

# AR 2012 - 126

Assessment Report:

CAPE BRETON CENTRAL HIGHLANDS GOLD PROJECT  
Victoria County, N. S.

**LIDAR SURVEY (2011)**  
**of the MacMILLAN ROAD ZONE (MMRZ)**

**including all or part of:**

- #1 **MMRZ Regroup w/INCO Sites 1 - 4, 5A, 5B, 6A, 6B/Recon 2 & 7**  
Ex. Lic. #09379 - Sept. 9, 2011 - 27 Claims
  
- #2 **N Extension w/19A & B**  
Ex. Lic. #09017 - Feb. 16, 2012 - 8 Claims
  
- #3 **SE MMRZ (Doyle Road)**  
Ex. Lic. #09018 - Feb. 16, 2012 - 5 Claims
  
- #4 **South 6B (Doyle Road)**  
Ex. Lic. #09204 - July 29, 2012 - 5 Claims
  
- #5 **W Extension w/Recon 1 & 20**  
Ex. Lic. #09205 - July 29, 2012 - 8 Claims

Submitted by:

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August 2012

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## TABLE OF CONTENTS

SUMMARY	2
I INTRODUCTION	5
II RESOURCE DESCRIPTION	6
A License Tabulation	6
B Location and Access	7
C Regional Historical Work	9
III WORK PROGRAM	11
A LIDAR Survey	11
B Interpretation of Results	11
IV CONCLUSIONS AND RECOMMENDATIONS	15
A Conclusions	15
B Recommendations	16
APPENDIX A Author's Certification	
APPENDIX B References	
APPENDIX C LIDAR Survey Specifications	

### LIST OF FIGURES

FIG. 1	N. S. NTS Map Locating C. B. Central Highlands Gold Project
FIG. 2	LIDAR Surveyed, Licensed Areas Locations Map
FIG. 3A	MMRZ Connector Crossing Linears @ 1: 10 000
FIG. 3B	Legend for Fig. 3A
FIG. 4	"McMillan Road Contours" @ 1: 5 000 (Leading Edge Geomatics w/ Additional Features Located
FIG. 5	MMRZ NE-Shaded, Coloured-Elevation LIDAR Image w/ Additional Features Located

## SUMMARY

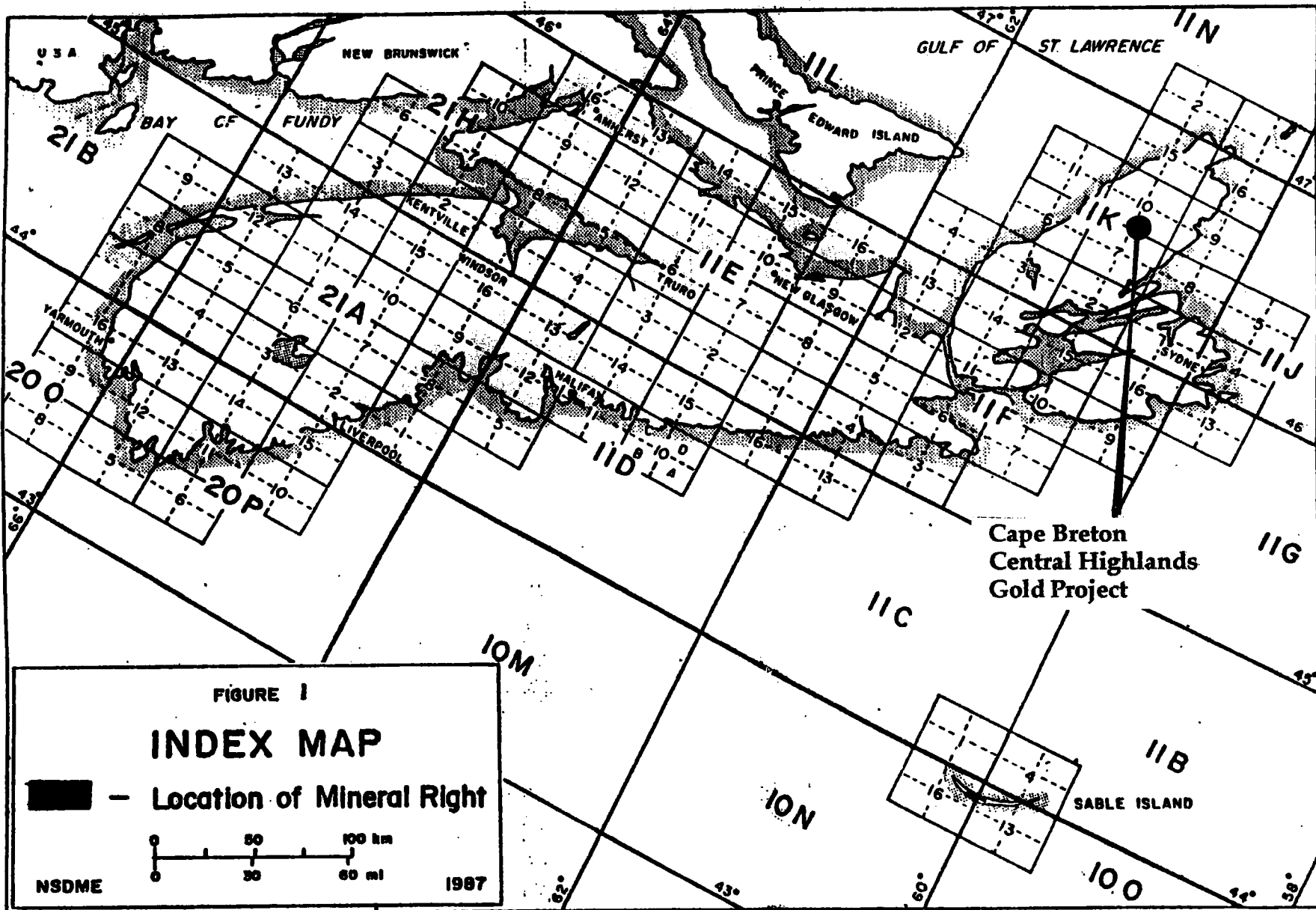
This report is submitted to the Nova Scotia Department of Natural Resources (NSDNR) per the requirements of the Mineral Resources Act. It reports on aerial survey work focused on five contiguous, licensed areas of the MacMillan Road Zone (MMRZ) in Nova Scotia's Cape Breton Central Highlands.

A 6 km<sup>2</sup> LIDAR survey was flown over the key, high-grade gold ground of the MMRZ in late August 2011. Even with the mild topographic relief of the target area, some of the survey's maps proved to be usefully indicative.

The 'NE-shaded', coloured elevation map reinforces the hypothesized presence of NW/SE trending, parallel shears that are intimately related to the clustered gold occurrences at INCO Sites 4, 6A, 6B/Recon 2 and 7.

The '1 m Contours' elevation map delineates a markedly oval E/W domal feature that lies to the northward of, and parallel to, the eastern half of MacMillan Road. The low dome, topped by a large bog, is synchronous with the heart of the high mag "One-Clawed Lobster" anomaly that is ringed by INCO Sites 5A, 5B, 6A, 6B/Recon 2 and 7.

These indicators are helping to direct ongoing trenching/stripping in the target area.



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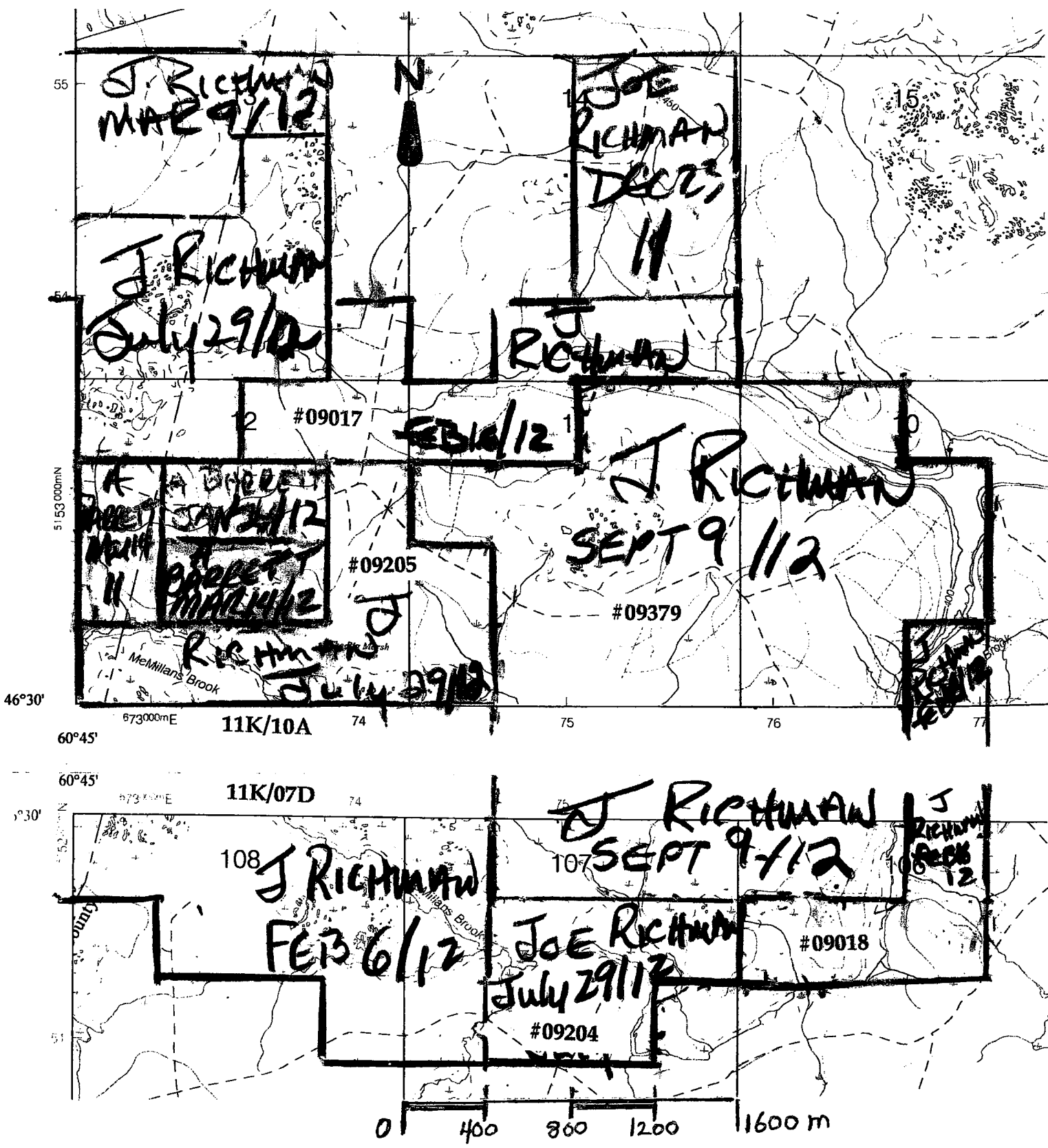


FIG. 2 5 x MMRZ Licensed Areas Covered by LIDAR Survey  
 Ex. Lics. #09379, #09017, #09018, #09204, #09205  
 NTS Reference Maps 11K/07D & 11K/10A

Scale 1: 25 000

## I INTRODUCTION

This report is submitted to the Nova Scotia Department of Natural Resources (NSDNR) per the requirements of the Mineral Resources Act. It reports on a LIDAR aerial survey that was focused on parts of five contiguous, licensed areas of the MacMillan Road Zone (MMRZ) in Nova Scotia's Cape Breton Central Highlands.

The 6 km<sup>2</sup> LIDAR survey was flown over the key, high-grade gold ground of the MMRZ in late August 2011. Even with the mild topographic relief of the target area, some of the survey's maps proved to be usefully indicative for identifying specific trench and drill targets. The LIDAR survey and its analysis were made within the context of the Project's intent to identify whether a mineable, gold deposit exists in Cape Breton's Central Highlands.

The author/licensee first encountered LIDAR-produced imaging at the 2010 PDAC in Toronto. An Alberta company was showing digital images of flat, Prairies terrain. Nevertheless, numerous, well-delineated and useful features were clearly presented, thereby demonstrating the powerful capability of the technology to expose subtle surface features as evidence of topographic and geologic trends.

As the author had been using NSDNR "shaded-relief" images for years, in the Highlands and elsewhere, he was accustomed to the resolution possible with a data point for every 20 m x 20 m square. While useful down to 1: 10 000, the images would not tolerate being blown-up further for detailed analysis. With various LIDAR systems using anywhere from 1 - 5 points per square metre, the resolution is exponentially improved.

Consequently, the chance to have a LIDAR survey flown over the low-relief MMRZ offered a significant opportunity to identify anomalous features that would be good exploration targets and, thereby, advance the Project. Although budgetary constraints disallowed a survey over the entire 40 km<sup>2</sup> 'Golden Triangle' which might elucidate the larger, structural picture, the prime gold clusters were covered. This is in line with the Project's current, focused strategy to pursue a deposit that is evidenced by the gold at 6A and 6B/Recon 2.

As presented below, the new imaging clarifies previous hypotheses about features/structures that are intimately related to the gold. Unfortunately, the original flying schedule was delayed and the survey was not flown until late in the 2011 season. This precluded using the images to influence field exploration until 2012.

## II RESOURCE DESCRIPTION

### A License Tabulation (FIG. 2)

This report describes work performed in relation to Exploration Licenses:

- 1 - #09379 MMRZ Regroup 27 Claims, 437 hectares, 1080 acres
- 2 - #09017 N Extension 8 Claims, 130 hectares, 320 acres
- 3 - #09018 SE MMRZ 5 Claims, 81 hectares, 200 acres
- 4 - #09204 South 6B 5 Claims, 81 hectares, 200 acres
- 5 - #09205 W Extension 8 Claims, 130 hectares, 320 acres

per the requirements of the N. S. Mineral Resources Act. The Licenses, held by Joe Richman, Halifax, Nova Scotia, are further described as follows:

License #	NTS Map Sheet	Tract	Claims	Date of Issue	
1	09379	11K/07D	106	NO	Sept. 9, 2011
			107	OPQ	
	11K/10A	10	CDEFGKLMNO		
		11	ABCFGHJKLMPQ		
2	09017	11K/10A	11	NO	Feb. 16, 2012
			12	PQ	
			13	A	
			14	ABC	
3	09018	11K/07D	106	KLMP	Feb. 16, 2012
		11K/10A	10	B	
4	09204	11K/07D	107	FGJKL	July 29, 2012
5	09205	11K/10A	11	DE	July 29, 2012
			12	ABCDHJ	

## B Location and Access

The five licensed areas can be accessed from Highlands Road via one of two branching wood roads, MacMillan or Doyle. Their easterly turnings are 44 and 47 km, respectively, North on Highlands Road from its juncture with the Margaree leg of the Cabot Trail at Hunter's Mountain. The Hunter's Mountain turnoff is marked by a sign for the Public Rifle Range. It is > 5 km West from the "Red Barn" (local gift shop/restaurant/landmark) which marks Exit 7 at the Buckwheat Corner T-junction of TCH 105. The Red Barn turn-off is about 350 km from downtown Halifax or some 80 km on the 105 from the Canso Causeway.

Highlands Road is a wide, gravel highway that is well maintained by the Port Hawkesbury pulp mill for the summer half of the year, from June through October. (Keep watch for high-speed logging trucks, the ever-present road grader, moose and free-range cattle.) Sections of the extensive network of subsidiary wood roads which connect to Highlands Road are upgraded and maintained on a year-to-year basis as cutting schedules require.

No attempt is made to keep Highlands Road open during the winter. October is normally the latest, predictable work month in the Central Highlands. November is possible, but there can be significant snowstorms given the 450 m elevation, which would require long-distance plowing to ensure access. A system of snowmobile routes which follow much of the road network are kept groomed throughout the winter. However, Highlands springs are coming earlier. In 2011 and 2012, Highlands Road was open as far as MacMillan Road by the middle of May, two weeks earlier than has been historically typical.

MacMillan and Doyle are just two of the numerous side roads, many of them unmarked, which intersect with Highlands Road along its length. To maintain some positional perspective when driving 50 km through repetitive woodlands and choppings with no buildings, watch for certain notable intersections.

The noticeable Fielding Road Y-turn on the left/West is 32 km from Hunter's Mountain. (Fielding Road runs 18 km down to the Margaree Valley, making it an alternate entry route to Highlands Road. However, its outbound end is quite steep and bytimes topped with loose material which makes it much better going down than climbing up.) Kelly Road is >1 km past the Fielding, on the right/East. At 40 km from Hunter's, you pass the left/West turning for Cape Clear, a spectacular look-off some distance to the westward.

Doyle Road is on the right/East side at the 44 km point, marked by an old signpost which is readable. At 47 km you come to MacMillan Road, also on the East side, but, since the spring of 2010, there was only a small piece of its sign still visible. Coinneach Brook Road is usually well-marked on the left/West side and only 300 km beyond MacMillan. 1 km further is the narrow stub road that leads 100 m into the Galena/Gold South Showing. 300 m beyond that turn is the stub road that leads into Galena/Gold North. Shortly thereafter, Highlands Road noticeably swings to the East and at 50 km from Hunter's Mt., 3 km past the MacMillan turn-off, you reach Park Spur Road and its South extension.

After the Park Spur turning, Highlands Road continues easterly for a couple of kilometres, then heads northerly for some distance until it ends at the Cheticamp Flowage. This Flowage, like its more southern siblings, is a collector for the hydroelectric generators at Wreck Cove. Cheticamp Flowage makes an embayment in the southern border of the Highlands National Park.

> 4 km beyond Park Spur is the poorly marked right/East turn for the easterly trending road that passes the Gisborne, MacMillan and Wreck Cove Flowages to a river gorge which it follows down the flank of the Highlands to the hydro system's headquarters. From that point, the road is paved until it connects with the Cabot Trail on the coast South of Ingonish. The 20 km "Wreck Cove" route offers an alternative for accessing the target ground from paved highway; however, in the spring of 2010, the first 10 km from Highlands Road was very rough, taking an hour. The second half, from a popular, RV parking area at South Lake/Wreck Cove Flowage was much better as it dropped steeply down to the pavement.

Like all the Central Highlands, the Licensed Areas are on Crown land. Access is administered by NSDNR's Baddeck office for lands in Victoria County and the Whycocomagh office for lands in Inverness County.

On the other hand, the extensive road system, most of which was built to enable the 1970s cull of the budworm-ravaged Highlands forest, is owned by the Port Hawkesbury paper mill (most recently, by Newpage Corp.). It is maintained for them by a local contractor whose grader is constantly working one section or another. Since the logging trucks haul South to the Point Tupper mill, the grader concentrates on the stretch of Highlands Road from Hunter's Mt. to the furthest North side road that is being cut in any particular year. Whichever feeder roads are slated for cutting in a season are suitably repaired and upgraded, as they may have been ignored for years, if not decades. During the summer of 2010, cutting crews

were working well up the Park Spur Road, so the grader kept after the first 50 km of Highlands Road and several kilometres up Park Spur.

Note: Forest harvesting practices in the Central Highlands are changing. While it seems that some poorer-growth sections are still being clearcut by the mechanical harvesters, in the Coinneach North Road area, and others, the machines are cutting multiple, parallel swaths through the woods that are about 12 m wide, with double that width left between them, and a couple of hundred metres long. An entire section is thereby harvested by a few cutting regimes over a few years, avoiding some of the pitfalls of extensive, onetime clearcuts. From a prospecting point of view, the cut strips afford decent access and visibility to both the cut and uncut parts in what is otherwise extremely frustrating country. On a project-scale, a machine is effectively exposing for exploration three times the ground that it would in the same working time, if it was clearcutting.

In the Fall of 2010, the scrappy woods at the western end of MacMillan Road were being clearcut while parts of Park Spur Road and Coinneach North were recently swathcut.

Of interest were there to be future, full-scale development in the Project area, power lines currently run inland westerly from the Wreck Cove Hydro plant along the road described above, and continue along the MacMillan Flowage Road which follows the SE side of that Flowage, a few kilometres East of Dorian Road.

### C Regional Historical Work

In the mid-1980s, NSDNR released preliminary findings from their regional geochem survey of the Cape Breton Highlands (Mills 1989). At the time, the results were eagerly awaited by industry as gold prices were buoyant and the Highlands contained the last large acreage of unexplored territory left in the province.

In 1984, INCO Limited (49%), Nova Scotia Resources Limited (NSRL) and Husky Oil Operations Limited formed a joint venture company called Scominex (Scotian Mineral Exploration Venture). Scominex's mandate was "to explore for large tonnage gold deposits of economic significance" (INCO 1990). INCO Exploration and Technical Services Inc. (INCO) was the operator for the Scominex program.

INCO spent several millions culling about 2000 km<sup>2</sup> down to a 40 km<sup>2</sup> 'Golden Triangle'. They found, trenched and sparsely drilled numerous, high-grade gold occurrences, but did not identify a deposit. They filed their last Highlands Assessment Report in 1990, bulldozed-in their last trenches the next year, and dropped their Exploration Licenses in the Fall of 1993, leaving many high-grade Sites underexplored. Reportedly, INCO brass had decided that properties East of Quebec were not worth pursuing. Interestingly, not long after this, the company sold-off all of its global gold assets (Bowie 2010).

Since 1993, INCO's key areas have been held under license by various entities, but the only major work has been done by A. M. Barrett at INCO's "Main Showing" and the author's restripping of INCO's 6B "Big Vein".

Over 15 years, Barrett has excavated and processed on-site at INCO's Main Showing a > 2000 tonne bulk sample. A site-specific, portable mill that includes a rotary breaker, fine ore feed bin, washing auger, cyclones, diesel-powered ball mill, flotation cells and diesel generator has been used to process the ore. During a few years of sporadic processing, bagged concentrate of unknown quantity and grade has been accumulated. In the Fall of 2011, processing at the Main Showing was still ongoing.

2 km to the eastward of the Main Showing, the author has directed the restripping of the 40 m long Big Vein at Site 6B by Leo Fownes of Big Baddeck. The excavating was done in two stages, Fall 2010 and Spring 2011. The primary motivation for this work was to determine the general validity of INCO's voluminous reported findings while exposing a high-grade drill target.

The vein has been stripped to the same dimensions that INCO reported in 1989-90. While their mapping appears truthful, it is curiously not complete. The vein obviously continues downdip beyond the extent of the author's and INCO's trenching. And, most unexpectedly given the overall detail of INCO's maps, the eastern half of the vein surprisingly plunges 4 m to the SE in the saprolitic ground. This is clearly a structural feature expressing bedrock contortions and not a result of erosion.

### III WORK PROGRAM

#### A LIDAR Survey (See Appendix C for specifications)

The 6 km<sup>2</sup> LIDAR survey of the key ground at the MMRZ was conducted by Leading Edge Geomatics. While the lines were flown at the end of August 2011, the final maps were not obtained until months later. This is likely because the MMRZ target was a secondary site, representing only about 5% of a regional LIDAR program contracted for a junior exploration company. The author appreciates the efforts of Perry MacKinnon, whose coordination enabled the MMRZ survey to be flown and the availability of the subsequent maps.

Given financial constraints, the affordable 2 km x 3 km polygon of the survey was located in order to cover two critical clusters of INCO's high-grade gold Sites near the eastern end of MacMillan Road. Given all that is currently known about the Central Highlands Gold, these adjacent clusters and the onstrike Main Showing offer the best odds for locating a mineable deposit:

- 1 Sites 1 - 4 of the "Epidote Alteration Zone" next to MacMillan Flowage,
- 2 Sites 5A, 5B, 6A, 6B/Recon 2 and 7 that surround the "One-Clawed Lobster" aeromag anomaly.

#### B Interpretation of Results

In addition to the known features of the MMRZ garnered from historic mapping and ongoing fieldwork, the LIDAR images have been analyzed in comparison with NSDNR's existing "Shaded-Relief" imagery, and aerial photographs from the 1950s to the present.

As well, the images are considered vis-a-vis the geological interpretations of Gregory Lynch. While tackling the components of the regional structure problem in order to understand the Maritimes Basin and its hydrocarbon potential, he concluded:

"Cape Breton Island is contained within the hinterland of the Appalachian orogen where rocks have been affected by intense shortening and crustal thickening...featuring thick-skinned, basement-involved thrusting, high-grade metamorphism and thermal inversions along major thrust faults..." (This) has been interpreted either as a collage of exotic terranes or as a partly contiguous stratigraphic succession of rocks exposed at different crustal levels, across a number of important unconformities. Implicit in both of these interpretations are large

bounding faults either occurring at the margins of terranes or juxtaposing relatively deep and shallow crustal levels."

(Lynch 2001, synthesizing his own thoughts with those from the likes of Harold Williams, Duncan Keppie, Sandra Barr, Robert Raeside.)

The focused LIDAR survey delineates features that are consistent with the regional geology/mineralization overview as presented by Lynch. His thrust-emplaced, then extensionally dispersed and denuded Cabot Nappe with its associated Highlands Shear Zone is the best-known rationale for the gold-rich Central Highlands geology. It helps explain the tension/dilation 'Donut' which contains most of the known gold Sites. The converging NW and Flowage Breaks, which are largely within the Donut, themselves constrain the best known mineralization in the Central Highlands within the MMRZ. (The Donut is bounded by the easterly arcing, mounded feature that hosts Highlands Road to the West and North of MacMillan Road.)

Lynch and Tremblay had previously considered the noteworthy "quartz-carbonate-pyrite gold veins" that INCO had just recently documented:

"The veins consist of shallow-dipping shear veins and flat-lying extension gash veins, and have a geometry which suggests formation during horizontal compression, likely in relation to the nearby reverse fault, in a manner similar to the model proposed by Sibson et al. (1988)"

(Lynch & Tremblay 1992).

The appearance of NW/SE-trending traces on the LIDAR shaded-images reinforces aeromag indications that the northwesterly shearing action was a consequence of a compressive vector that rotated and bent the regional N/S trend to NE/SW. This is well evidenced by INCO's major linear that in part follows the 'Buckle Brook'.

It seems that the 'Diatreme Shear' (strongly marked by the westerly-trending streambed that crosses Doyle Road and runs immediately North of Slauenwhite's "Diatreme") splays into '3 Prongs' after it crosses MacMillan Flowage toward the westward. The rocks of the Diatreme, which are most likely a variegated collection of fault breccia, may indicate an intense, localized crossing or rotating vector.

The 'Central Prong' runs straight through the Buckle and the 135 m of mineralization at 6B/Recon 2 to Site 20 and, eventually, the Main Showing.

The 'Northern Prong' arcs a bit northerly and connects Sites 4, 6A and 7 about 200 m to the northward.

The 'Southern Prong' also arcs, passing above one N/S feeder of MacMillan Brook, then crosses Buckle Brook (another N/S feeder) and merges with the NW Break.

A fainter, parallel trace can be seen bisecting the critical 200 m between 6A and 6B (between the Central and Northern Prongs). The scenario for a mineable deposit in the focus area would be much improved with connecting or parallel, mineralized tonnage in this 200 m x 200 m block. Conceivably, 6A and 6B/Recon 2 could coincide with a 'Hinge Line' of the hypothesized, fault-bisected 'Drag Fold' (a la the five mines of the Fournier Drag Fold at Malartic, Quebec); or, they could lie on interconnected, imbricated cross-thrusts (a la the zigzagging Champion Lode at Kolar, India).

In the SE corner of the multi-coloured, shaded LIDAR image there is an intriguing congruence of features, some of which have been prospected in the past. Crossing N/S and E/W 'troughs' complete a square with the sharp, westerly bend in MacMillan Brook below the Flowage. The enigmatic "370 Cluster", INCO's best geochem target, lies immediately to the eastward of the bend and 500 m southward of the "Diatreme Shear". Something structural is happening there, as yet unexplained, which is related to the area's gold deposition,. Hopefully, a greater understanding of the controlling structures at the focal clusters will prove transposable to such outlying puzzles.

The '1 m Contours' elevation map delineates a marked, oval E/W domal feature that lies to the northward of, and parallel to, the eastern half of MacMillan Road. The low dome, topped by a large bog, is synchronous with the heart of the high mag "One-Clawed Lobster" anomaly that is ringed by INCO Sites 5A, 5B, 6A, 6B/Recon 2 and 7.

The dome's regular concentricity North of the road, contrasts with variations in the contouring South of the road. In the area of the Redline-indicated Drag Fold, the target between the postulated right-handed, bisecting fault (200 m westerly dislocation?) at 6B/Recon 2 and 6A is marked by tight contouring. By contrast, the dislocated, southern part of the Fold is mapped with expansive contours and noticeable 'Thumbs' - fattened contour anomalies without erosional or watercourse bases. It is important to note that the local ovb is decidedly saprolitic with little or

no till. The concensus of experienced opinion is that no significant glacial movement occurred in this part of the Highlands peneplain.

The Thumb that trends SE from 6B is coincident with known, deep ovb (> 4 m) as mapped or seen in the Recon 2, 6B and intervening trenches. It appears clear that the 'SE Thumb' is indicative of a structural, bedrock bowl. Extrapolating from this, the author concludes that a similiar 'SW Thumb' trending in that direction from 6B indicates a larger bedrock bowl. As well, a third '7 Thumb' lies to the SW of Site 7 (on the southern side of the road), near the target, hi-lo aeromag contact line on the border of the One-Clawed Lobster. A 25 m onstrike line of quartz boulders was previously found and reported in this area.

The confluence of known gold with aeromag, topographic and shaded image signatures is heading toward the predictability necessary to winnow the significant parameters for economic mneralization from the unimportant ones.

## IV CONCLUSIONS AND RECOMMENDATIONS

### A Conclusions

1 Lynch's sequence of a thrust-emplaced, then extensionally dispersed and denuded Cabot Nappe (with its associated Highlands Shear Zone) remains the best-known rationale for the gold-rich Central Highlands geology.

a Such a tectonically-driven, compressive to tensile regime could well account for vectors rotating from E/W to NW/SE, and produce:

1 The tension/dilation Donut, which is markedly defined by the easterly arc of Highlands Road in the vicinity of MacMillan Road and contains most of the known gold Sites.

2 The brittle/ductile, northwesterly-trending NW and Flowage Breaks which cross the Donut and constrain the best Central Highlands mineralization within the wedge-shaped MMRZ.

2 The 6 km<sup>2</sup> LIDAR imaging delineates local features that are consistent with Lynch's regional geology/mineralization overview. (The following observations are somewhat narrowed by the author's current, triaged focus on the 6A/6B nexus.)

a The multiple NW/SE-trending traces apparent on the images, including the 3 Prongs at 6A/6B, would be typical of an imbricated, thrust environment.

b The bent and dislocated Buckle Brook, at the heart of the target, is coincident with one of INCO's major, mapped N/S linears. It supports the contention that the northwesterly shearing was subsequent to the N/S trend.

c For the moment, this supports the NW events as the key to the mineralization.

d The significance of the structural bedrock depressions evidenced by the Thumbs remains unclear.

1 That they are meaningfully connected to the mineralization is assumed. The nature of that control is yet unknown

2 The juncture of the SE and SW Thumbs at 6B is particularly intriguing.

3 No such tortured environments develop as cleanly as the computer modelling presents them. Slice-and-dice thrust duplex illustrations with a dull knife and you get a better picture of reality. Thus, the 3 Prongs that splay westerly from the Diatreme Shear. This may prove critical in the search for tonnage, as it encourages tying the mineralization at 6A/6B with that at 4 (800 m to the SE) and the geochem 370 Cluster a further 800 m away.

4 A 1 km x .5 km area of prominent, northwesterly-trending features lies to the eastward of Site 4 toward Sites 1, 2 and 3, next to the hub of MacMillan Flowage. This target has not been properly considered given its distance from the current 6A/6B focus. Certainly, its later consideration will be informed by the exploration at the focus territory.

## B Recommendations

1 In general, build a computer-model of the MMRZ that layers the LIDAR-shaded image and contour maps with recent and historic airphotos, King and Redline aeromag. geochem, lithology and the high-grade gold.

### 2 MMRZ Regroup :

a Fieldmark two of the NW/SE linears in the target block: the Northern Prong coincident with 6A and the faint one lying between it and the Central Prong of 6B/Recon 2.

b Explore the Northern Prong by trenching SE from 6A, and NW and SE from the intersection of Recon 2 and the Prong.

c Trench the midway linear between 6A and 6B/Recon 2.

d Locate drill sites to determine the likely controlling structures and overall mineralization of the 300 m x 150 m block that incorporates 6A and 6B.

e Drill at 6B and southerly from it to investigate the reality of the Drag Fold hypothesis and the Hinge Line mineralization.

f Use the results above to investigate the possible extension of the mineralization at Site 7 near its contoured Thumb.

g Given the likely connection of Site 4 with 6A and 7, consider trench/drill targets to extend and explain the double digit assays at Site 4.

3 Renew all claims in the 5 Licenses under consideration as they lie significantly close to any deposit that might yet be identified in the prime target area.

## APPENDIX A      AUTHOR'S CERTIFICATION

The author/licensee has prepared the accompanying report, **Cape Breton Central Highlands Gold Project: LIDAR Survey (2011) of the MacMillan Road Zone (MMRZ)**. It is based on the results of an aerial survey and data processing by Leading Edge Geomatics that was arranged by Perry MacKinnon, Bedford, N. S. The author has contributed his own analysis of the survey's resultant images.

The author/licensee is a geological researcher, prospector and developer with 15 years experience assembling compilations on a wide range of mineral targets, conducting relevant fieldwork and processing trials, and doing related market and product research and trials.

The author thanks Perry MacKinnon for his crucial liaison.



Joe Richman  
2B - 2013 Creighton St.  
Halifax, N. S.  
B3K 3R3  
902-423-2892  
August 2012

## **APPENDIX B      REFERENCES**

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**APPENDIX C      LIDAR SURVEY SPECIFICATIONS**



# } MCMILLAN RD-LiDAR REPORT

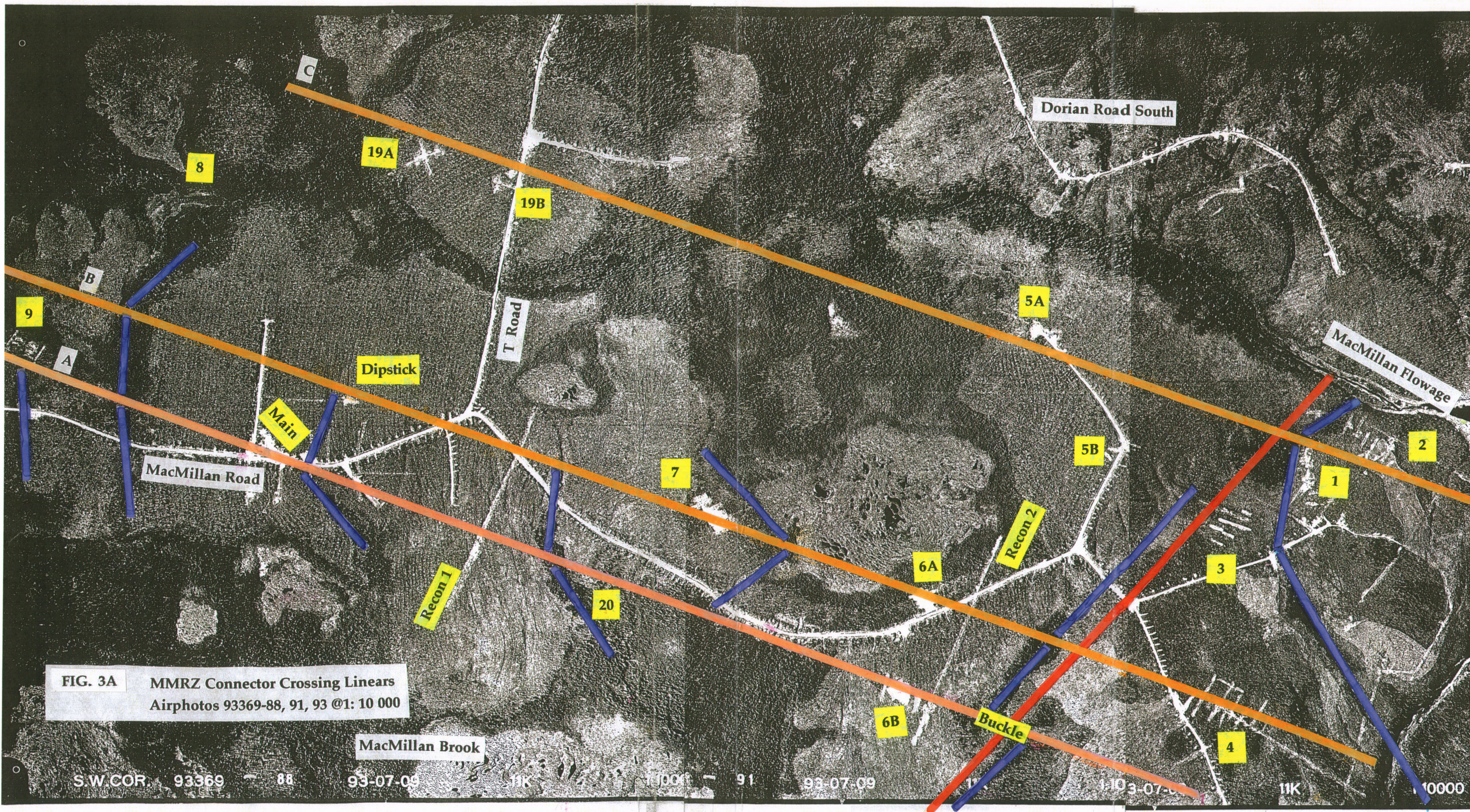
Flight Specifications

**GUILLAUME ROY** | Leading Edge Geomatics | 22/11/2011

# MCMILLAN RD LiDAR REPORT

## Flight Specifications

1. **Flight Date** - The LiDAR data was collected on August 24th, 2011.
2. **Area** - The size of the LiDAR collection area in McMillan Rd. was approximately 7.5 km<sup>2</sup>.
3. **Flight Altitude** - On average the flight altitude was 1200m above ground level.
4. **LiDAR Scan Rate, Pulse Rate and Scan Angle**  
**Flight 1** - The LiDAR scan rate was 46 lines/seconds at 80khz pulse rate with a 57.00 degree scan angle.
5. **Airborne and GPS Receiver's Model and Serial Numbers**  
  
**Model:** Trimble Dual Frequency  
  
**Serial Number:** P-N GPS-34
6. **Long Range Airborne Laser Scanner Model and Serial Number**  
  
**Model:** Riegl Q680i  
  
**Serial:** 9998328
7. **File Labeling** – In the current data processing workflow, all LiDAR strips are merged into individual 1km x 1km tiles where overlapping points are observed and merged into a common geographically designated area. Tiles are from then on created based on the closest kilometer mark in the UTM zone.
8. **Operators** –  
Pilot: Steve Parks  
Sensor Operator: Mark Lamothe  
Production Manager: Guillaume Roy  
Data Processing and Product Generation:  
Duncan Allen (LiDAR Team Lead)  
Alex Sledge  
Riley DeMerchant  
Jessica DeJager  
Katy Leblanc  
Trethewey  
Jordan
9. **Major data Processing Component Used** –  
Pospac MMS 5.2  
Riegl LMS  
Virtual Geomatics 4D  
  
Blue Marble Geographics  
Trimble Geomatics Office



**FIG. 3A** MMRZ Connector Crossing Linears  
 Airphotos 93369-88, 91, 93 @1: 10 000

S.W.COR. 93369 88 93-07-09 11K 1000 91 93-07-09 11K 103-07-09 11K 10000

FIG. 3B LEGEND (for Fig. 8A MMRZ Connector Crossing Linears)

MacMillan Brook

6B



A



Buckle

Geographic Locators

INCO Trench Sites

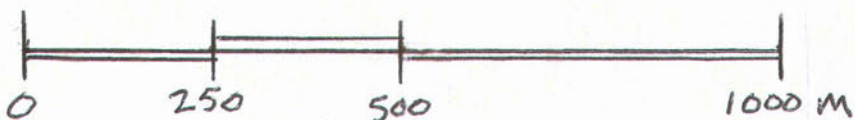
NE Linear (part of INCO L-3 per AR 89-256)

NW Connector Crossing Linears

Kinked, Indicator Drainage Troughs

Locus of Buckle Drag Fold Cross Fault

SCALE



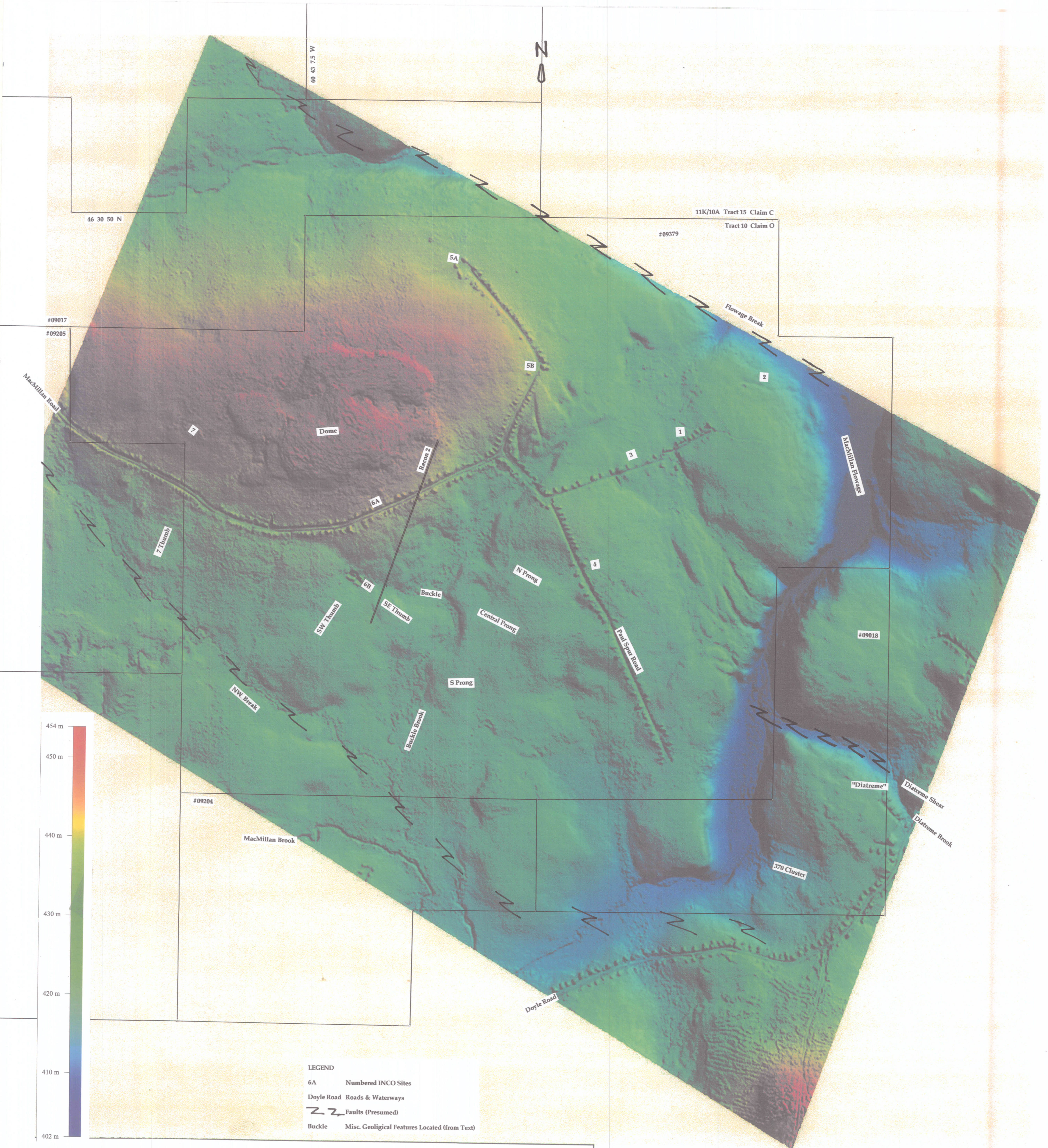
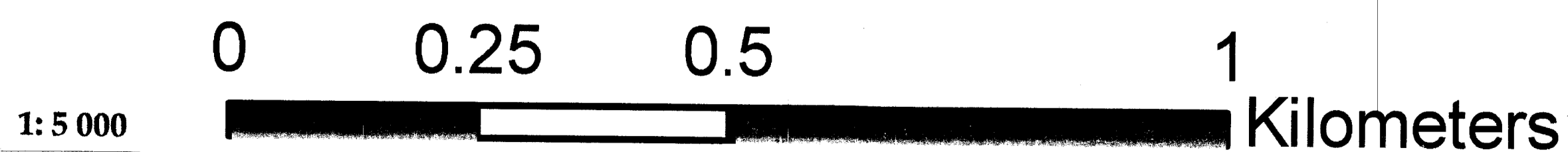
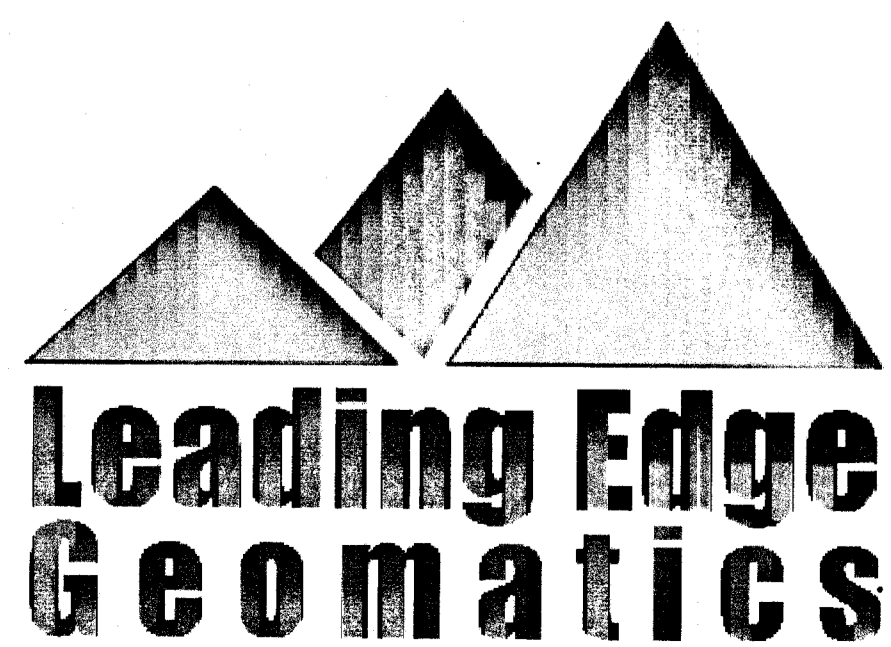


FIG. 5 MMRZ LIDAR Colour Image Shaded from NE @ 1:5 000 w/ Colour Elevation Scale in Metres & MMRZ Features Located (after Leading Edge Geomatics 2012)

# Nova Scotia Gold, McMillan Road Contours



Projection: UTM 20N  
 Datum: NAD83 CSRS  
 Vertical: CGVD28 via HT2

FIG. 4 "McMillan Road Contours" LIDAR Map @ 1:5 000 w/ 1 m Contours & MMRZ Features Located (after Leading Edge Geomatics 2012)

LEGEND

- 6A Numbered INCO Sites
- Doyle Road Roads & Waterways
- ZZ Faults (Presumed)
- Buckle Misc. Geological Features Located (from Text)

Map 11K10A  
Refs. 11-NO  
12-PQ  
13-A  
14-ABC

Form 10 - Statement of Assessment Work Expenditure  
(pursuant to the Mineral Resources Act, S.N.S. 1990, c. 18, s. 43(1))

(Complete as necessary to substantiate the total claimed.)

Re: Licence No. 09017 Date of issue FEB. 16, 2012

R

Type of Work		Amount Spent
1.	Prospecting	_____ days
2.	Geological mapping	_____ days
3.	Trenching/stripping/refilling	_____ m <sup>2</sup> / _____ m <sup>3</sup>
4.	Assaying & whole rock analysis	_____ #
5.	Other laboratory	_____ #
6.	Grid:	
	(a) Line cutting	_____ km
	(b) Picket setting	_____ km
	(c) Flagging	_____ km
7.	Geophysical surveys	
	Airborne:	
	(a) EM/VLF	_____ km
	(b) Mag or Grad	_____ km
	(c) Radiometric	_____ km
	(d) Combination	_____ km
	(e) Other	_____ km
	PRO-RATED @ \$130./CLAIM	8 CLAIMS
	CLAR SURVEY	\$1040.
8.	Geophysical surveys	
	Ground:	
	(a) EM/VLF	_____ km
	(b) Seismic soundings	_____ #
	(c) Magnetic/telluric	_____ km
	(d) IP/resistivity	_____ km
	(e) Gravity	_____ km
	(f) Other	_____ km
9.	Geochemical surveys	
	(a) Lake, stream, spring	
	(i) Water	_____ samples
	(ii) Sediments	_____ samples
	(b) (i) Rock	_____ samples
	(ii) Core	_____ samples
	(iii) Chips	_____ samples
	(c) (i) Soil	_____ samples
	(ii) Overburden	_____ samples
	(d) Gas	_____ samples
	(e) Biogeochemistry	_____ samples
	(f) Sample collection	_____ samples
	(g) Other	_____ days
10.	Drilling:	
	(a) Diamond (# holes/m)	_____ / _____ m
	(b) Percussion (# holes/m)	_____ / _____ m
	(c) Rotary (# holes/m)	_____ / _____ m
	(d) Auger (# holes/m)	_____ / _____ m
	(e) Reverse circulation (# holes/m)	_____ / _____ m
	(f) Logging, supervision, etc.	_____ days
	(g) Sealing (# holes)	_____ #
11.	Other (describe)	
	Subtotal	
Overhead costs		
12.	Secretarial services	
13.	Drafting services	
14.	Office expenses (rent, heat, light, etc.)	
15.	Field supplies	
16.	Compensation paid to landowners	ONRMP AUG29'12 12:07
17.	Legal fees	
18.	Other (describe)	
	Subtotal	
	Grand total	\$1040.



**Form 10 - Statement of Assessment Work Expenditure**  
(pursuant to the *Mineral Resources Act*, S.N.S. 1990, c. 18, s. 43(1))

11K10A  
10-B

(Complete as necessary to substantiate the total claimed.)

Re: Licence No. 09018 Date of issue FEB. 16, 2012

*R*

Type of Work		Amount Spent
1.	Prospecting _____ days	
2.	Geological mapping _____ days	
3.	Trenching/stripping/refilling _____ m <sup>2</sup> / _____ m <sup>3</sup>	
4.	Assaying & whole rock analysis _____ #	
5.	Other laboratory _____ #	
6.	Grid: (a) Line cutting (b) Picket setting (c) Flagging _____ km _____ km _____ km	
7.	Geophysical surveys Airborne: <i>PRO-RATED @ \$130./CLM</i> (a) EM/VLF (b) Mag or Grad (c) Radiometric (d) Combination (e) Other <i>LIDAR SURVEY</i> <i>5 CLMIMS</i> <i>3x2</i>	<i>\$650.</i>
8.	Geophysical surveys Ground: <i>ANALYSIS + AR</i> (a) EM/VLF (b) Seismic soundings (c) Magnetic/telluric (d) IP/resistivity (e) Gravity (f) Other	
9.	Geochemical surveys (a) Lake, stream, spring (i) Water (ii) Sediments (b) (i) Rock (ii) Core (iii) Chips (c) (i) Soil (ii) Overburden (d) Gas (e) Biogeochemistry (f) Sample collection (g) Other	
10.	Drilling: (a) Diamond (# holes/m) (b) Percussion (# holes/m) (c) Rotary (# holes/m) (d) Auger (# holes/m) (e) Reverse circulation (# holes/m) (f) Logging, supervision, etc. (g) Sealing (# holes) _____ / _____ m _____ / _____ m _____ / _____ m _____ / _____ m _____ / _____ m _____ days	
11.	Other (describe) _____	
	<b>Subtotal</b>	
<b>Overhead costs</b>		
12.	Secretarial services	
13.	Drafting services	
14.	Office expenses (rent, heat, light, etc.)	DNRMPT AUG29 12 12:07
15.	Field supplies	
16.	Compensation paid to landowners	
17.	Legal fees	
18.	Other (describe) _____	
	<b>Subtotal</b>	
	<b>Grand total</b>	<i>\$650.</i>



**Form 10 - Statement of Assessment Work Expenditure**  
(pursuant to the *Mineral Resources Act*, S.N.S. 1990, c. 18, s. 43(1))

(Complete as necessary to substantiate the total claimed.)

Re: Licence No. 09204 Date of issue July 29, 2012

*R*

Type of Work		Amount Spent
1.	Prospecting	
2.	Geological mapping	_____ days
3.	Trenching/stripping/refilling	_____ days
4.	Assaying & whole rock analysis	_____ m <sup>2</sup> / _____ m <sup>3</sup>
5.	Other laboratory	_____ #
6.	Grid:	
	(a) Line cutting	_____ km
	(b) Picket setting	_____ km
	(c) Flagging	_____ km
7.	Geophysical surveys Airborne: <i>PRO-RATED @ \$130./CLAIM</i>	
	(a) EMVLF	<i>5 CLAIMS</i> km
	(b) Mag or Grad	_____ km
	(c) Radiometric	_____ km
	(d) Combination	_____ km
	(e) Other <i>LIDAR SURVEY</i>	<i>3x2</i> km
8.	Geophysical surveys Ground: <i>ANALYSIS + AR</i>	
	(a) EMVLF	_____ km
	(b) Seismic soundings	_____ #
	(c) Magnetic/telluric	_____ km
	(d) IP/resistivity	_____ km
	(e) Gravity	_____ km
	(f) Other	_____ km
9.	Geochemical surveys	
	(a) Lake, stream, spring	
	(i) Water	_____ samples
	(ii) Sediments	_____ samples
	(b) (i) Rock	_____ samples
	(ii) Core	_____ samples
	(iii) Chips	_____ samples
	(c) (i) Soil	_____ samples
	(ii) Overburden	_____ samples
	(d) Gas	_____ samples
	(e) Biogeochemistry	_____ samples
	(f) Sample collection	_____ samples
	(g) Other	_____ days
10.	Drilling:	
	(a) Diamond (# holes/m)	_____ / _____ m
	(b) Percussion (# holes/m)	_____ / _____ m
	(c) Rotary (# holes/m)	_____ / _____ m
	(d) Auger (# holes/m)	_____ / _____ m
	(e) Reverse circulation (# holes/m)	_____ / _____ m
	(f) Logging, supervision, etc.	_____ days
	(g) Sealing (# holes)	_____ #
11.	Other (describe)	
	<b>Subtotal</b>	
	<b>Overhead costs</b>	
12.	Secretarial services	
13.	Drafting services	



Map 11k 10A  
Refs. 11-DE  
12-ABCD  
HJ

**Form 10 - Statement of Assessment Work Expenditure**  
(pursuant to the *Mineral Resources Act*, S.N.S. 1990, c. 18, s. 43(1))

(Complete as necessary to substantiate the total claimed.)

Re: Licence No. 09205 Date of issue July 29, 2012

*R*

Type of Work		Amount Spent
1.	Prospecting	
2.	Geological mapping	_____ days
3.	Trenching/stripping/refilling	_____ days
4.	Assaying & whole rock analysis	_____ m <sup>2</sup> / _____ m <sup>3</sup>
5.	Other laboratory	_____ #
6.	Grid:	_____ #
	(a) Line cutting	_____ km
	(b) Picket setting	_____ km
	(c) Flagging	_____ km
7.	Geophysical surveys Airborne: <b>PRO-RATED</b> <b>C #130./CLAIM</b>	
	(a) EM/VLF	<u>8 CLAIMS</u> km
	(b) Mag/or Grad	_____ km
	(c) Radiometric	_____ km
	(d) Combination	_____ km
	(e) Other: <b>LIDAR SURVEY</b>	<u>382</u> km
8.	Geophysical surveys Ground: <b>ANALYSIS +</b> <b>AR</b>	
	(a) EM/VLF	_____ km
	(b) Seismic soundings	_____ #
	(c) Magnetic/telluric	_____ km
	(d) IP/resistivity	_____ km
	(e) Gravity	_____ km
	(f) Other	_____ km
9.	Geochemical surveys	
	(a) Lake, stream, spring	
	(i) Water	_____ samples
	(ii) Sediments	_____ samples
	(b) (i) Rock	_____ samples
	(ii) Core	_____ samples
	(iii) Chips	_____ samples
	(c) (i) Soil	_____ samples
	(ii) Overburden	_____ samples
	(d) Gas	_____ samples
	(e) Biogeochemistry	_____ samples
	(f) Sample collection	_____ samples
	(g) Other	_____ days
10.	Drilling:	
	(a) Diamond (# holes/m)	_____ / _____ m
	(b) Percussion (# holes/m)	_____ / _____ m
	(c) Rotary (# holes/m)	_____ / _____ m
	(d) Auger (# holes/m)	_____ / _____ m
	(e) Reverse circulation (# holes/m)	_____ / _____ m
	(f) Logging, supervision, etc.	_____ / _____ m
	(g) Sealing (# holes)	_____ days
11.	Other (describe)	_____ #
	Subtotal	
Overhead costs		
12.	Secretarial services	
13.	Drafting services	
14.	Office expenses (rent, heat, light, etc.)	
15.	Field supplies	





