

# Airborne Geophysical Survey Report

BC Geological Survey  
Assessment Report  
32985b

Precision  
GeoSurveys Inc.

## **Ladner Gold Block**

Prepared for:  
New Carolin Gold Corp.

November 2011  
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Introduction:

This report outlines the survey operations and data processing actions taken during the airborne geophysical survey flown at Ladner Gold block, BC (Figure 1). The airborne geophysical survey was flown by Precision GeoSurveys Inc. for New Carolin Gold Corp. The geophysical survey, carried out between October 26, 2011 to November 01, 2011, saw the acquisition of high resolution magnetic and radiometric data.

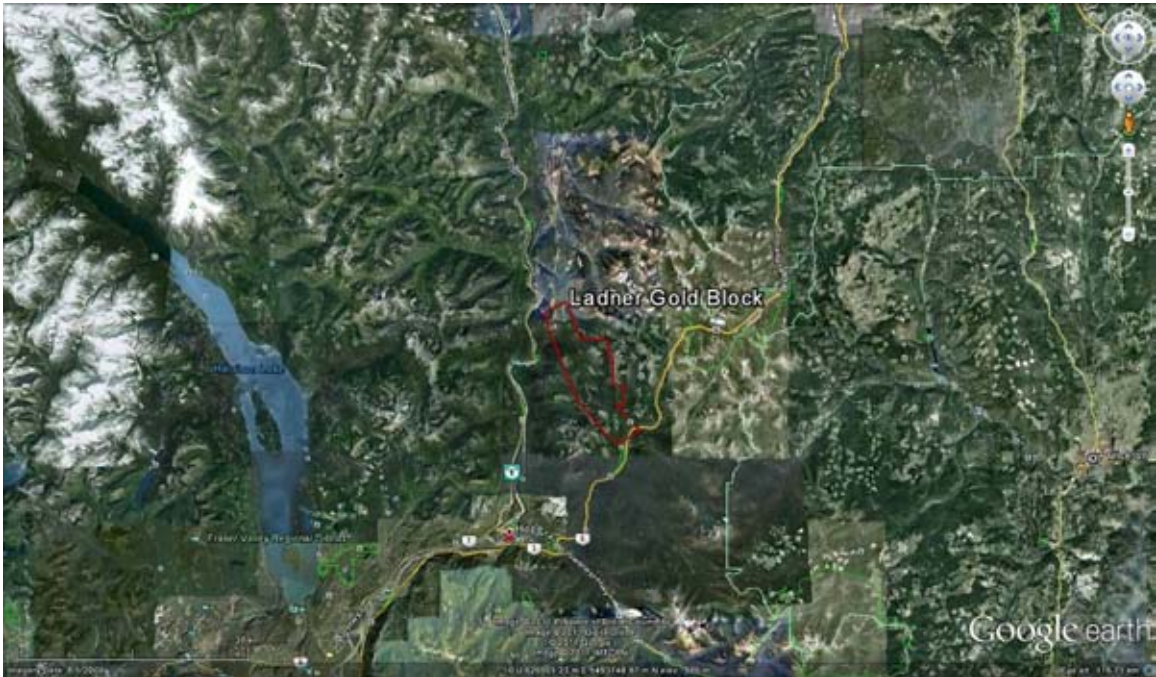


Figure 1: Ladner Gold block area location relative to Hope, BC and Coquihalla Highway (hwy #5).

The Ladner Gold block is located approximately 150 kilometers east of Vancouver, BC and 20 kilometers north east of Hope, BC. The southern border of the property is bounded by the Coquihalla Highway (hwy #5); the northern border of the property is bounded by the Haig Highway (hwy #1). The survey area of Ladner Gold block is approximately 18 km by 3 km (Figures 2 & 3). A total of 759 line kilometers of magnetic and radiometric data were flown for this survey; this total includes tie lines and survey lines. The survey lines were flown at 100 meter spacings at a 060°/240° heading; the tie lines were flown at 1 km spacings at a heading of 150°/330° (Figure 4).



Figure 2: Plan View - Ladner Gold block with survey and tie lines outlined in yellow and the boundary in red.



Figure 3: Terrain View - Ladner Gold block with survey and tie lines outlined in yellow and the boundary in red.

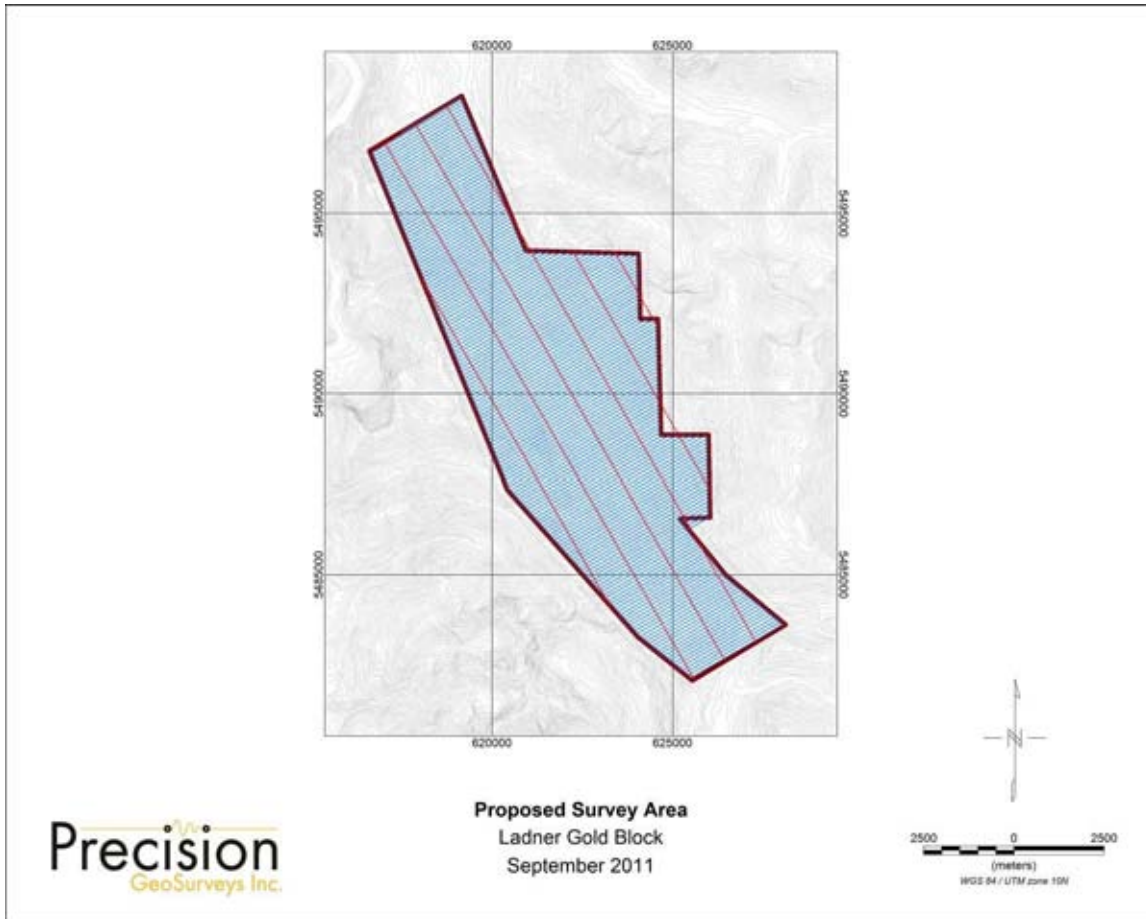


Figure 4: Proposed survey basemap of Ladner Gold block showing survey and tie lines and the boundary in red.

**Survey Specifications:**

The geodetic system used for this survey is WGS 84 and the area is contained in zone 7N. The survey data acquisition specifications and coordinates for Ladner Gold block are specified as followed (Tables 1 & 2).

Survey	Line Spacing m	Survey Line km	Tie Line km	Total Line km	Survey Line Orientation	Nominal Survey Height m
Ladner Gold block	100	690	69	759	060°/240°	35
Total				759		

Table 1: Ladner Gold block survey acquisition specifications.

Longitude	Latitude	Easting	Northing
121.3859827	49.61186894	616598	5496729
121.3501672	49.62508166	619153	5498254
121.3269485	49.58618560	620926	5493967
121.2836485	49.58481383	624059	5493885
121.2836538	49.56849634	624100	5492071
121.2768110	49.56839463	624595	5492071
121.2766954	49.53946373	624677	5488855
121.2584728	49.53919083	625996	5488855
121.2586169	49.51880034	626038	5486588
121.2701427	49.51873041	625204	5486561
121.2530660	49.50435088	626477	5484991
121.2307321	49.49166955	628127	5483619
121.2669023	49.47827423	625542	5482069
121.2873715	49.48948171	624031	5483281
121.3360638	49.52685782	620413	5487357

Table 2: Ladner Gold block survey polygon coordinates using WGS 84 in zone 10N.

## 2.0 Geophysical Data:

Geophysical data are collected in a variety of ways and are used to aid in the exploration and determination of geology, mineral deposits, oil and gas deposits, contaminated land sites and UXO detection.

For the purposes of this survey, airborne magnetic and radiometric data were collected to serve in the exploration of Ladner Gold block which contains rocks that are prospective for gold mineralization.

### 2.1 Magnetic Data:

Magnetic surveying is probably the most common airborne survey type to be conducted for both mineral and hydrocarbon exploration. The type of survey specifications, instrumentation, and interpretation procedures, depend on the objectives of the survey. Typically magnetic surveys are performed for:

1. Geological Mapping to aid in mapping lithology, structure and alteration in both hard rock environments and for mapping basement lithology, structure and alteration in sedimentary basins or for regional tectonic studies.
2. Depth to Basement mapping for exploration in sedimentary basins or mineralization associated with the basement surface.

## 2.2 Radiometric Data:

Radiometric surveys detect and map natural radioactive emanations, called gamma rays, from rocks and soils. All detectable gamma radiation from earth materials come from the natural decay products of three primary elements; uranium, thorium, and potassium. The purpose of radiometric surveys is to determine either the absolute or relative amounts of U, Th, and K in surface rocks and soils.

## 3.0 Survey Operations:

Precision GeoSurveys flew the Ladner Gold block using a Eurocopter AS350 helicopter (Figure 5). The survey lines were flown at a nominal line spacing of one hundred (100) meters and the tie lines were flown at 1 km spacing for both the spectrometer and magnetometer as they were acquired simultaneously. The average survey elevation was 58 meters vertically above ground for the Ladner Gold block. The experience of the pilot helped to ensure that the data quality objectives were met and that the safety of the flight crew was never compromised given the potential risks involved in airborne surveying.



Figure 5: Eurocopter AS350 equipped with mag stinger for magnetic data acquisition.

The base of operations for this survey was at Moose Creek Lodge, YT. The Precision crew consisted of four members:

Harmen Keyser - Pilot  
Brenton Keyser and Eric Milic - Operators  
Jenny Poon - Geophysicist

The survey was started on October 26, 2011 and completed on November 01, 2011. The survey encountered several delays due to poor weather conditions including rain and low cloud ceilings.

#### 4.0 Equipment:

For this survey, a magnetometer, spectrometer, base station, laser altimeter, and a data acquisition system were required to carry out the survey and collect quality, high resolution data. The survey magnetometer is carried in an approved “stinger” configuration to enhance flight safety and improve data quality in this mountainous terrain.

#### 4.1 AGIS:

The Airborne Geophysical Information System, AGIS, (Figure 6), is the main computer used in data recording, data synchronizing, displaying real-time QC data for the geophysical operator, and generation of navigation information for the pilot display system.



Figure 6: AGIS installed in the Eurocopter AS350.



The AGIS was manufactured by Pico Envirotec; therefore the system uses standardized Pico software and external sensors are connected to the system via RS-232 serial communication cables. The AGIS data format is easily converted into Geosoft or ASCII file formats by a supplied conversion program called PEIView. Additional Pico software allows for post real time magnetic compensation and survey quality control procedures.

#### 4.2 Spectrometer:

The IRIS, or Integrated Radiometric Information System is a fully integrated, gamma radiation detection system containing 16.8 litres of NaI (Tl) downward looking crystals and 4.2 litres NaI (Tl) upward looking crystals (Figure 7). The IRIS is equipped with upward-shielding high density RayShield® gamma-attenuating material to minimize cosmic and solar gamma noise. Real time data acquisition, navigation and communication tasks are integrated into a single unit that is installed in the rear of the aircraft as indicated below. Information such as total count, counts of various radioelements (K, U, Th, etc.), temperature, cosmic radiation, barometric pressure, atmospheric humidity and survey altitude can all be monitored on the AGIS screen for immediate QC. All the radiometric data are recorded at 1 Hz.



Figure 7: One of the IRIS strapped in the back seat of the Eurocopter AS350.

### 4.3 Magnetometer:

The magnetometer used by Precision GeoSurveys is a Scintrex cesium vapor CS-3 magnetometer. The system was housed in a front mounted “stinger” (Figure 8). The CS-3 is a high sensitivity/low noise magnetometer with automatic hemisphere switching and a wide voltage range, the static noise rating for the unit is +/- 0.01 nT. On the AGIS screen the operator can view the raw magnetic response, the magnetic fourth difference, aircraft position, and the survey altitude for immediate QC of the magnetic data. The magnetic data are recorded at 10 Hz. A magnetic compensator is also used to remove noise created by the movement of the helicopter as it pitches, rolls and yaws within the Earth’s geomagnetic field.



Figure 8: View of the mag stinger.

### 4.4 Base Station:

For monitoring and recording of the Earth’s diurnal magnetic field variation, Precision GeoSurveys uses two base stations: Scintrex proton precession Envi Pro magnetometer and GEM GSM-19T magnetometer. Both base stations are mounted as close to the survey blocks as possible to give accurate magnetic field data. The Envi Pro base station (Figure 9), uses the well proven precession technology to sample at a rate of 0.5 Hz. A GPS is integrated with the system to record real GPS time that is used to correlate with the GPS time collected by the airborne CS-3 magnetometer.



Figure 9: Scintrex Envi Pro proton precession magnetometer.

The GEM GSM-19T magnetometer (Figure 10) also uses the proton precession technology sampling at a rate of 0.5 Hz. The GSM-19T has an accuracy of +/- 0.2 nT at 1 Hz.



Figure 10: GEM GSM-19T proton precession magnetometer.

#### 4.5 Laser Altimeter:

The pilot is provided with terrain guidance and clearance with an Acuity AccuRange AR3000 laser altimeter (Figure 11). This is attached at the aft end of the magnetometer boom. The AR3000 sensor is a time-of-flight sensor that measures distance by a rapidly-modulated and collimated laser beam that creates a dot on the target surface. The maximum range of the laser altimeter is 300 m off of natural surfaces with 90% reflectance and 3 km off special reflectors. Within the sensor unit, reflected signal light is

collected by the lens and focused onto a photodiode. Through serial communications and analog outputs, the distance data are transmitted and collected by the AGIS at 10 Hz.



Figure 11: Acuity AccuRange AR3000 laser altimeter.

#### 4.6 Pilot Guidance Unit:

The PGU (Pilot Guidance Unit) is a graphical display type unit that provides continuous steering and elevation information to the pilot (Figure 12). It is mounted remotely from the data system on top of the instrument panel. The PGU assists the pilot to keep the helicopter on the flight path and at the desired ground clearance.



Figure 12: Pilot Guidance Unit.

The LCD monitor measures 7 inches, with a full VGA 800 x 600 pixel display. The CPU for the PGU is housed in the PC-104 console and uses Windows XP Embedded operating system control, with input from the GPS antenna, laser altimeter, and AGIS.

## 5.0 Data Processing:

After all the data are collected after a survey flight several procedures are undertaken to ensure that the data meet a high standard of quality. All data were processed using Pico Envirotec software and Geosoft Oasis Montaj geophysical processing software.

### 5.1 Magnetic Processing:

During aeromagnetic surveying noise is introduced to the magnetic data by the aircraft itself. Movement in the aircraft (roll, pitch and yaw) and the permanent magnetization of the aircraft parts (engine and other ferric objects) are large contributing factors to this noise. To remove this noise a process called magnetic compensation is implemented. The magnetic compensation process starts with a test flight at the beginning of the survey where the aircraft flies in the four orthogonal headings required for the survey ( $090^{\circ}/270^{\circ}$  and  $000^{\circ}/180^{\circ}$  in the case of this survey) at an altitude where there is no ground effect in the magnetic data. In each heading, three specified roll, pitch, and yaw maneuvers are performed by the pilot; these maneuvers provide the data that are required to calculate the necessary parameters for compensating the magnetic data. A computer program called PEIComp is used to create a model for each survey to remove the noise induced by aircraft movement; this model is applied to each survey flight so the data can be further processed.

Followed by the compensation flight, a lag test is conducted. A lag correction of 1.0 seconds was applied to the total magnetic field data to compensate for the lag in the recording system as the magnetometer sensor flies 5.70 m ahead of the GPS antenna.

A magnetic base station is set up before every flight to ensure that diurnal activity is recorded during the survey flights. In this case, the base station was located inside the block hidden within the bushes south east of the property. Base station readings were reviewed at regular intervals to ensure that no data were collected during periods with high diurnal activity (greater than 5 nT per minute). The base station was installed within the survey blocks at a magnetically noise-free area, away from metallic items such as steel objects, vehicles, or power lines. The magnetic variations recorded from the stationary base station are removed from the magnetic data recorded in flight to ensure that the anomalies seen are real and not due to solar activity.

Filtering is applied to the laser altimeter data as to remove vegetation clutter and to show the actual ground clearance. To remove vegetation clutter a Rolling Statistic filter was applied to the laser altimeter data and a low pass filter was used to smooth out the laser altimeter profile to remove isolated noise. As a result, filtering the data will yield a more uniform surface in close conformance with the actual terrain.

Some filtering of the magnetic data is also required. A Non Linear filter was used for spike removal. The 1D Non-Linear Filter is ideal for removing very short wavelength, but high amplitude features from data. It is often thought of as a noise spike-rejection filter, but it can also be effective for removing short wavelength geological features, such as signals from surficial features. The 1D Non-Linear Filter is used to locate and remove

data that are recognized as noise. The algorithm is ‘non-linear’ because it looks at each data point and decides if that datum is noise or a valid signal. If the point is noise, it is simply removed and replaced by an estimate based on surrounding data points. Parts of the data that are not considered noise are not modified. The combination of a Non-Linear filter for noise removal and a low pass trend enhancement filter resulted in level data as indicated in the results section of this report. The low pass filters simply smoothes out the magnetic profile to remove isolated noise.

## 5.2 Radiometric Processing:

Calibrating the spectrometer system in the helicopter is the first and vital step before the airborne radiometric data can be processed. Once calibration of the system has been complete, the radiometric data are processed by windowing the full spectrum to create channels for U, K, Th and total count. A 5-point Hanning filter was applied to the Cosmic window before going any further with processing the radiometric data.

Aircraft background and cosmic stripping corrections were applied to all three elements, upward uranium channels, and total count using the following formula:

$$C_{ac} = C_{lt} - (a_c + b_c * \text{Cos}_f)$$

where:  $C_{ac}$  is the background and cosmic corrected channel  
 $C_{lt}$  is the live time corrected channel  
 $a_c$  is the aircraft background for this channel  
 $b_c$  is the cosmic stripping coefficient for this channel  
 $\text{Cos}_f$  is the filtered cosmic channel

The radon backgrounds are first removed followed by Compton stripping. Spectral overlap corrections are applied on to potassium, uranium, and thorium as part of the Compton stripping process. This is done by using the stripping ratios that have been calculated for the spectrometer by prior calibration, this breaks the corrected elemental values down into the apparent radioelement concentrations. Lastly, attenuation corrections are applied to the data which involves nominal survey altitude corrections, in this case 34 metres is applied to total count, potassium, uranium, and thorium data.

With all corrections applied to the radiometric data, the final step is to convert the corrected potassium, uranium, and thorium to apparent radioelement concentrations using the following formula:

$$eE = C_{cor} / s$$

where:  $eE$  is the element concentration K(%) and equivalent element concentration of U(ppm) & Th(ppm)  
 $s$  is the experimentally determined sensitivity  
 $C_{cor}$  is the fully corrected channel

Finally, the natural air absorption dose rate is determined using the following formula:

$$E = 13.08 * K + 5.43 * eU + 2.69 * eTh$$

where: E is the absorption dose rate in nG/h

K is the concentration of potassium (%)

eU is the equivalent concentration of uranium (ppm)

eTh is the equivalent concentration of thorium (ppm)

To calculate for radiometric ratios it follows the guidelines in the IAEA report. Due to statistical uncertainties in the individual radioelement measurements, some care was taken in the calculation of the ratio in order to obtain statistically significant values. Following IAEA guidelines, the method of determining ratios of the eU/eTh, eU/K and eTh/K was as follows:

1. Any data points where the potassium concentration was less than 0.25 were neglected.
2. The element with the lowest corrected count rate was determined.
3. The element concentrations of adjacent points on either side of each data point were summed until they exceeded a certain threshold value. This threshold was set to be equivalent to 100 counts of the element with the lowest count rate. Additional minimum thresholds of 1.6% for Potassium, 20 ppm for thorium, and 30 ppm for uranium were set up to insure meaningful ratios.
4. The ratios were calculated using the accumulated sums.

With this method, the errors associated with the calculated ratios will be similar for all data points.

### 5.3 Final Data Format

Abbreviations used in the GDB files are listed in the following table:

Channel	Units	Description
<b>X</b>	m	UTM Easting - WGS84 Zone 7 North
<b>Y</b>	m	UTM Northing - WGS84 Zone 7 North
<b>Galt_m</b>	m	GPS height - WGS84 Zone 7 North
<b>Lalt</b>	m	Laser Altimeter readings
<b>DTM</b>	m	Digital Terrain Model
<b>GPStime</b>	Hours:min:secs	GPStime
<b>basemag</b>	nT	Base station diurnal data
<b>mag</b>	nT	Total Magnetic Intensity
<b>Balt</b>	m	Barometric Altitude
<b>BaltSTP</b>	m	Barometric Altitude (Pres and Temp Corrected)
<b>Temp_DegC</b>	Degrees C	Air Temperature
<b>Press_kP</b>	KiloPascal	Atmospheric Pressure
<b>Press_mbars</b>	millibar	Atmospheric Pressure
<b>filCos</b>	counts/sec	Spectrometer - Filtered Cosmic
<b>conTCF</b>	nGy/Hr	Equivalent Dose Rate
<b>conKF</b>	%	Equivalent Concentration - Potassium
<b>conUF</b>	ppm	Equivalent Concentration - Uranium
<b>conTHF</b>	ppm	Equivalent Concentration - Thorium
<b>THKratioF</b>		Spectrometer - eTh/%K ratio
<b>UKratioF</b>		Spectrometer - eU/%K ratio
<b>UTHratioF</b>		Spectrometer - eU/eTh ratio
<b>Date</b>	yyyy/mm/dd	Local Flight Date

Table 3: Ladner Gold block survey channel abbreviations.

The file format will be provided in two (2) formats, the first will be a .GDB file for use in Geosoft Oasis Montaj, the second format will be a .XYZ file, this is text file. A complete file provided in each format will contain both magnetic and radiometric data.



**Appendix A**  
Equipment Specifications

**Scintrex Envi Pro Proton Magnetometer with Integrated GPS (Base Station)**

<b>Total Field Operating Range</b>	23,000 to 100,000 nT (gamma)
<b>Total Field Absolute Accuracy</b>	±1 nT (gamma)
<b>Sensitivity</b>	0.1 nT (gamma) at 2 second sampling rate
<b>Tuning/ Sampling</b>	Fully solid state. Manual or automatic, keyboard selectable Cycling (Reading) Rates 0.5, 1, 2, or 3 seconds
<b>Gradiometer Option</b>	Includes a second sensor, 0.5m (20 inch) staff extender and processor module
<b>Gradient Tolerance</b>	> 7000 nT (gamma)/m
<b>‘Walking’ Mode</b>	Continuous reading, cycling as fast as 0.5 seconds
<b>Supplied GPS Accuracy</b>	+/- 1m (Autonomous), < 1m WAAS Connects to most external GPS receivers with NMEA & PPS output
<b>Standard Memory</b>	Total Field Measurements: 84,000 readings Gradiometer Measurements: 67,000 readings Base Station Measurements: 500,000 readings
<b>Real-Time Clock</b>	1 second resolution, ± 1 second stability over 24 hours or GPS time
<b>Digital Data Output</b>	RS-232C, USB Adapter
<b>Power Supply</b>	Rechargeable, 2.9 Ah, lead-acid dry cell battery 12 Volts External 12 Volt input for base station operations
<b>Operating Temperature</b>	40°C to +60°C (-40°F to +140°F)
<b>Dimensions and Weight</b>	Console: 250mm x 152mm x 55mm (10" x 6" x 2.25") 2.45 kg (5.4 lbs) with rechargeable battery Magnetic 70mm d x 175mm (2.75"d x 7") Sensor: 1 kg (2.2 lbs) Gradiometer 70mm d x 675mm (2.75"d x 26.5") Sensor: (with staff extender) 1.15 kg (2.5 lbs) Sensor Staff: 25mm d x 2m (1"d x 76") 0.8 kg (1.75 lbs)

**GEM GSM-19T Proton Precession Magnetometer (Base Station)**

<b>Configuration Options</b>	15
<b>Cycle Time</b>	999 to 0.5 sec
<b>Environmental</b>	-40 to +60 ° Celsius
<b>Gradient Tolerance</b>	7,000 nT/m
<b>Magnetic Readings</b>	299,593
<b>Operating Range</b>	10, 000 to 120,000 nT
<b>Power</b>	12 V @ 0.62 A
<b>Sensitivity</b>	0.1 nT @ 1 sec
<b>Weight (Console/ Sensor)</b>	3.2 Kg
<b>Integrated GPS</b>	Yes

**Scintrex CS-3 Survey Magnetometer**

<b>Operating Principal</b>	Self-oscillation split-beam Cesium Vapor (non-radioactive Cs-133)
<b>Operating Range</b>	15,000 to 105,000 nT
<b>Gradient Tolerance</b>	40,000 nT/metre
<b>Operating Zones</b>	10° to 85° and 95° to 170°
<b>Hemisphere Switching</b>	a) Automatic b) Electronic control actuated by the control voltage levels (TTL/CMOS) c) Manual
<b>Sensitivity</b>	0.0006 nT $\sqrt{\text{Hz}}$ rms.
<b>Noise Envelope</b>	Typically 0.002 nT P-P, 0.1 to 1 Hz bandwidth
<b>Heading Error</b>	+/- 0.25 nT (inside the optical axis to the field direction angle range 15° to 75° and 105° to 165°)
<b>Absolute Accuracy</b>	<2.5 nT throughout range
<b>Output</b>	a) continuous signal at the Larmor frequency which is proportional to the magnetic field (proportionality constant 3.49857 Hz/nT) sine wave signal amplitude modulated on the power supply voltage b) square wave signal at the I/O connector, TTL/CMOS compatible
<b>Information Bandwidth</b>	Only limited by the magnetometer processor used
<b>Sensor Head</b>	Diameter: 63 mm (2.5") Length: 160 mm (6.3") Weight: 1.15 kg (2.6 lb)
<b>Sensor Electronics</b>	Diameter: 63 mm (2.5") Length: 350 mm (13.8") Weight: 1.5 kg (3.3 lb)
<b>Cable, Sensor to Sensor Electronics</b>	3m (9' 8"), lengths up to 5m (16' 4") available
<b>Operating Temperature</b>	-40°C to +50°C
<b>Humidity</b>	Up to 100%, splash proof
<b>Supply Power</b>	24 to 35 Volts DC
<b>Supply Current</b>	Approx. 1.5A at start up, decreasing to 0.5A at 20°C
<b>Power Up Time</b>	Less than 15 minutes at -30°C

**Pico Envirotec GRS-10 Gamma Spectrometer**

<b>Crystal volume</b>	16.8 liters downward plus 4.2 liters upward
<b>Resolution</b>	256/512 channels
<b>Tuning</b>	Automatic using peak determination algorithm
<b>Detector</b>	Digital Peak
<b>Calibration</b>	Fully automated detector
<b>Real Time</b>	Linearization and gain stabilization
<b>Communication</b>	RS232
<b>Detectors</b>	Expandable to 10 detectors and digital peak
<b>Count Rate</b>	Up to 60,000 cps per detector
<b>Count Capacity per channel</b>	65545
<b>Energy detection range:</b>	36 KeV to 3 MeV
<b>Cosmic channel</b>	Above 3 MeV
<b>Upward Shielding</b>	RayShield® non-radioactive shielding on downward looking crystals
<b>Downward Shielding</b>	6mm lead plate on upward looking crystals
<b>Spectra</b>	Collected spectra of 256/512 channels, internal spectrum resolution 1024
<b>Software</b>	<b>Calibration:</b> High voltage adjustment, linearity correction coefficients calculation, and communication test support <b>Real Time Data Collection:</b> Automatic Gain real time control on natural isotopes, and PC based test and calibration software suite
<b>Sensor</b>	Each box containing two (2) gamma detection NaI(Tl) crystals – each 4.2 liters. (256 cu in.) (approx. 100 x 100 x 650 mm) Total volume of approx 8.4 litres or 512 cu in with detector electronics
<b>Spectra Stabilization</b>	Real time automatic corrections on radio nuclei: Th, U, K. No implanted sources.

**Pico Envirotec AGIS data recorder system**

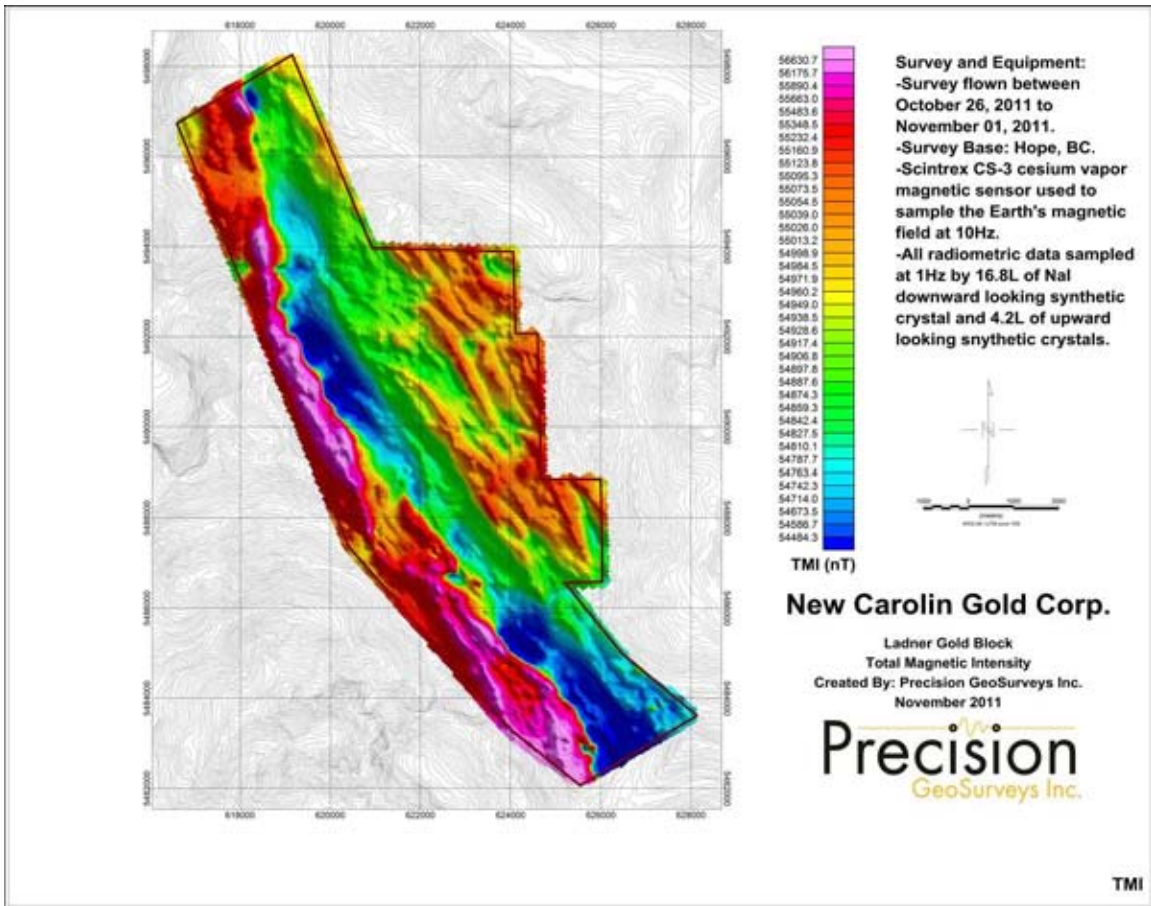
(for Navigation, Gamma spectrometer, VLF-EM and Magnetometer Data Acquisition)

<b>Functions</b>	Airborne Geophysical Information System (AGIS) with integrated Global Positioning System Receiver (GPS) and all necessary navigation guidance software. Inputs for geophysical sensors - portable gamma ray spectrometer GRS-10, MMS4 Magnetometer, Totem 2A EM, A/D converter, temperature probe, humidity probe, barometric pressure probe, and laser altimeter. Output for the 2 line Pilot Indicator
<b>Display</b>	Touch screen with display of 800 x 600 pixels; customized keypad and operator keyboard. Multi-screen options for real-time viewing of all data inputs, fiducial points, flight line tracking, and GPS channels by operator.
<b>GPS Navigation</b>	Garmin 12-channel, WAAS-enabled
<b>Data Sampling</b>	Sensor dependent
<b>Data Synchronization</b>	Synchronized to GPS position
<b>Data File</b>	PEI Binary data format
<b>Storage</b>	80 GB
<b>Supplied Software</b>	<b>PEIView:</b> Allows fast data Quality Control (QC) <b>Data Format:</b> Geosoft GBN and ASCII output <b>PEIConv:</b> For survey preparation and survey plot after data acquisition
<b>Software</b>	<b>Calibration:</b> High voltage adjustment, linearity correction coefficients calculation, and communication test support <b>Real Time Data Collection:</b> Automatic Gain real time control on natural isotopes and PC based test and calibration software suite
<b>Power Requirements</b>	24 to 32 VDC
<b>Temperature</b>	Operating:-10 to +55 deg C; storage:-20 to +70 deg C

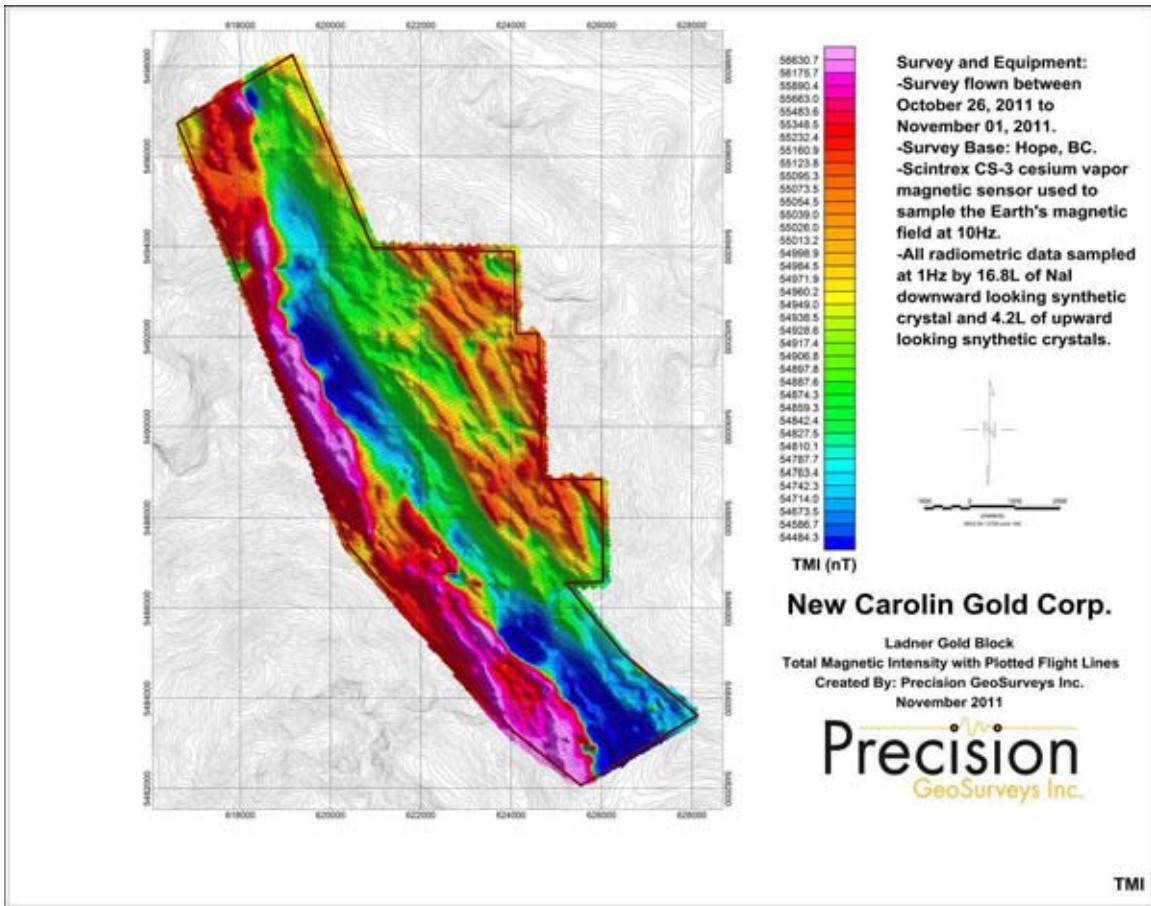
**Appendix B**  
Maps



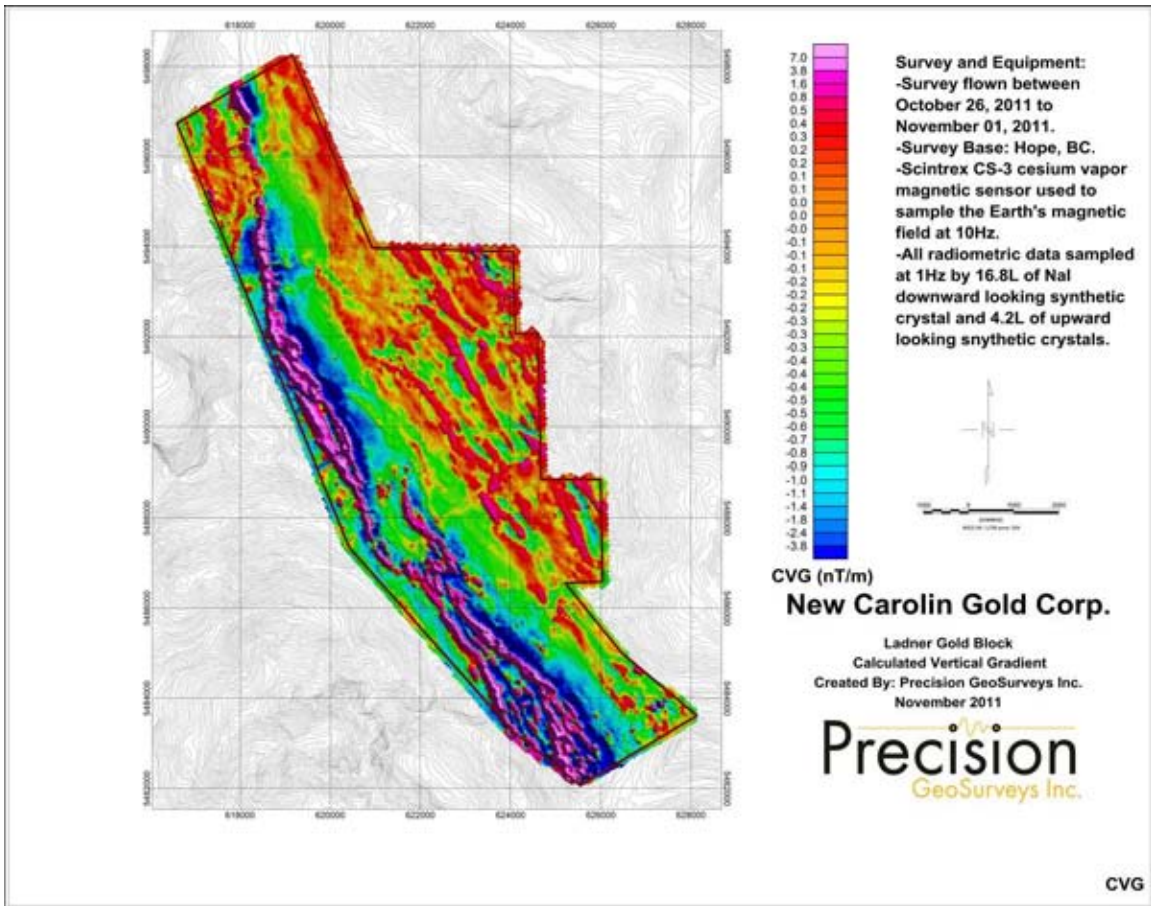




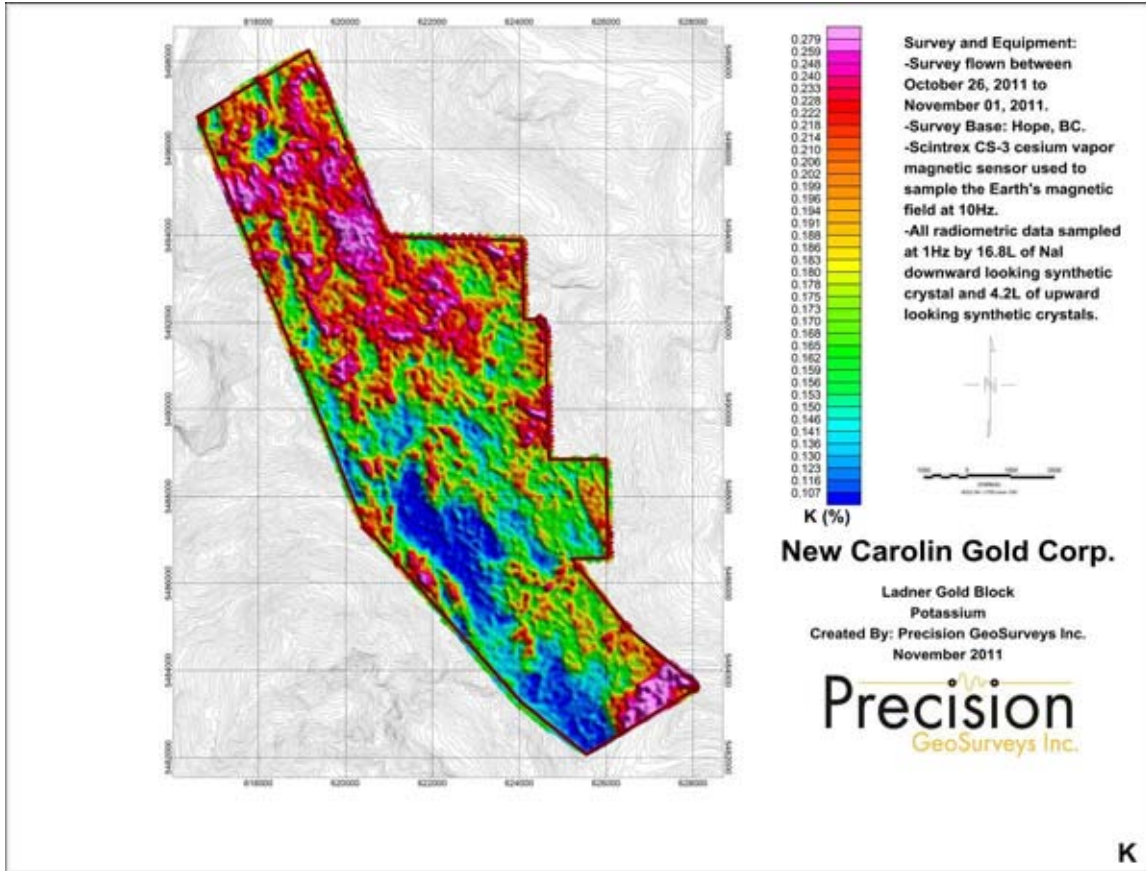
Map 2: Ladner Gold block total magnetic intensity.



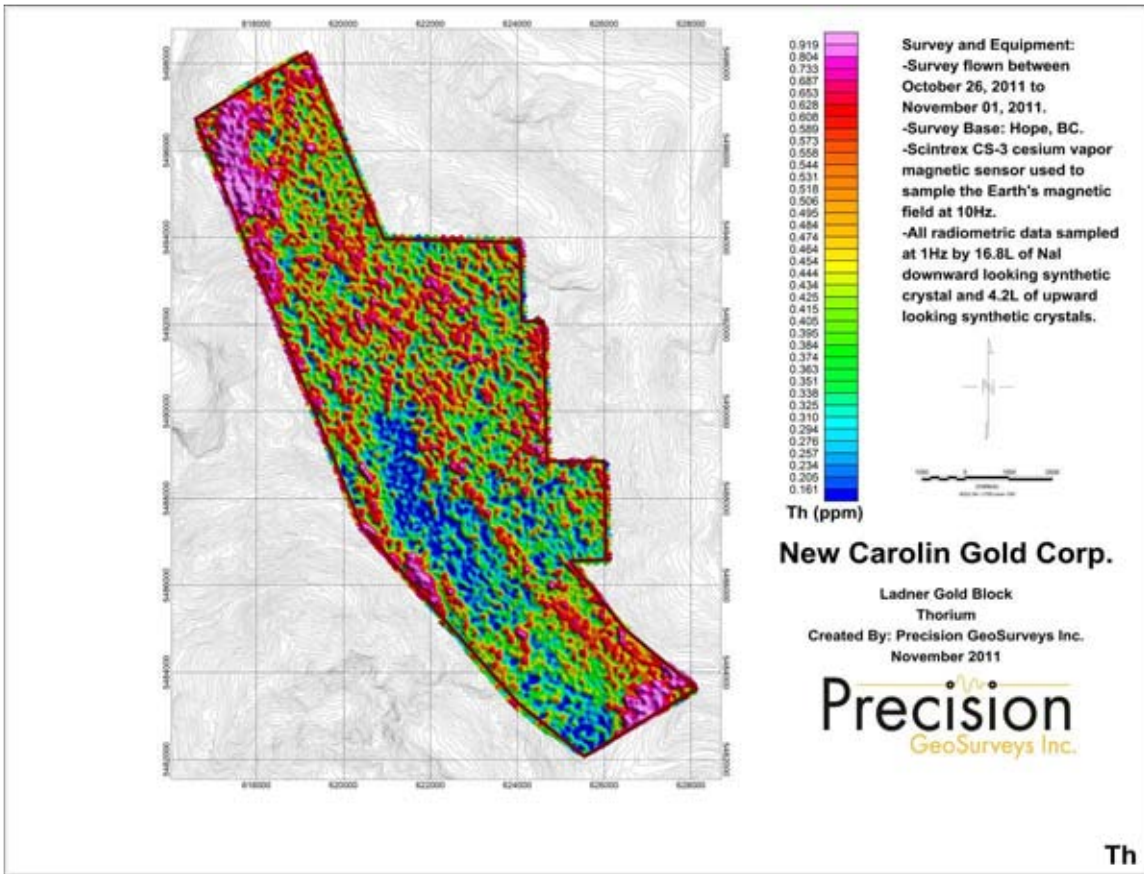
Map 3: Ladner Gold block total magnetic intensity with plotted flight lines.



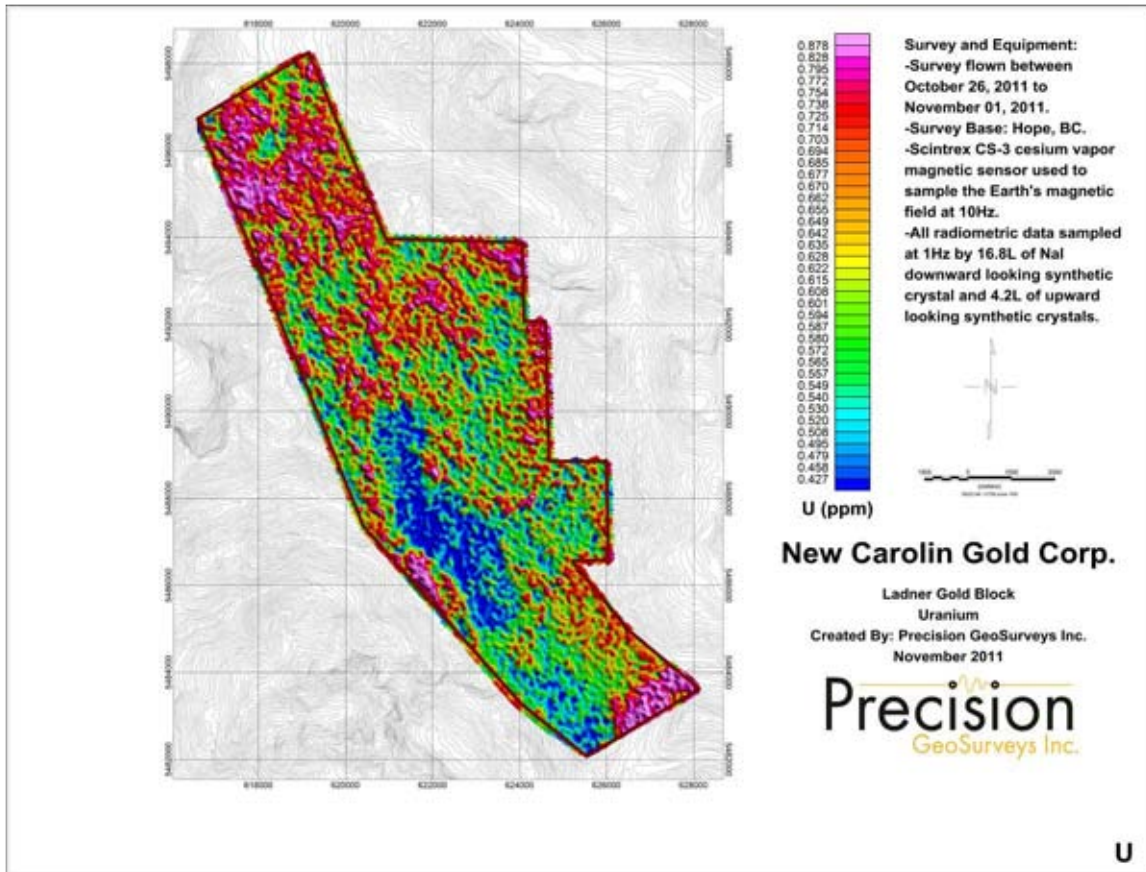
Map 4: Ladner Gold block calculated vertical gradient.



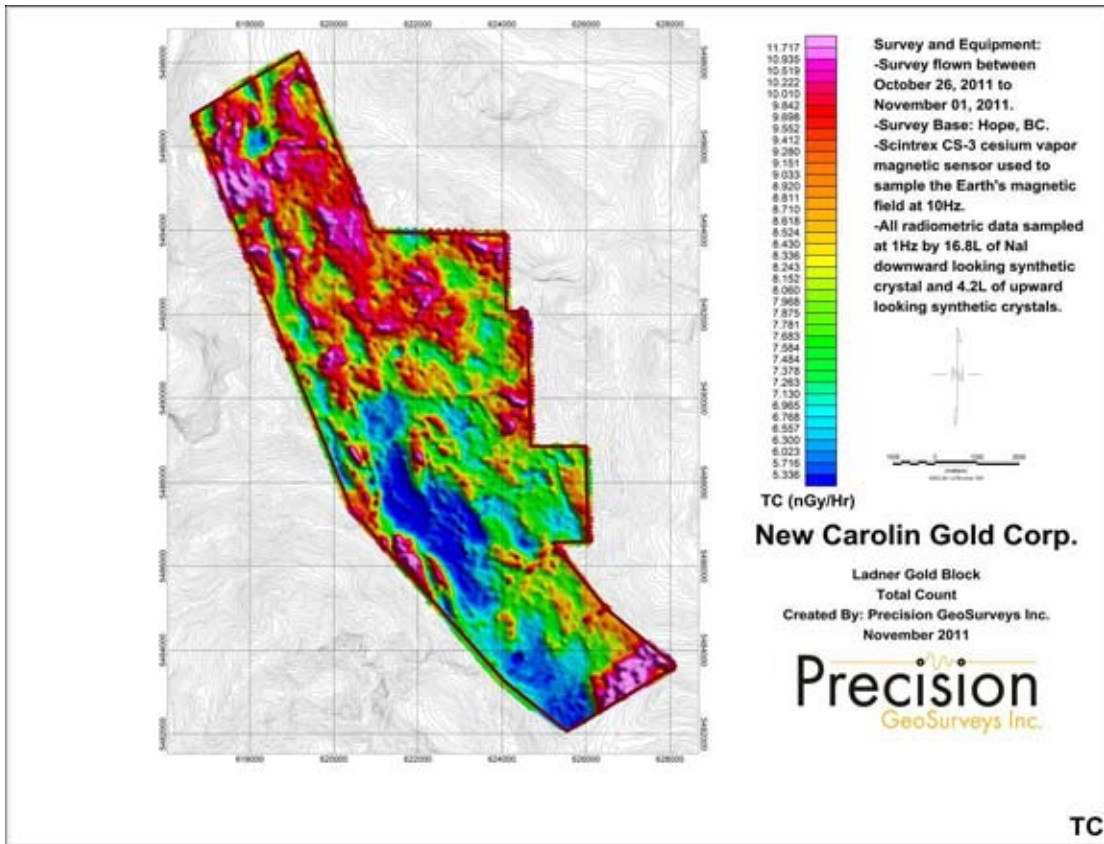
Map 5: Ladner Gold block potassium.



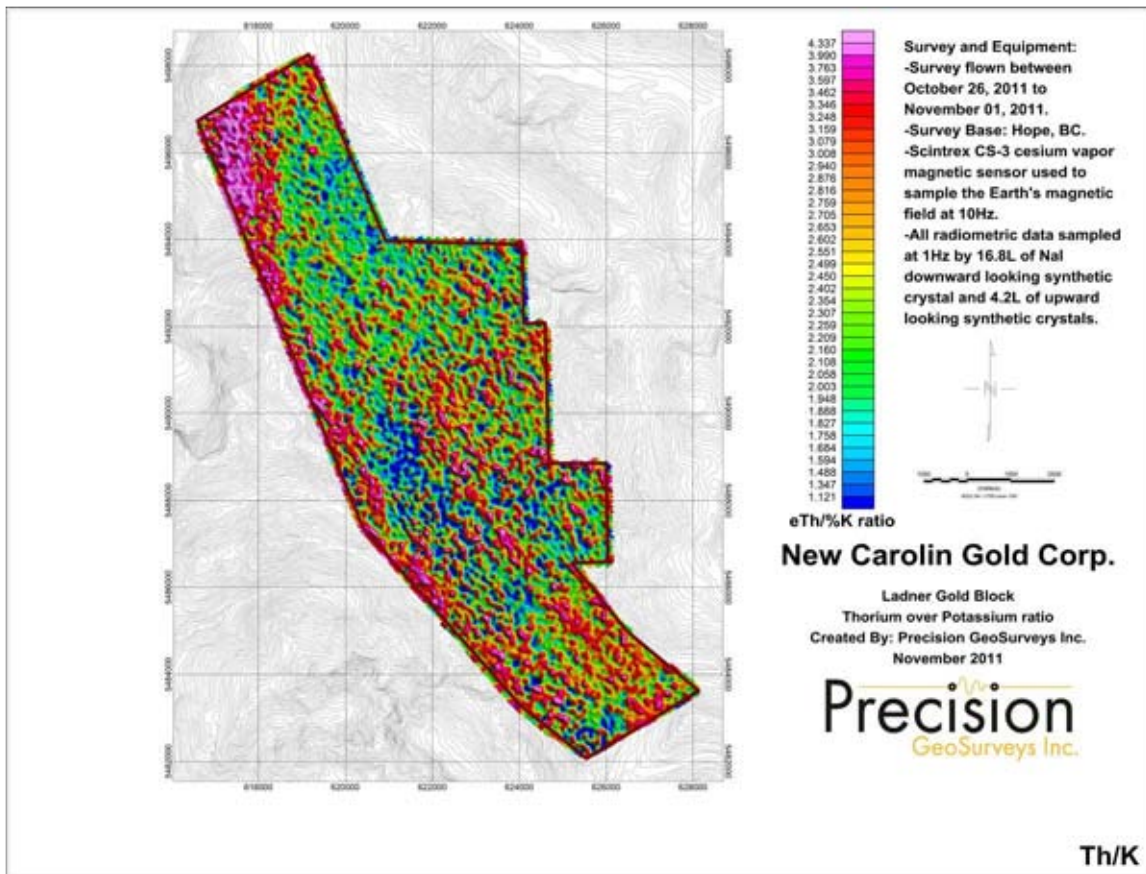
Map 6: Ladner Gold block thorium.



Map 7: Ladner Gold block uranium.

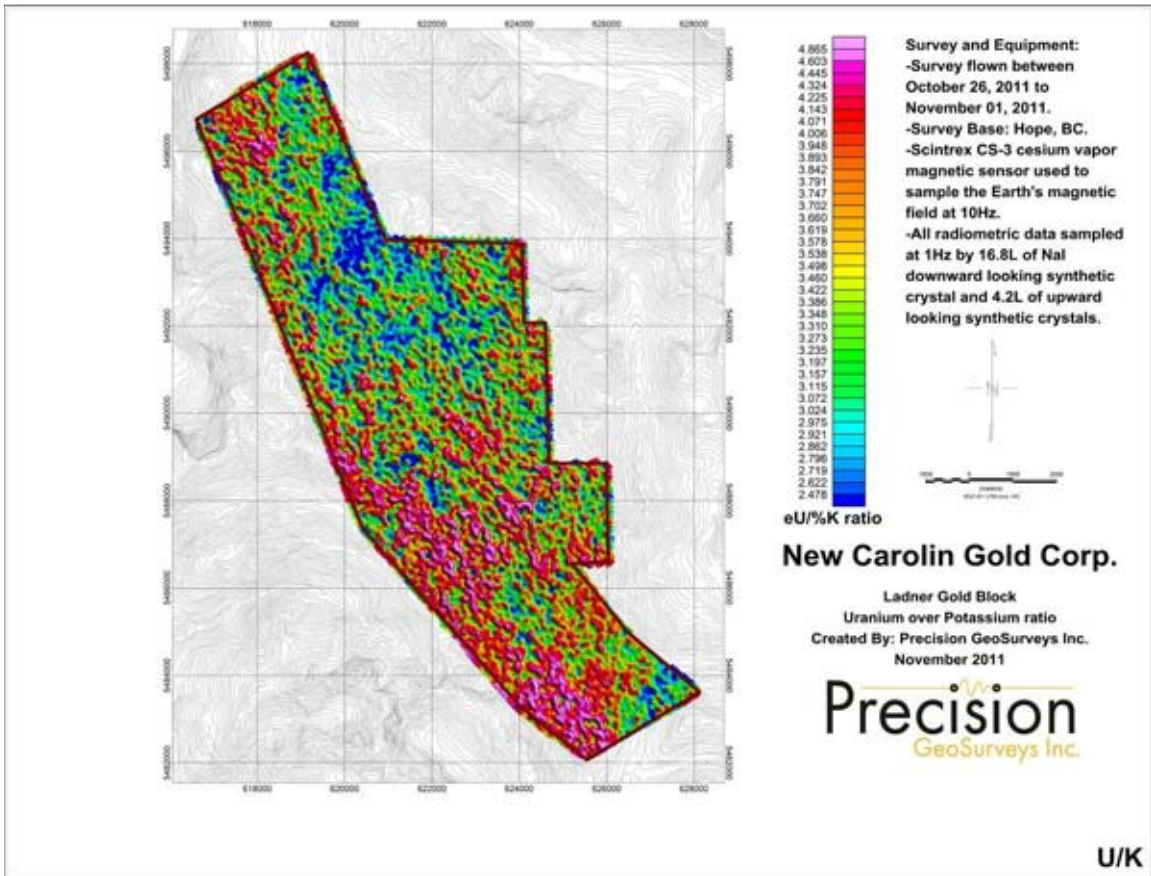


Map 8: Ladner Gold block total count.

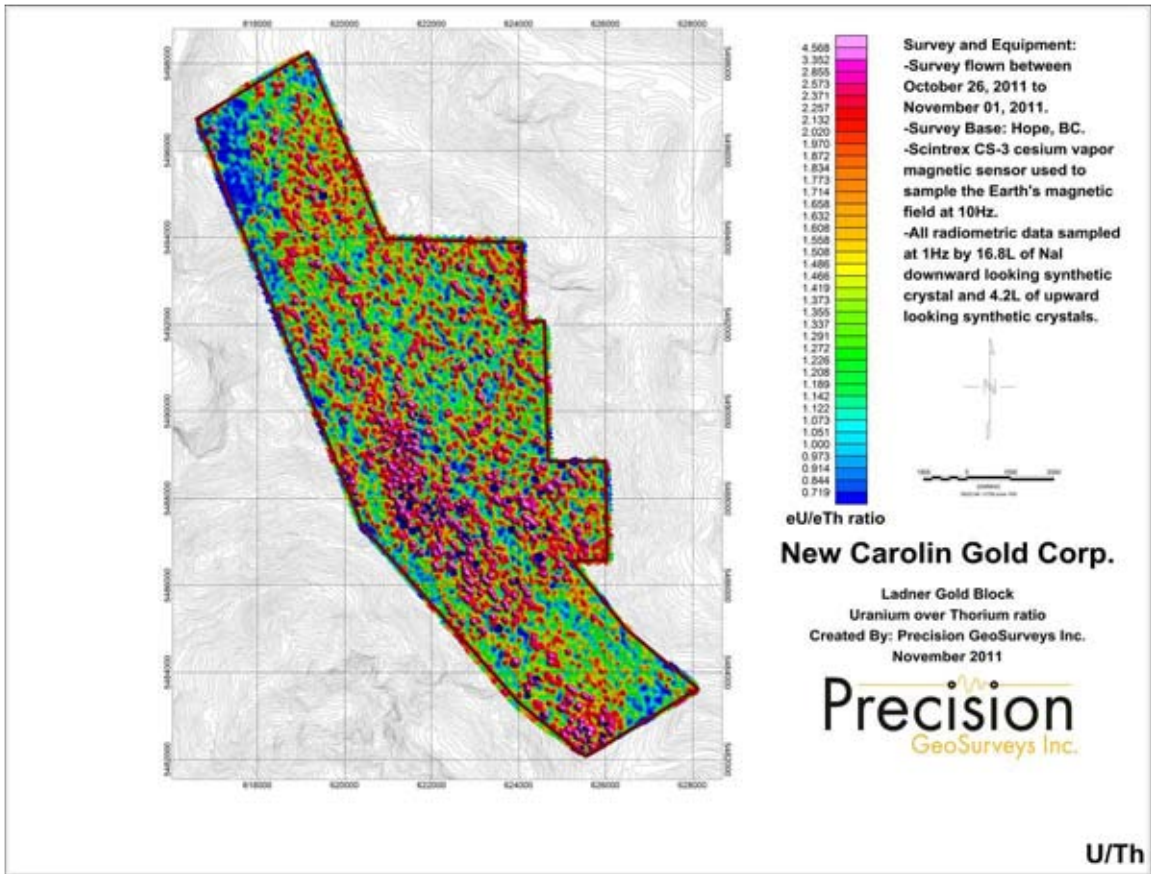


Map 9: Ladner Gold block thorium over potassium ratio.

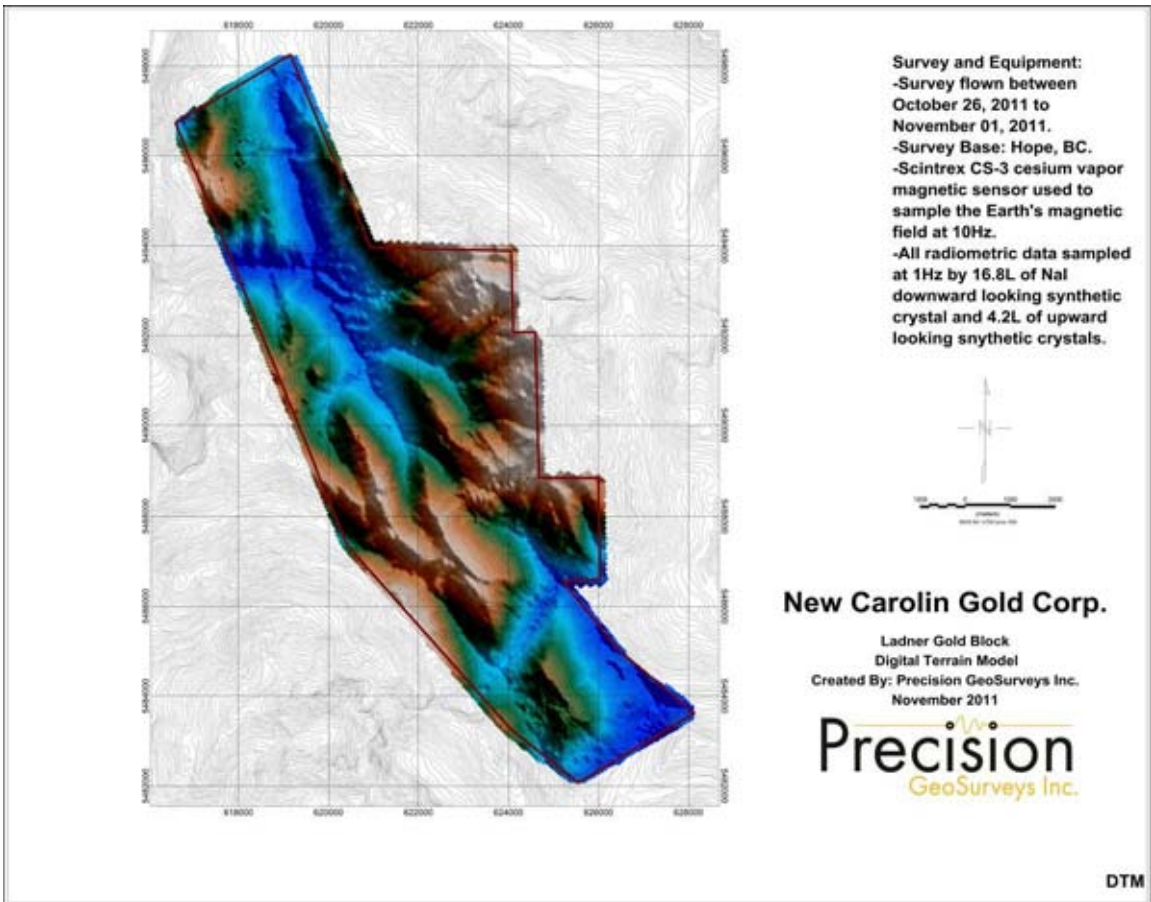




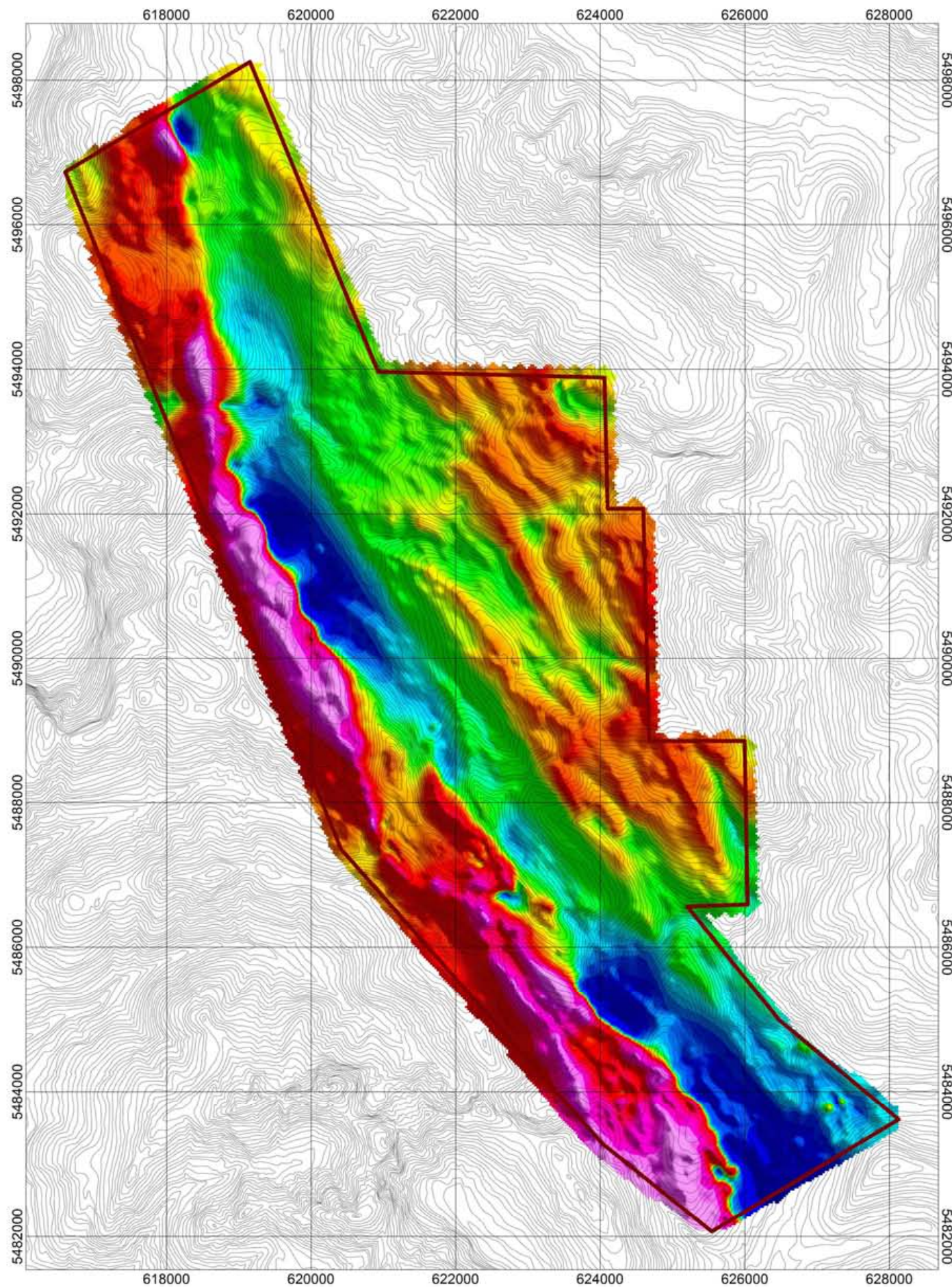
Map 10: Ladner Gold block uranium over potassium ratio.



Map 11: Ladner Gold block uranium over thorium ratio.



Map 12: Ladner Gold block digital terrain model.



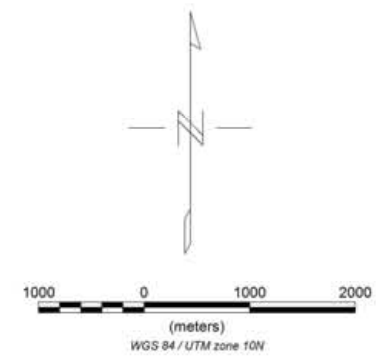
TMI (nT)

**Survey and Equipment:**  
**-Survey flown between**  
**October 26, 2011 to**  
**November 01, 2011.**

**-Survey Base: Hope, BC.**

**-Scintrex CS-3 cesium vapor**  
**magnetic sensor used to**  
**sample the Earth's magnetic**  
**field at 10Hz.**

**-All radiometric data sampled**  
**at 1Hz by 16.8L of NaI**  
**downward looking synthetic**  
**crystal and 4.2L of upward**  
**looking synthetic crystals.**



## New Carolin Gold Corp.

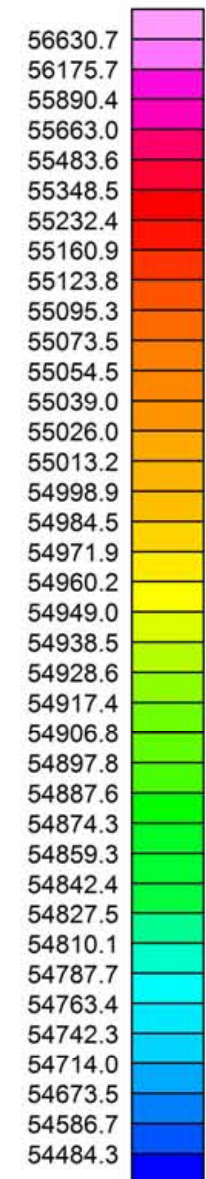
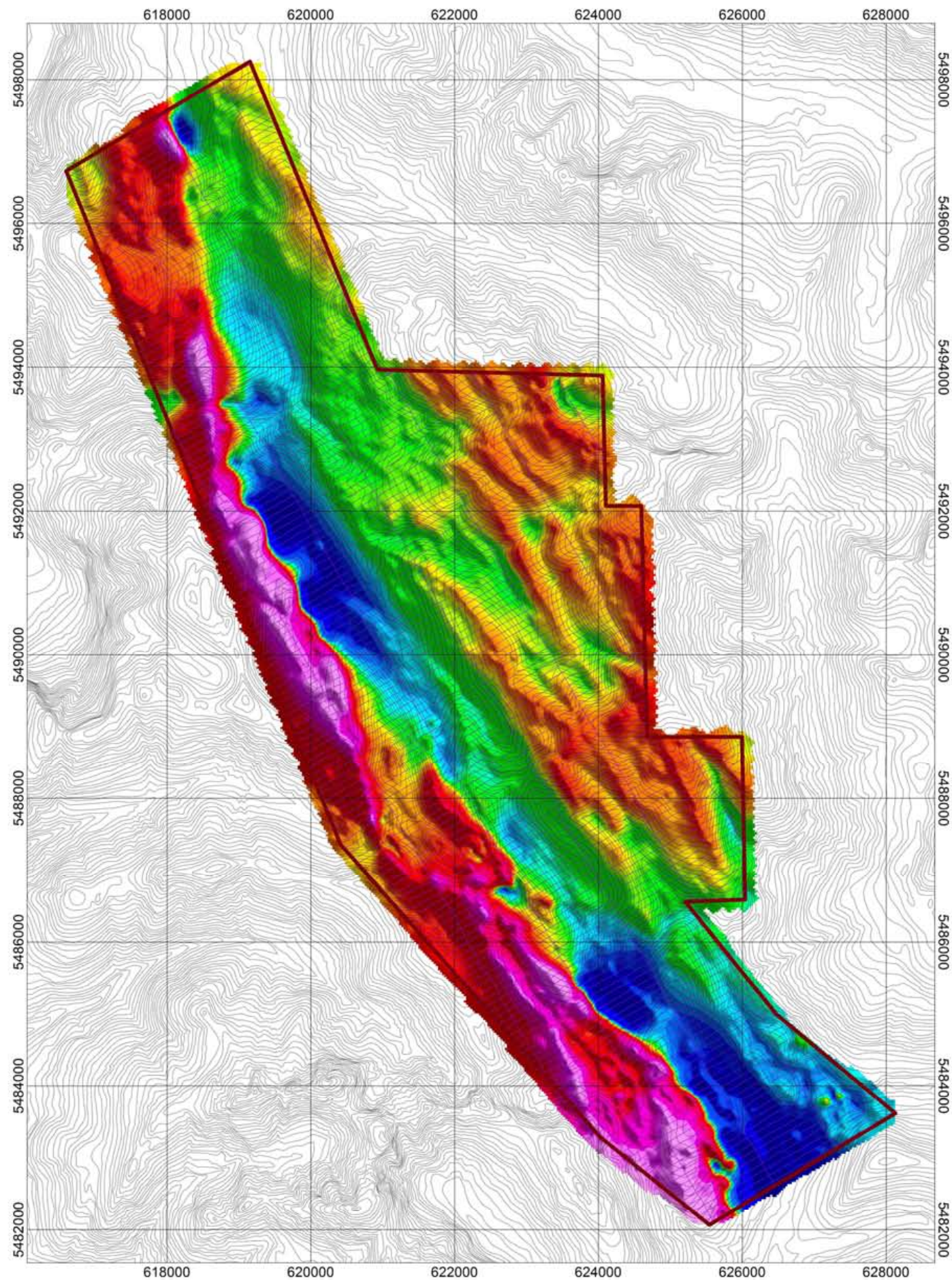
Ladner Gold Block

Total Magnetic Intensity

Created By: Precision GeoSurveys Inc.

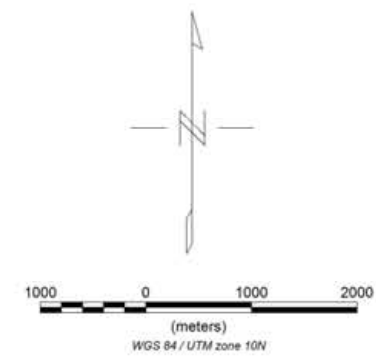
November 2011

**Precision**  
 GeoSurveys Inc.



TMI (nT)

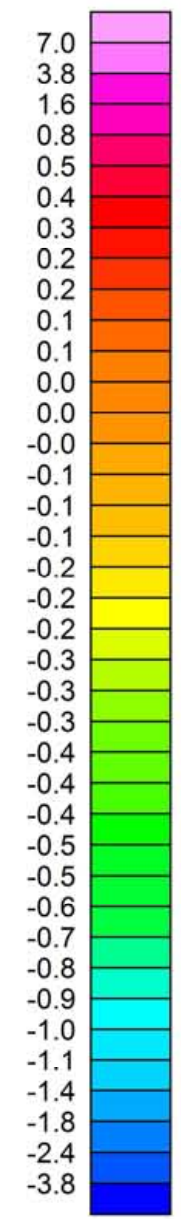
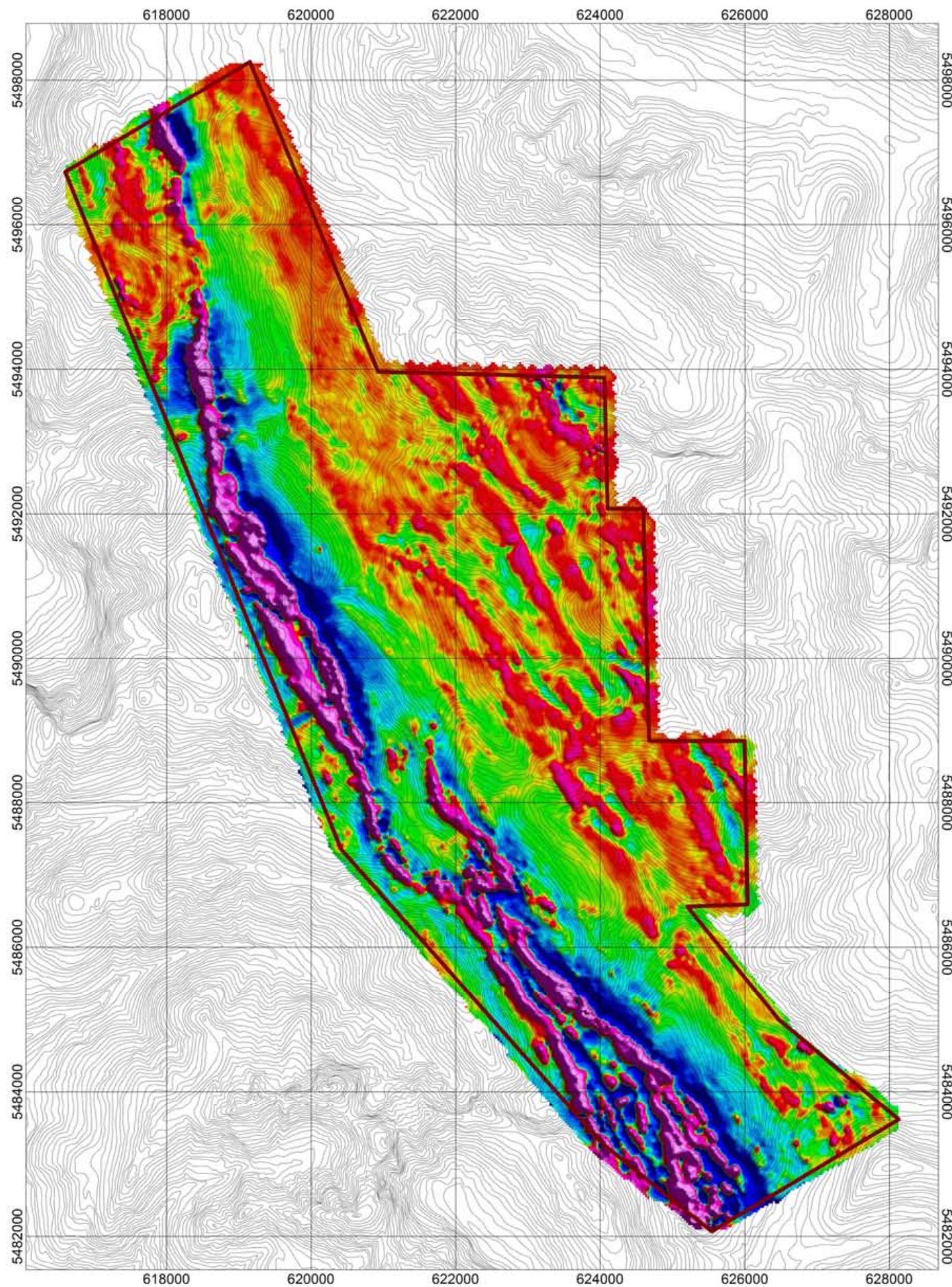
**Survey and Equipment:**  
**-Survey flown between October 26, 2011 to November 01, 2011.**  
**-Survey Base: Hope, BC.**  
**-Scintrex CS-3 cesium vapor magnetic sensor used to sample the Earth's magnetic field at 10Hz.**  
**-All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.**



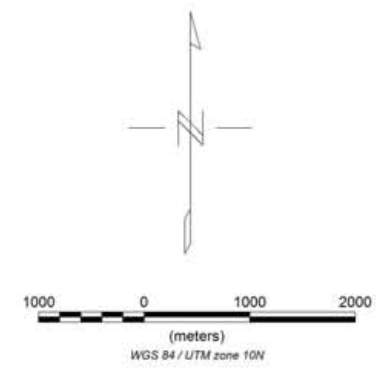
## New Carolin Gold Corp.

Ladner Gold Block  
 Total Magnetic Intensity with Plotted Flight Lines  
 Created By: Precision GeoSurveys Inc.  
 November 2011





**Survey and Equipment:**  
 -Survey flown between October 26, 2011 to November 01, 2011.  
 -Survey Base: Hope, BC.  
 -Scintrex CS-3 cesium vapor magnetic sensor used to sample the Earth's magnetic field at 10Hz.  
 -All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.

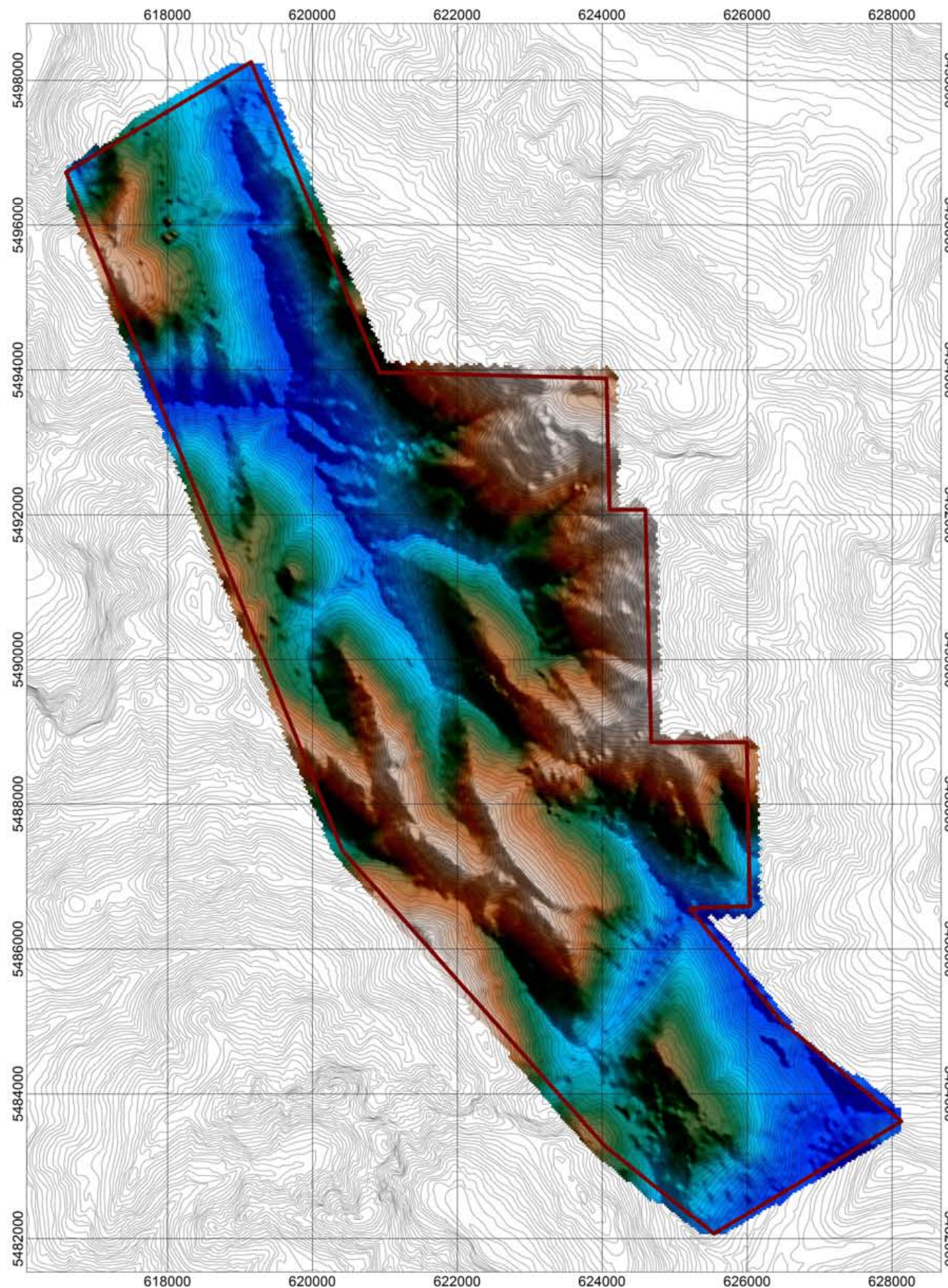


CVG (nT/m)

## New Carolin Gold Corp.

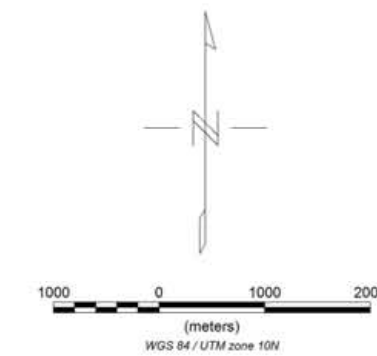
Ladner Gold Block  
 Calculated Vertical Gradient  
 Created By: Precision GeoSurveys Inc.  
 November 2011





**Survey and Equipment:**

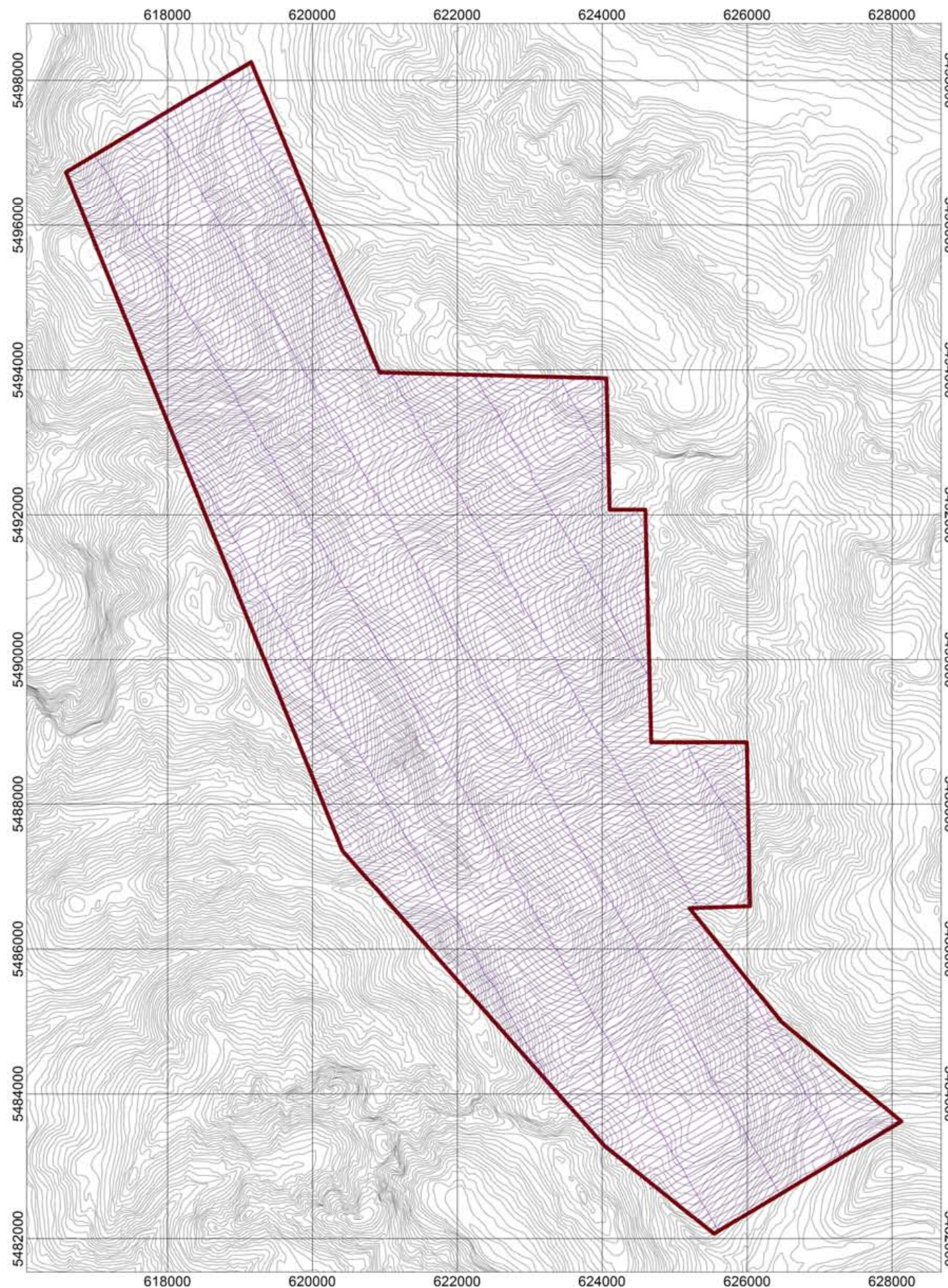
- Survey flown between October 26, 2011 to November 01, 2011.
- Survey Base: Hope, BC.
- Scintrex CS-3 cesium vapor magnetic sensor used to sample the Earth's magnetic field at 10Hz.
- All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.



**New Carolin Gold Corp.**

Ladner Gold Block  
Digital Terrain Model  
Created By: Precision GeoSurveys Inc.  
November 2011





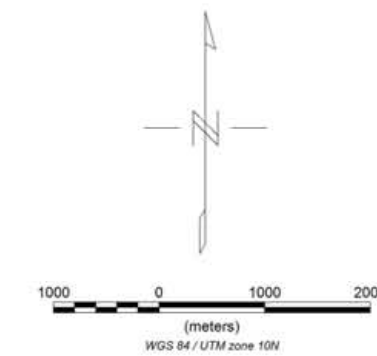
**Survey and Equipment:**

-Survey flown between October 26, 2011 to November 01, 2011.

-Survey Base: Hope, BC.

-Scintrex CS-3 cesium vapor magnetic sensor used to sample the Earth's magnetic field at 10Hz.

-All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.



**New Carolin Gold Corp.**

Ladner Gold Block

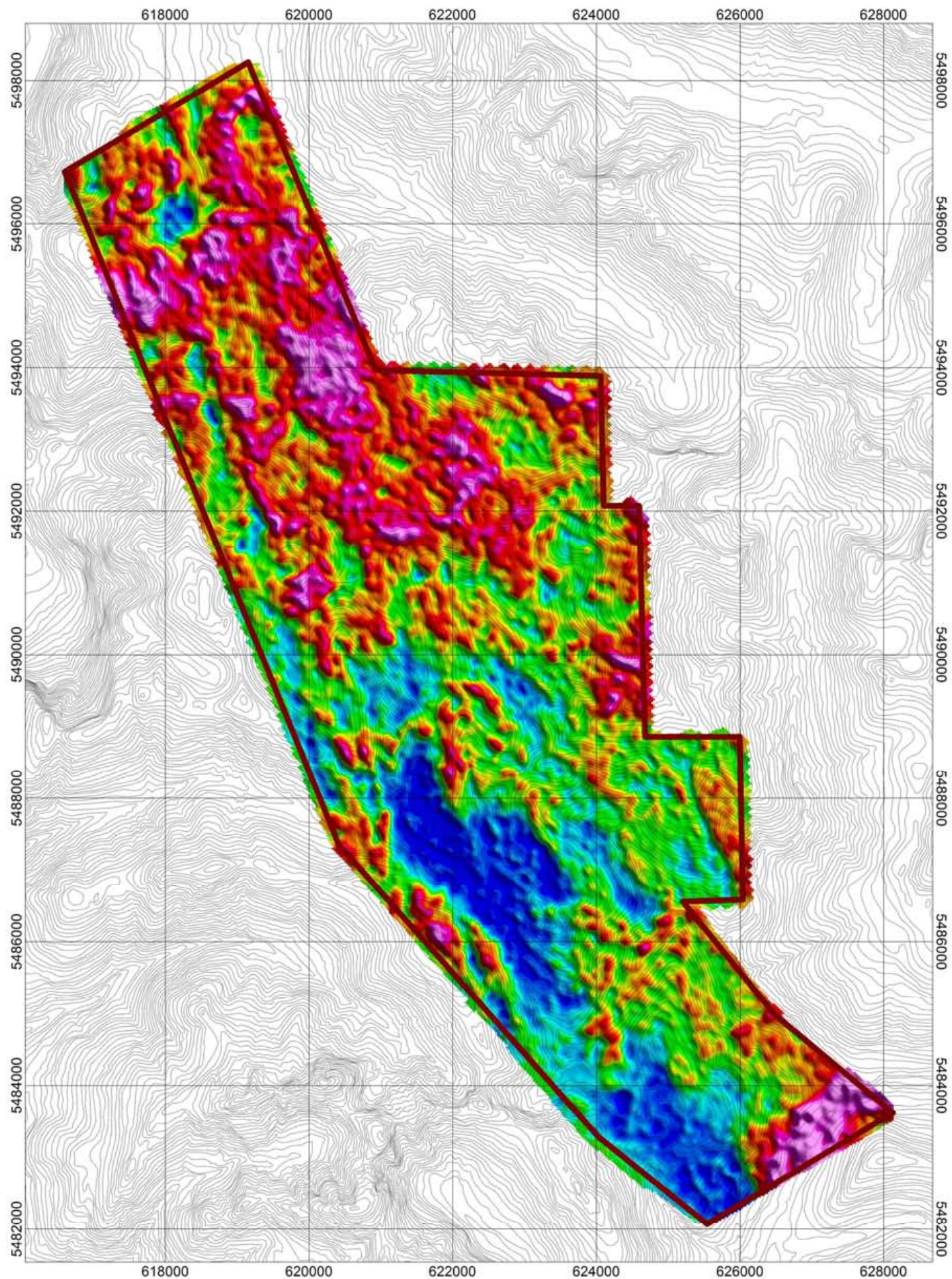
Flight Path

Created By: Precision GeoSurveys Inc.

November 2011

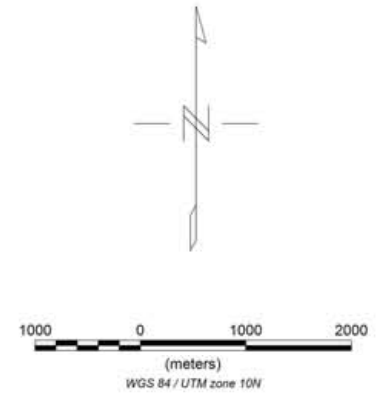






K (%)

**Survey and Equipment:**  
 -Survey flown between October 26, 2011 to November 01, 2011.  
 -Survey Base: Hope, BC.  
 -Scintrex CS-3 cesium vapor magnetic sensor used to sample the Earth's magnetic field at 10Hz.  
 -All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.

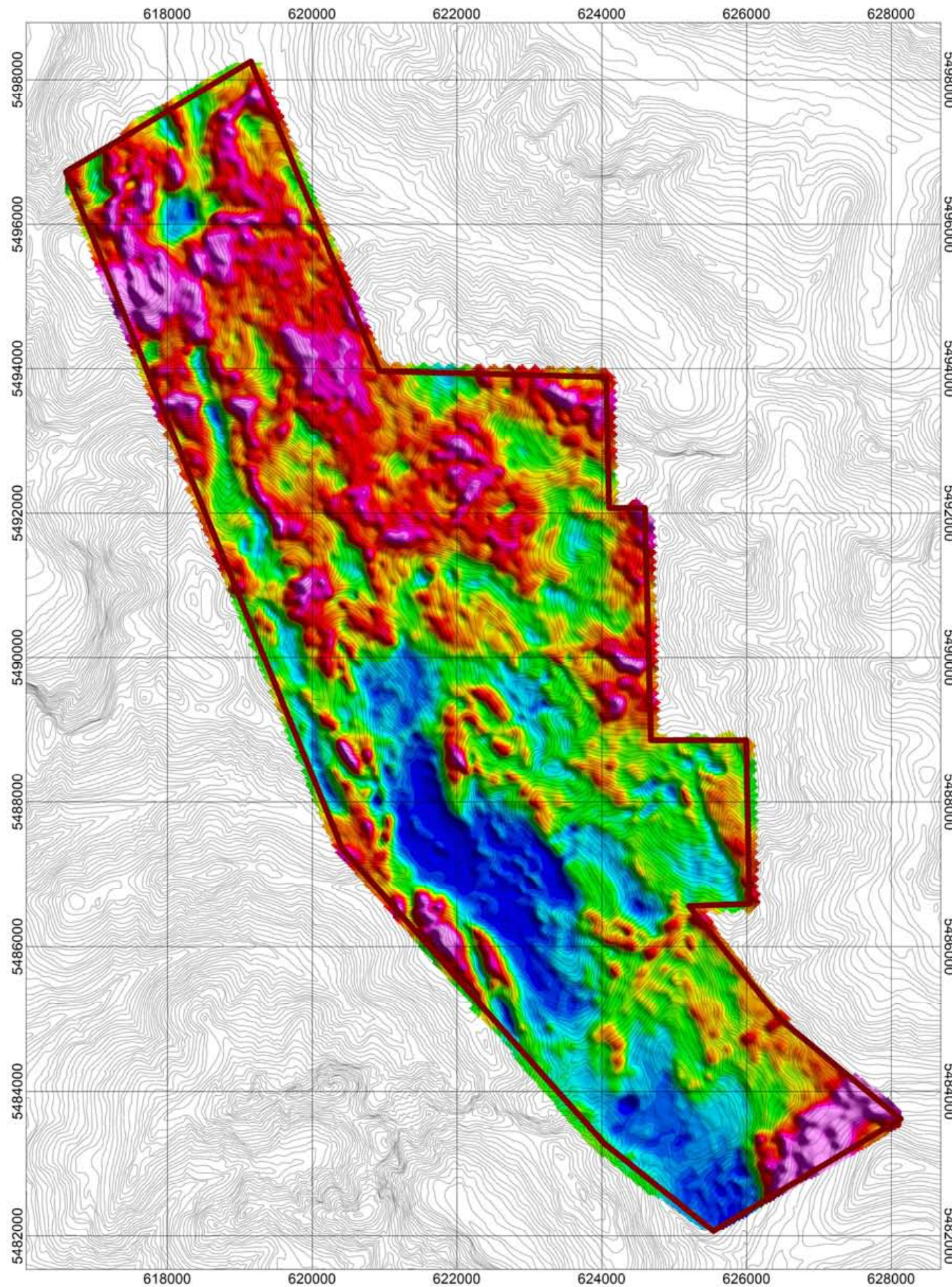


# New Carolin Gold Corp.

Ladner Gold Block  
 Potassium

Created By: Precision GeoSurveys Inc.  
 November 2011





TC (nGy/Hr)

## New Carolin Gold Corp.

Ladner Gold Block

Total Count

Created By: Precision GeoSurveys Inc.

November 2011

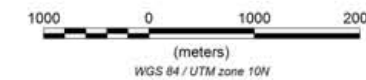
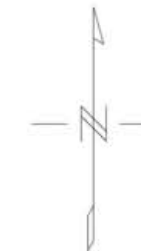
**Precision**  
GeoSurveys Inc.

**Survey and Equipment:**  
-Survey flown between  
October 26, 2011 to  
November 01, 2011.

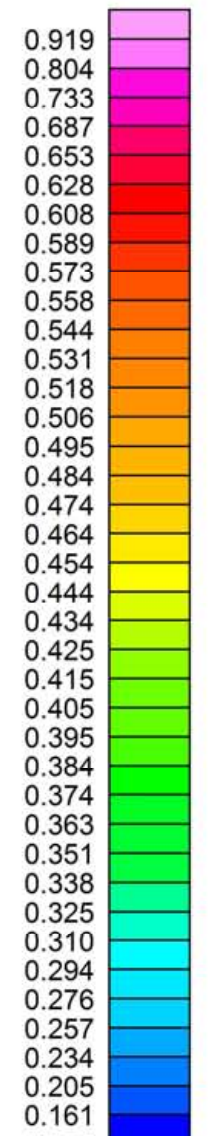
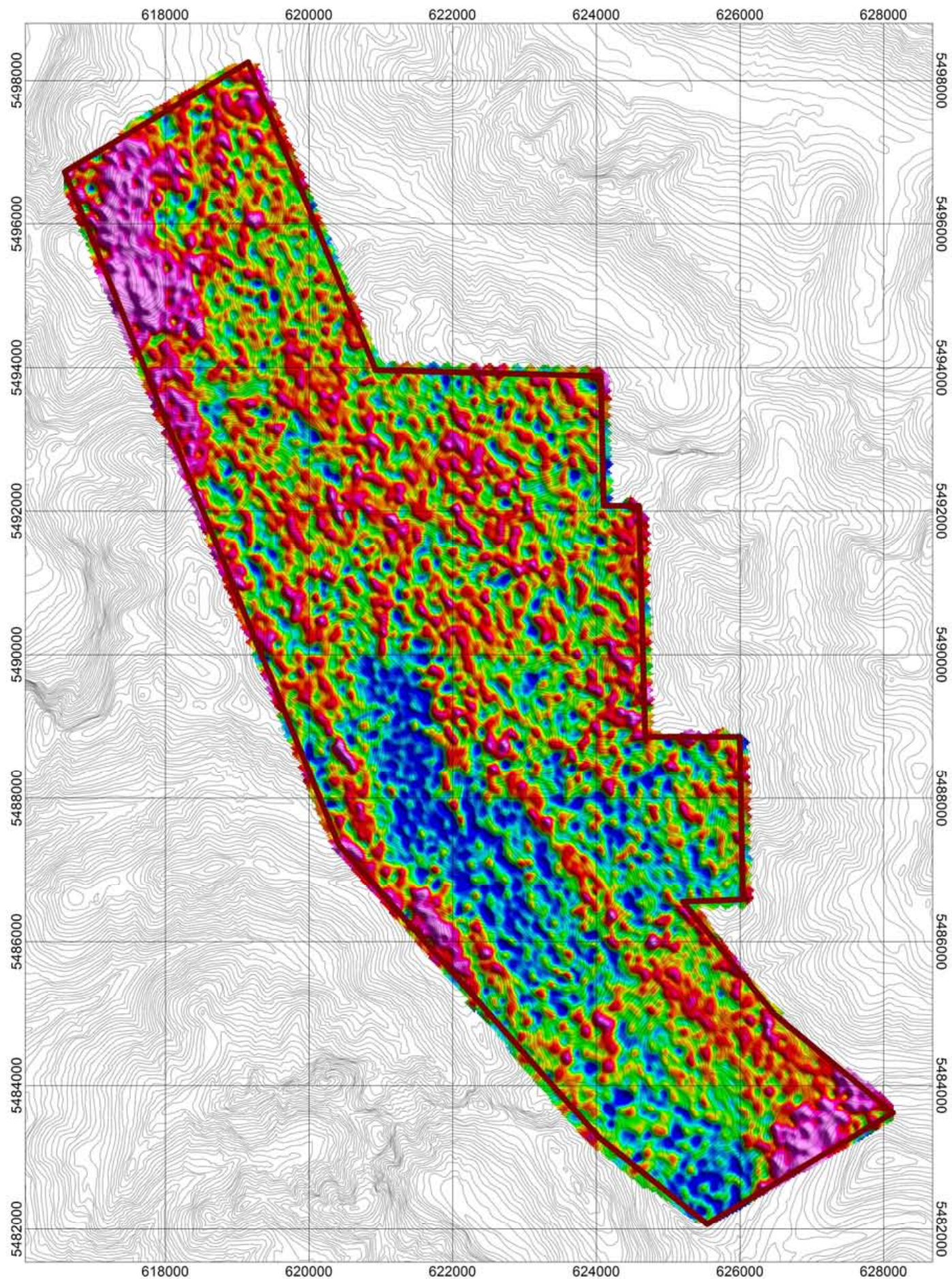
-Survey Base: Hope, BC.

-Scintrex CS-3 cesium vapor  
magnetic sensor used to  
sample the Earth's magnetic  
field at 10Hz.

-All radiometric data sampled  
at 1Hz by 16.8L of NaI  
downward looking synthetic  
crystal and 4.2L of upward  
looking synthetic crystals.

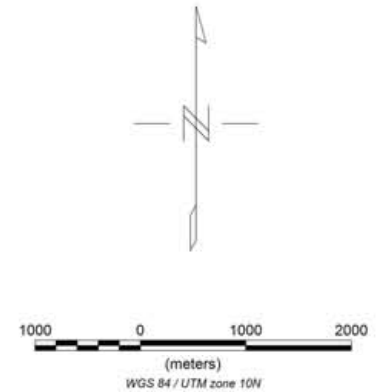


TC



Th (ppm)

**Survey and Equipment:**  
 -Survey flown between October 26, 2011 to November 01, 2011.  
 -Survey Base: Hope, BC.  
 -Scintrex CS-3 cesium vapor magnetic sensor used to sample the Earth's magnetic field at 10Hz.  
 -All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.



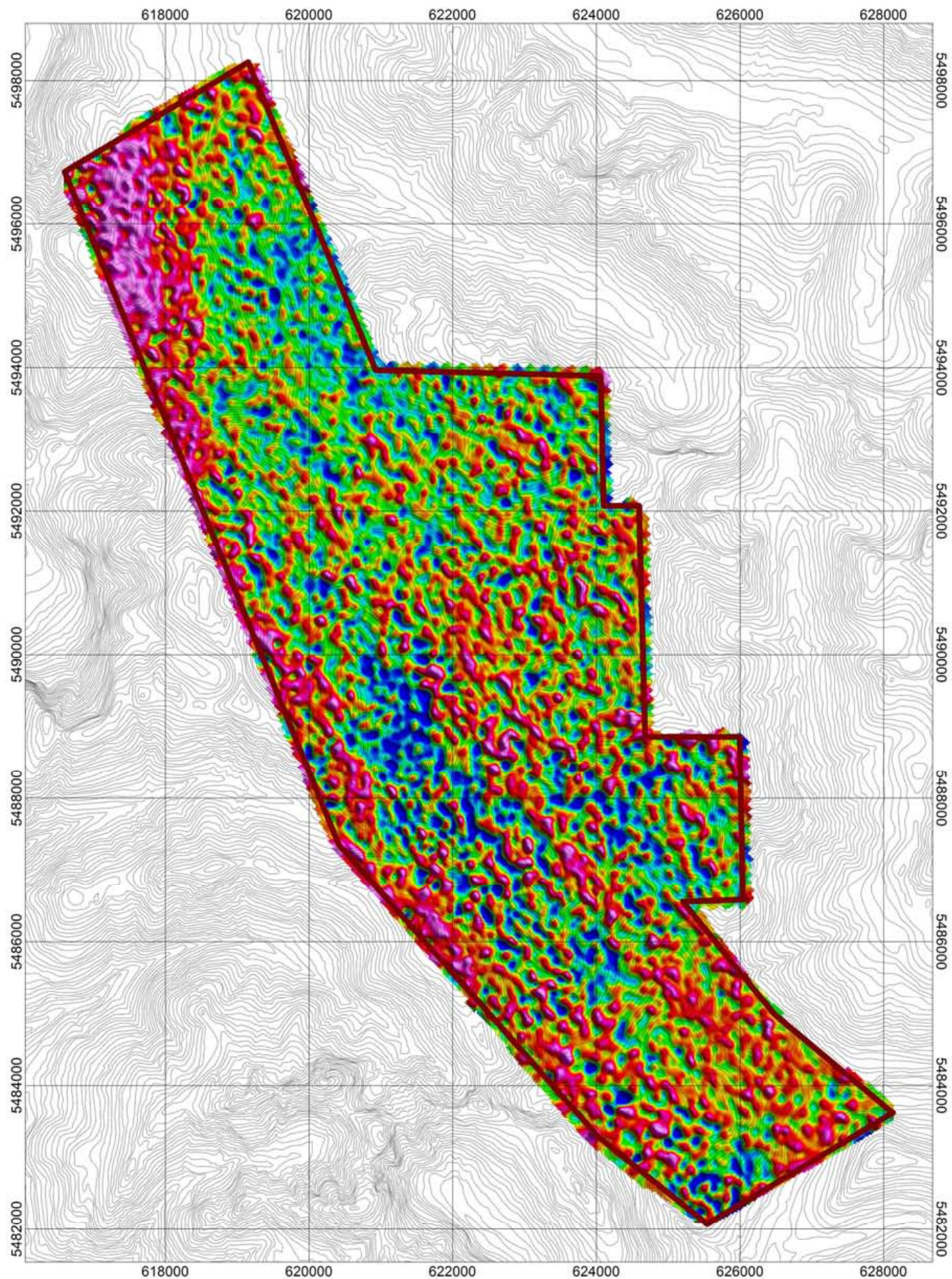
## New Carolin Gold Corp.

Ladner Gold Block  
 Thorium

Created By: Precision GeoSurveys Inc.  
 November 2011

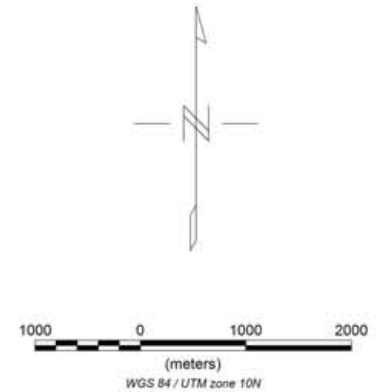


Th



eTh/%K ratio

**Survey and Equipment:**  
 -Survey flown between October 26, 2011 to November 01, 2011.  
 -Survey Base: Hope, BC.  
 -Scintrex CS-3 cesium vapor magnetic sensor used to sample the Earth's magnetic field at 10Hz.  
 -All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.

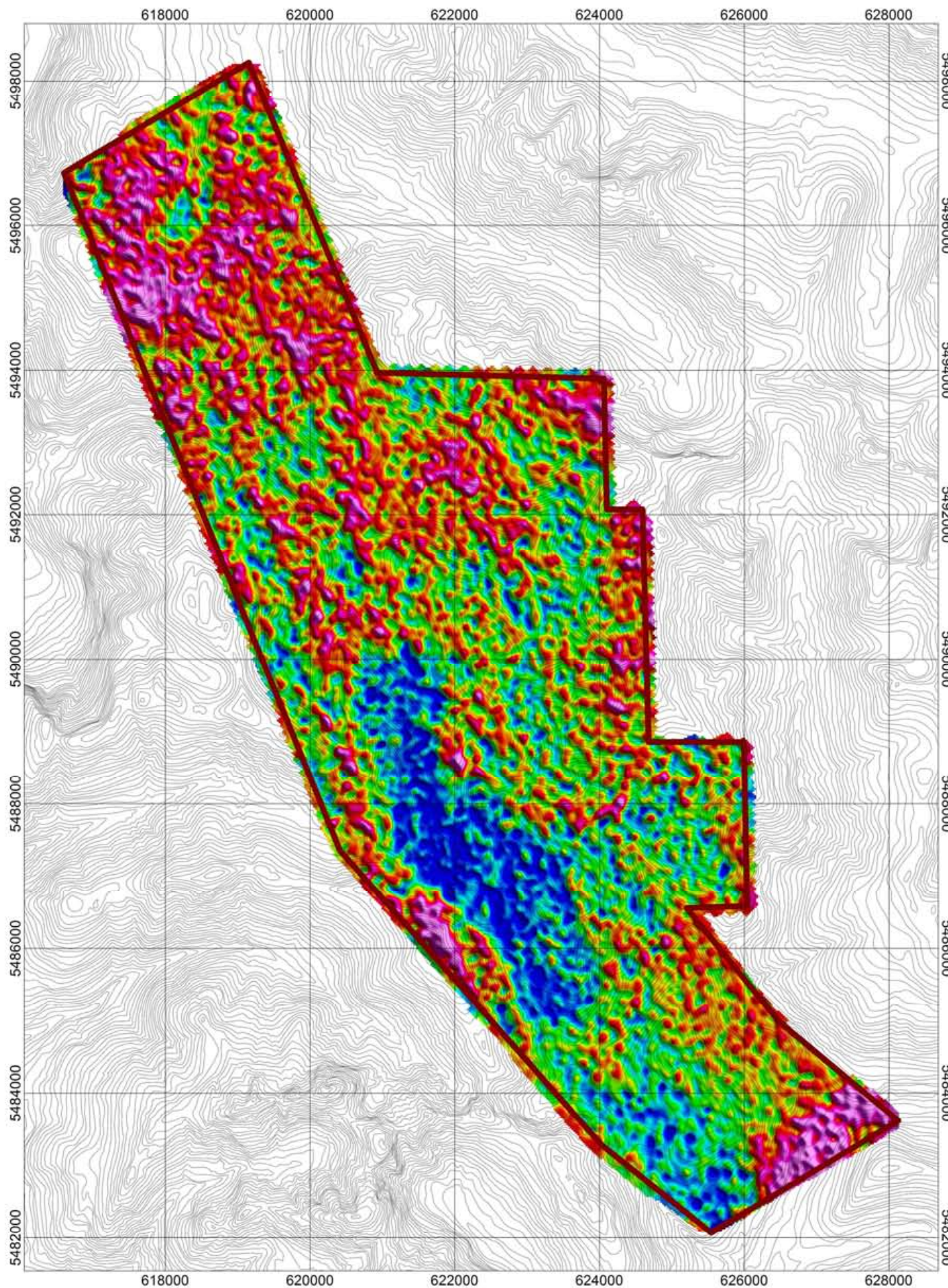


## New Carolin Gold Corp.

Ladner Gold Block  
 Thorium over Potassium ratio  
 Created By: Precision GeoSurveys Inc.  
 November 2011

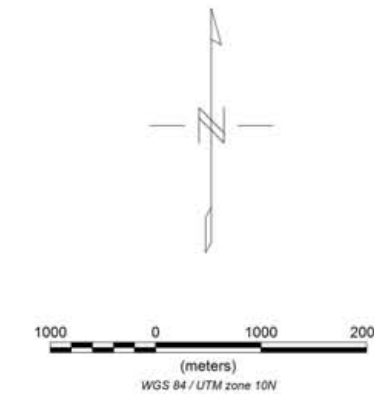


**Th/K**



U (ppm)

**Survey and Equipment:**  
 -Survey flown between October 26, 2011 to November 01, 2011.  
 -Survey Base: Hope, BC.  
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 -All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.

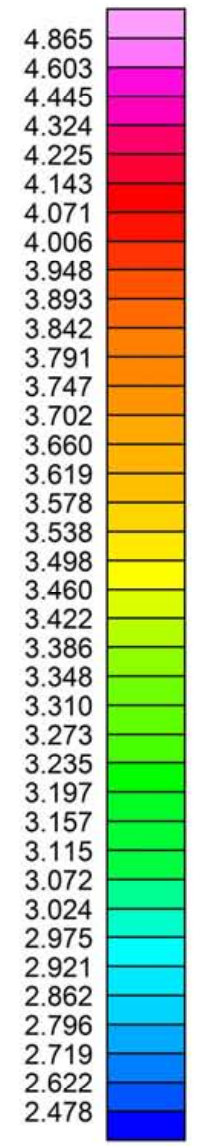
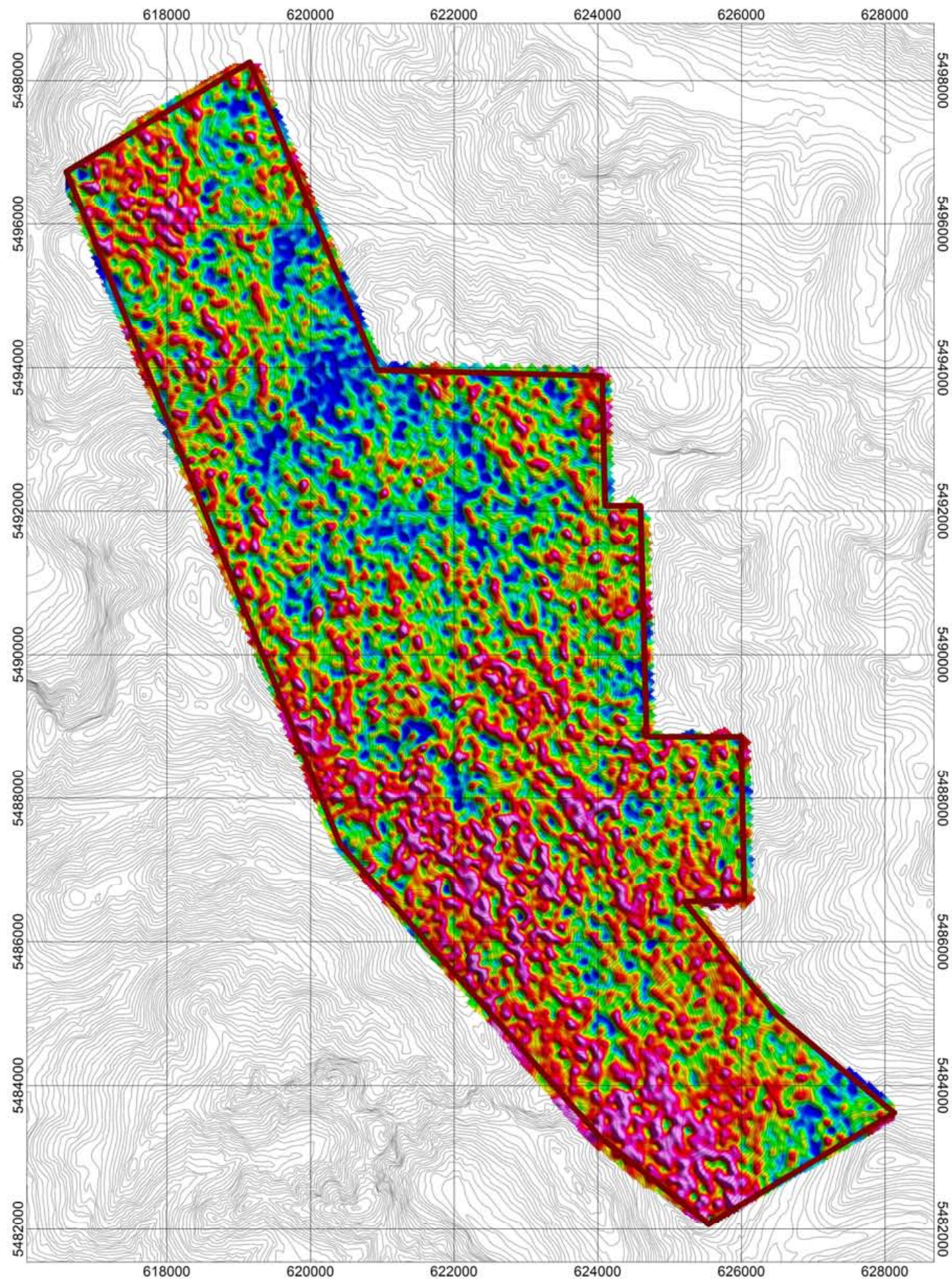


## New Carolin Gold Corp.

Ladner Gold Block  
 Uranium

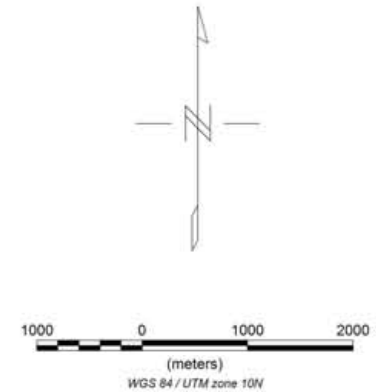
Created By: Precision GeoSurveys Inc.  
 November 2011





eU/%K ratio

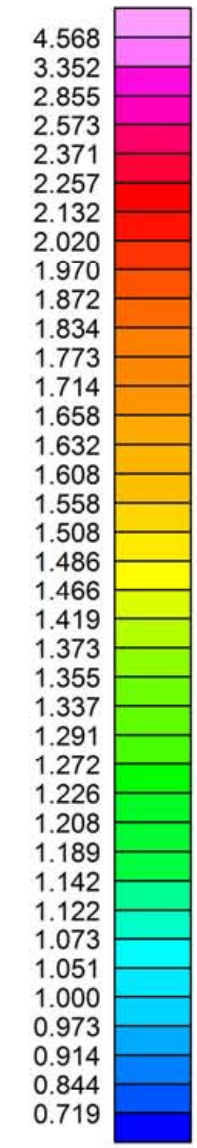
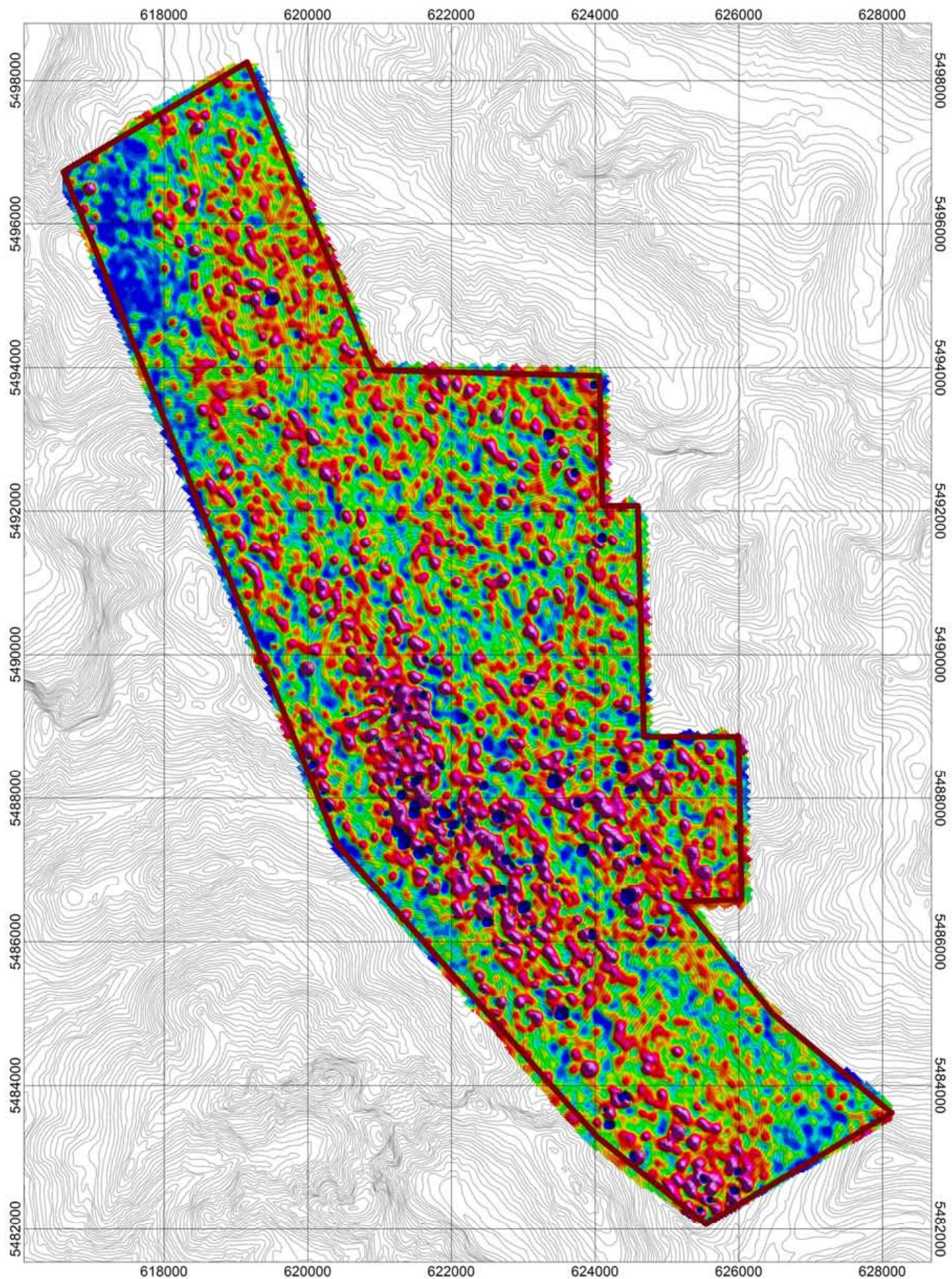
**Survey and Equipment:**  
 -Survey flown between October 26, 2011 to November 01, 2011.  
 -Survey Base: Hope, BC.  
 -Scintrex CS-3 cesium vapor magnetic sensor used to sample the Earth's magnetic field at 10Hz.  
 -All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.



## New Carolin Gold Corp.

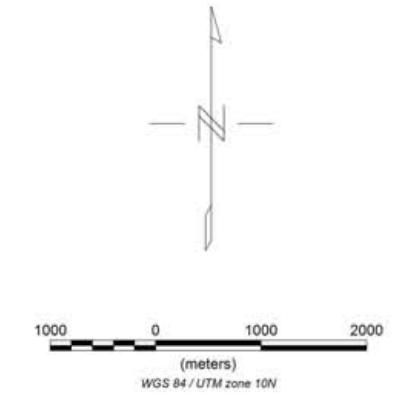
Ladner Gold Block  
 Uranium over Potassium ratio  
 Created By: Precision GeoSurveys Inc.  
 November 2011





eU/eTh ratio

**Survey and Equipment:**  
 -Survey flown between October 26, 2011 to November 01, 2011.  
 -Survey Base: Hope, BC.  
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 -All radiometric data sampled at 1Hz by 16.8L of NaI downward looking synthetic crystal and 4.2L of upward looking synthetic crystals.



# New Carolin Gold Corp.

Ladner Gold Block  
 Uranium over Thorium ratio  
 Created By: Precision GeoSurveys Inc.  
 November 2011



**U/Th**