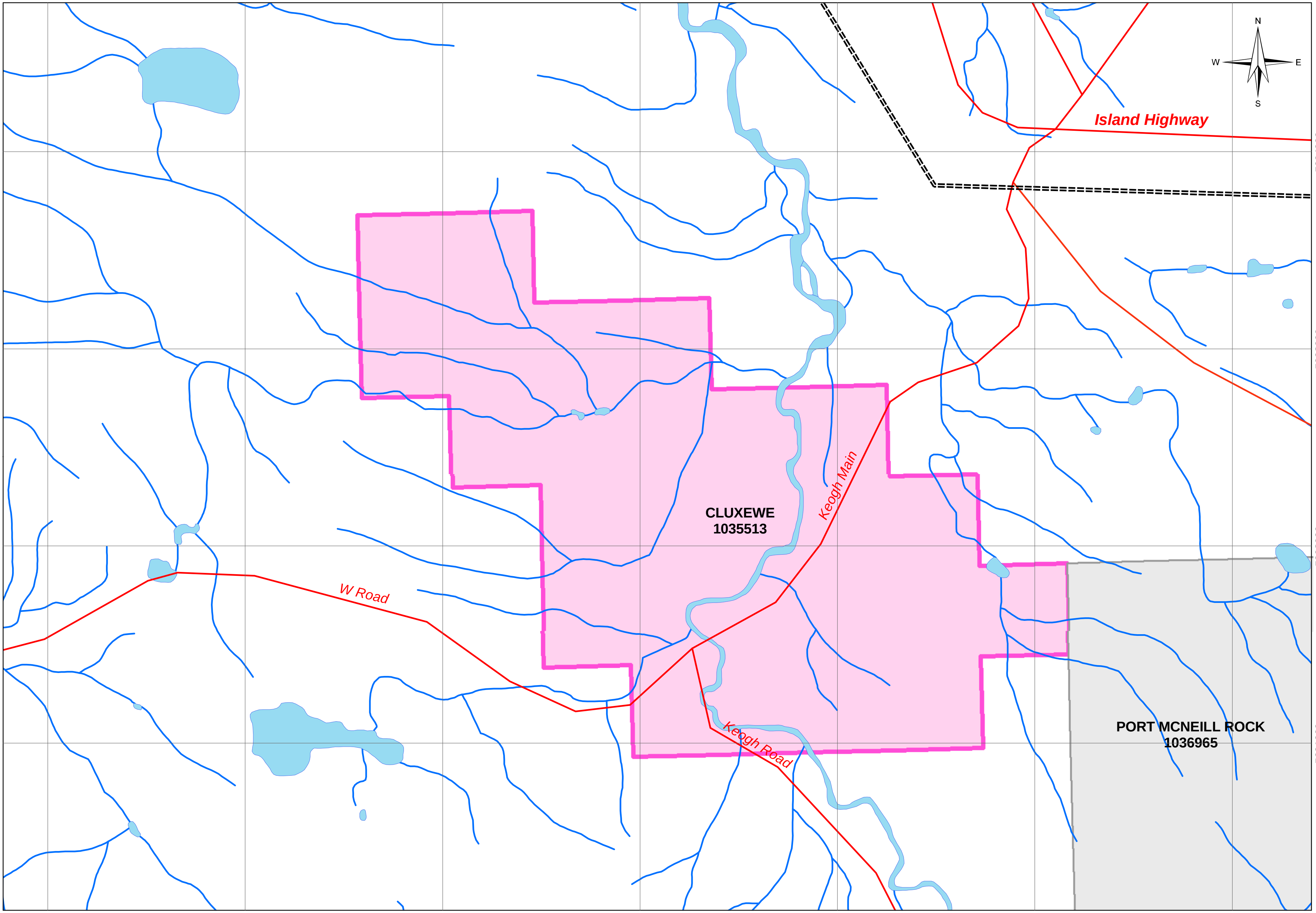



Fig. 1.5
Claim Map - Kilpala Property




## Legend

==== Transmission Line

**Mineral Tenure**

Cluxewe Property

Others

Kilometres

0 1 2

1:25,000

Coordinate System: UTM NAD83, Zone 9N

**GRAYMONT WESTERN CANADA INC.**

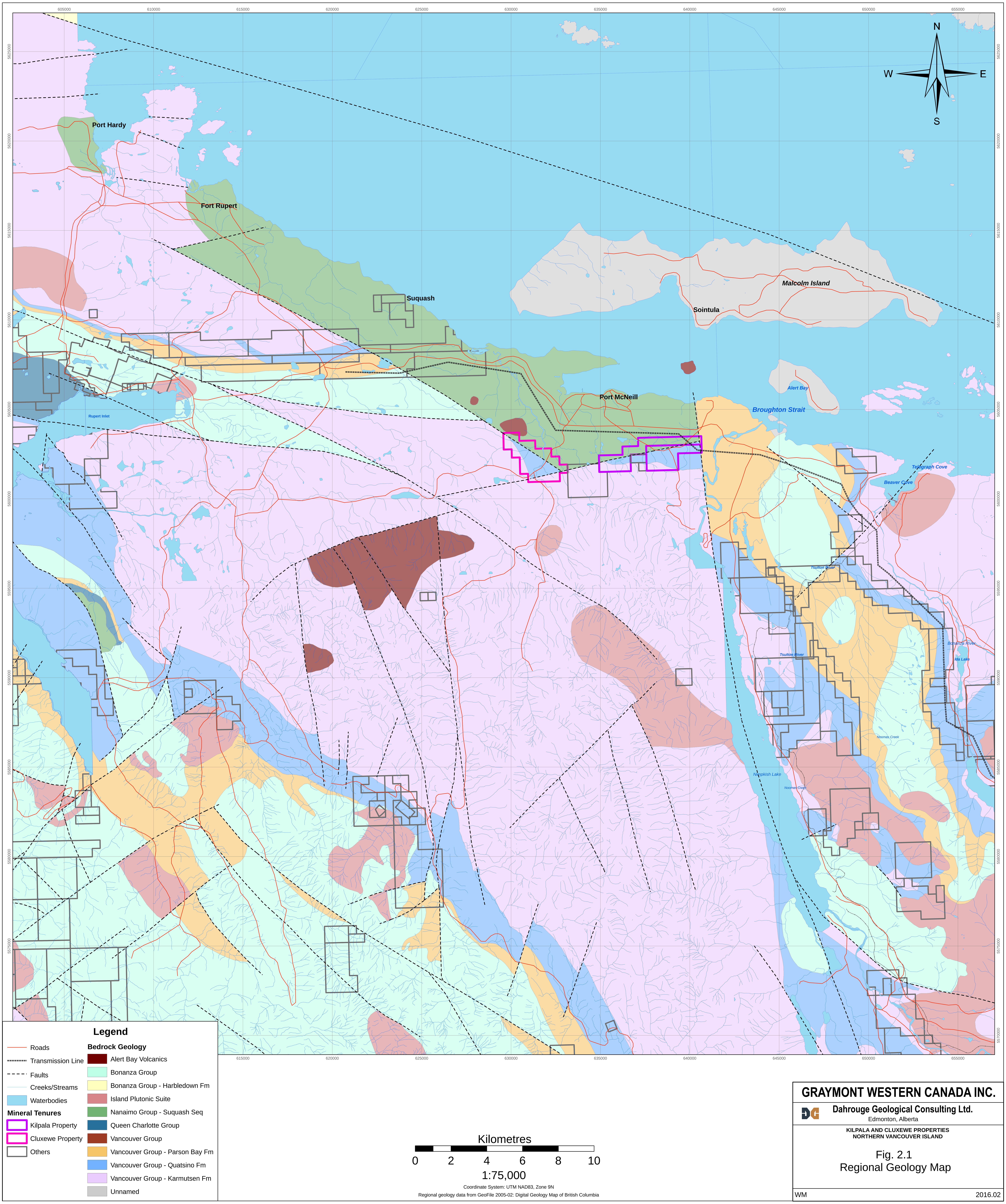
**Dahrouge Geological Consulting Ltd.**
Edmonton, Alberta

CLUXEWE PROPERTY
NORTHERN VANCOUVER ISLAND

Fig. 1.6
Claim Map - Cluxewe Property

KK 2016.02

F6


N
S
W
E
Port Hardy
Fort Rupert
Suquash
Port McNeill
Malcolm Island
Sointula
Alert Bay
Broughton Strait
Telegraph Cove
Beaver Cove
Rupert Inlet
Tsulton River
Nimpkish Lake
Legend
Roads
Transmission Line
Faults
Creeks/Streams
Waterbodies
Mineral Tenures
Kilpala Property
Cluxewe Property
Others
Bedrock Geology
Alert Bay Volcanics
Bonanza Group
Bonanza Group - Harbledown Fm
Island Plutonic Suite
Nanaimo Group - Suquash Seq
Queen Charlotte Group
Vancouver Group
Vancouver Group - Parson Bay Fm
Vancouver Group - Quatsino Fm
Vancouver Group - Karmutsen Fm
Unnamed
Kilometres
0 2 4 6 8 10
1:75,000
Coordinate System: UTM NAD83, Zone 9N
Regional geology data from GeoFile 2005-02: Digital Geology Map of British Columbia
GRAYMONT WESTERN CANADA INC.
Dahrouge Geological Consulting Ltd.
Edmonton, Alberta
KILPALA AND CLUXEWE PROPERTIES
NORTHERN VANCOUVER ISLAND
Fig. 2.1
Regional Geology Map
WM
2016.02