Mineralization on the Evelyn Gold Property, Sonora , Mexico In Context of Local and Regional Structures

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Introduction

This report summarizes results of my reconnaissance geological mapping, rock chip sampling and structural investigations conducted on the 506 hectare Evelyn property between late September and late November 2008. I walked approximately half of the property and focused sampling / mapping endeavors on outcrops that were obviously mineralized with quartz and hematite. In addition to several isolated occurrences of anomalous gold, this work identified three important gold-bearing zones (described below) that yielded multiple assays between 0.5 and 26 ppm Au. Two of these northeast and northwest trending structures intersect in an area of poor outcrop, and related mineralization may project several hundred meters to areas I did not visit that yielded striking gold-in-soil anomalies (100-2474 ppb Au) during a 2012 geochemical survey.

The Evelyn claim (**Figure 1**) is strategically positioned within the Sonora gold belt approximately 35 km south of La Choya mine (300,000 oz Au produced) and 9 km northeast of Noche Buena mine (569,000 oz indicated gold reserves). Mexico's largest gold mine (La Herradura; 1.5 million oz indicated reserves) is located 29 km to the northwest. Gold mineralization at these sites is controlled by northwest, northeast, and east-trending structures. Similarly oriented structural trends coincide with mineralization on the Evelyn claim, and the 2012 gold-in-soils map reveals some intriguing linear anomalies that beg for follow-up investigation.

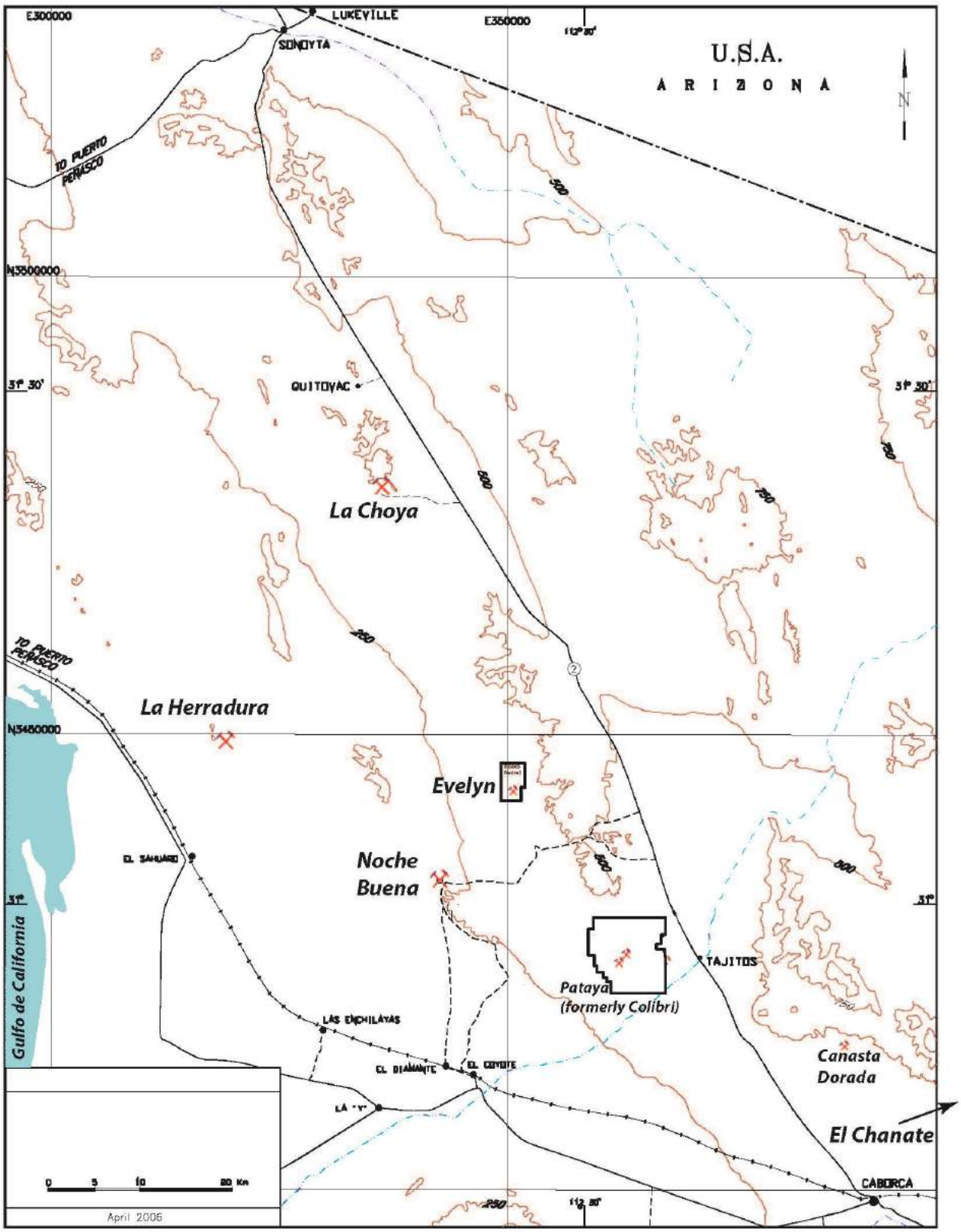

Figure 1. Regional map showing location of Evelyn claim relative to producing gold mines in northwestern Sonora

Evelyn Claim Location and Access

Figures 2 and 3 show location of the Evelyn claim in context of nearby mining claims. This information was provided to me in 2008 shortly after Colibri Corporation obtained title to Evelyn, which was defined as "the southern half of "Elizabeth Fraccion 2." **Figure 3** outlines the boundaries of Elizabeth Fraccion 2 on an old version of the 1:50,000 scale San Luisito topographic map produced in the NAD 27 datum. Some uncertainty existed about the precise northern and eastern boundaries of the Evelyn claim. These details should be confirmed. Also adding to the confusion are the existence of two other claims marked "Evelyn" on the old topo map.

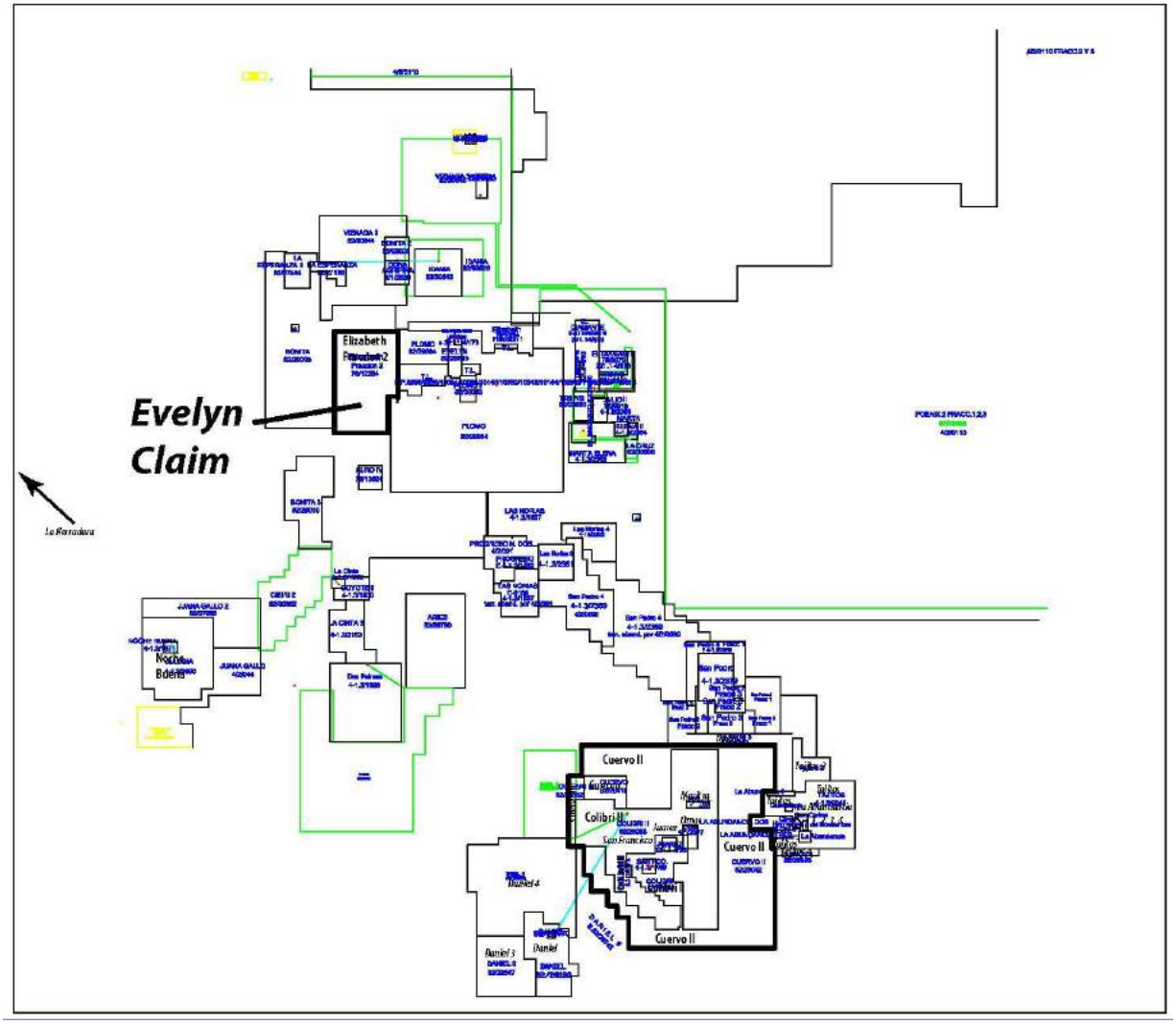

Figure 2. Map showing location of Evelyn claim relative to nearby mining claims. Note locations of Noche Buena claim and the Colibri-San Francisco-Cuervo claims (now a joint venture between Colibri Corporation and Agnico-Eagle Mines, Ltd.

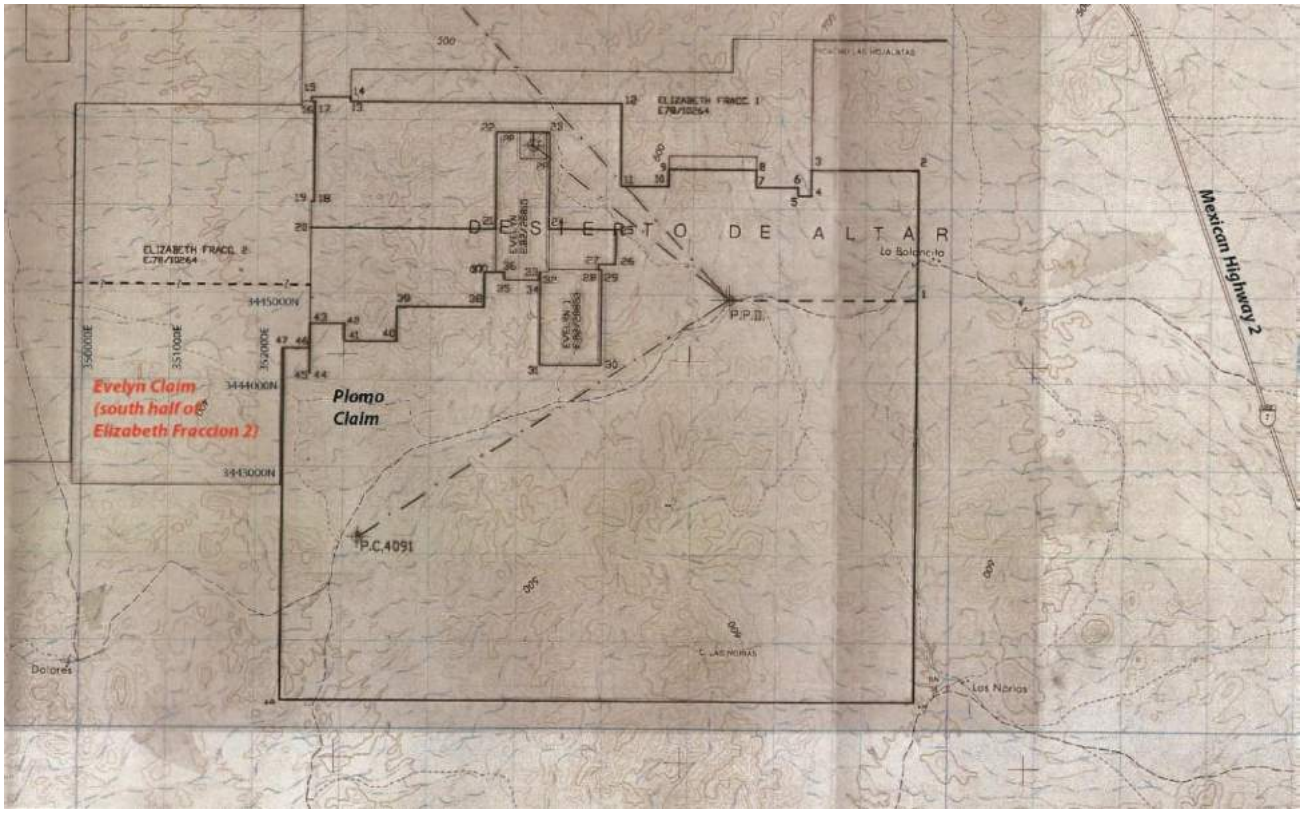

Figure 3. Original claim map showing location of Evelyn claim which constitutes the southern half of "Elizabeth Fraccion 2." Topographic base map is the 1:50,000 San Luisito quadrangle produced in datum of NAD 27, Zone 12.

The only topographic base map available to me was a newer version of the San Luisito quadrangle produced in ITRF92 datum (similar to WGS 84). Because Colibri Corporation recorded all of their data bases in NAD 27, Zone 12 datum, I overlaid a UTM grid in NAD 27 datum onto this map. The resulting base map (**Figure 4**) shows locations of all of my observation stations from the 2008 study. I took care to transfer the claim boundary (and its topographic reference points) directly from the original NAD 27 claim map. Also plotted on **Figure 4** are locations of the 74 rock-chip samples I collected during this study

The Evelyn property is accessed by a gravel road leading west from Mexican Highway 2. A locked gate at a Rancho La Bonancita, located at the east edge of the Plomo claim (**Figure 3**), provides some element of security. In 2008 permission to enter needed to be requested from ranch owner. The road goes through the south parts of the Plomo claim and crosses good outcrops of Jurassic rhyolite and andesite, with multiple occurrences of

mineralized quartz veins. The quality of outcrop diminishes as one approaches the southeast corner of the Evelyn claim (see frontispiece photograph).

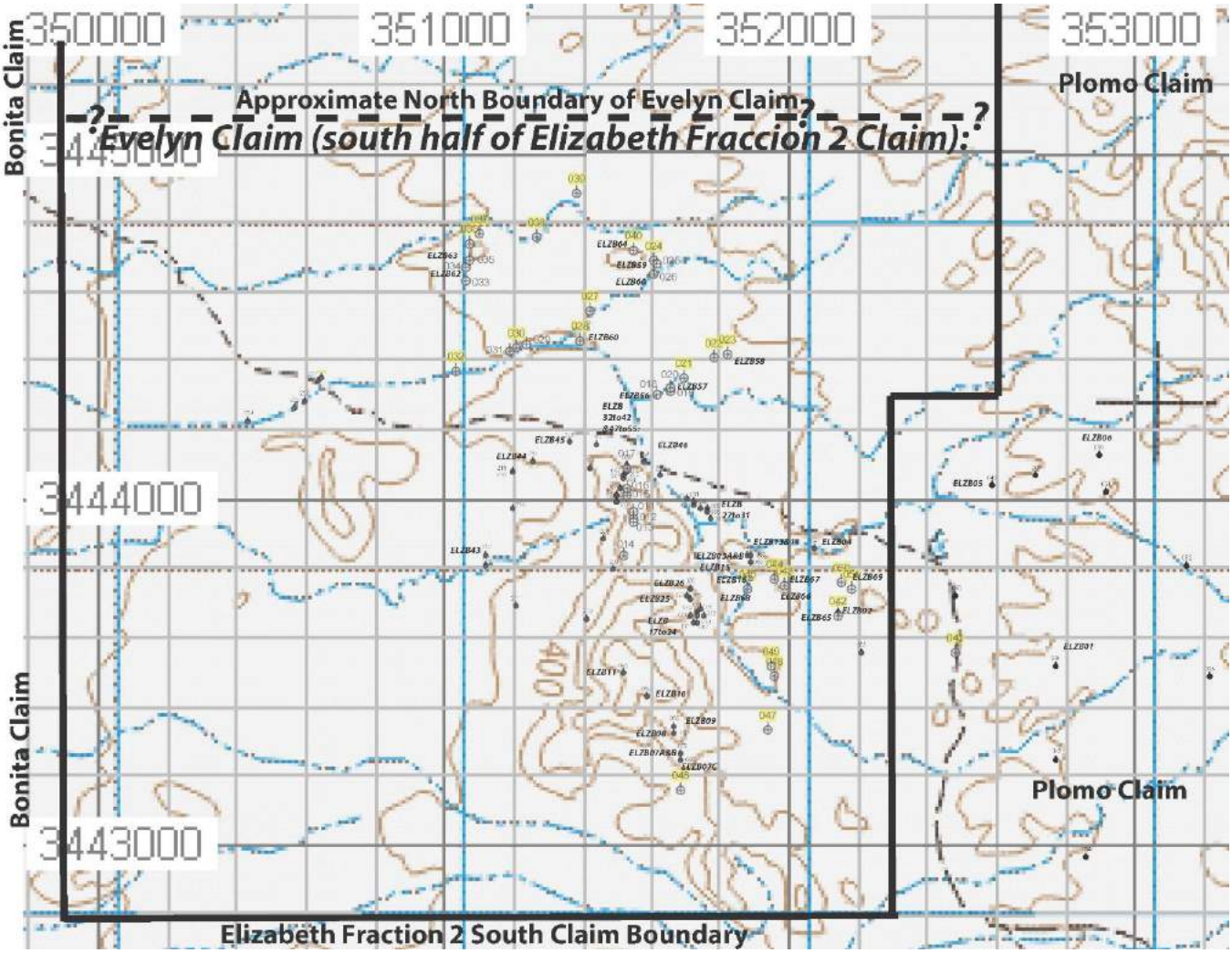

Figure 4. Topographic map of the Evelyn claim showing observation waypoints and locations of rock-chip samples described in this study. UTM coordinates in meters; datum = NAD27, Zone 12.

Results of Geologic Mapping and Rock Chip Sampling

General Geology of Evelyn Claim

Figure 5 is a geologic map derived from my observations made at the waypoint localities noted on **Figure 4**. Excellent outcrops exist throughout the prominent ridge in the southeast part of the property, and in a hill about 500 m to the northwest. Much of the low ground away from these topographic highs is covered by alluvial or colluvial soil, but significant areas of subcrop exist that warrant further investigation, especially near the gold-

in-soil anomalies that were identified in the 2012 geochemical survey. I also crossed several zones where quartz float is abundant in the soil. These may represent residual lag deposits weathered from underlying subcrop cut by quartz veins. Several of these quartz-rich areas have recently been the target of illicit placer mining operations. I crossed several areas where shallow trenches have been excavated for the purpose of placer mining. These are indicated as "Placer Workings" on **Figure 5**, but the boundaries are approximate.

The Evelyn property is underlain by rhyolitic, andesitic, and sandstone components of the Jurassic magmatic arc that are very common in north-central and northwestern Sonora. Some of these rocks are metamorphosed to low grade such that foliation is locally developed. In general, throughout the Sonora gold belt, rhyolites (and less common sandstones) tend to be better host rocks for mineralization due to their more brittle character and susceptibility to fracturing that promotes fluid flow and mineral deposition. The meta-andesites commonly contain chlorite that causes the rock to behave more ductile when sheared, inhibiting fluid flow. These "greenschists" sometimes act as flow barriers when juxtaposed with fractured rhyolite or sandstone. My investigation focused on areas affected by quartz veins and faults of likely Eocene age (Iriondo, personal communication, 2010; Izaguirre et al., 2016)) that are commonly mineralized with hematite.

Due to the focus on sampling mineralized rock, most contacts between the different Jurassic units are generalized. Individual rock units probably strike about N10-20E and dip 60 degrees SE, based on the orientation of a 1to 2m thick sandstone layer (map unit **Jss**) exposed in the southeastern ridge that separates lower greenschist grade meta-andesite (**Ja greenschist**) on the west from less metamorphosed andesite and andesite breccia (**Ja** and **Jabr**) on the east. The Jurassic rocks units are commonly overprinted by a weak metamorphic foliation that generally strikes northwest, with steep to moderate dips to the southwest or northeast. Almost all of the quartz veins that crosscut the Jurassic rocks returned assays well above the 5 ppb detection limit. This is a good general indication of the fertility of the Evelyn property.

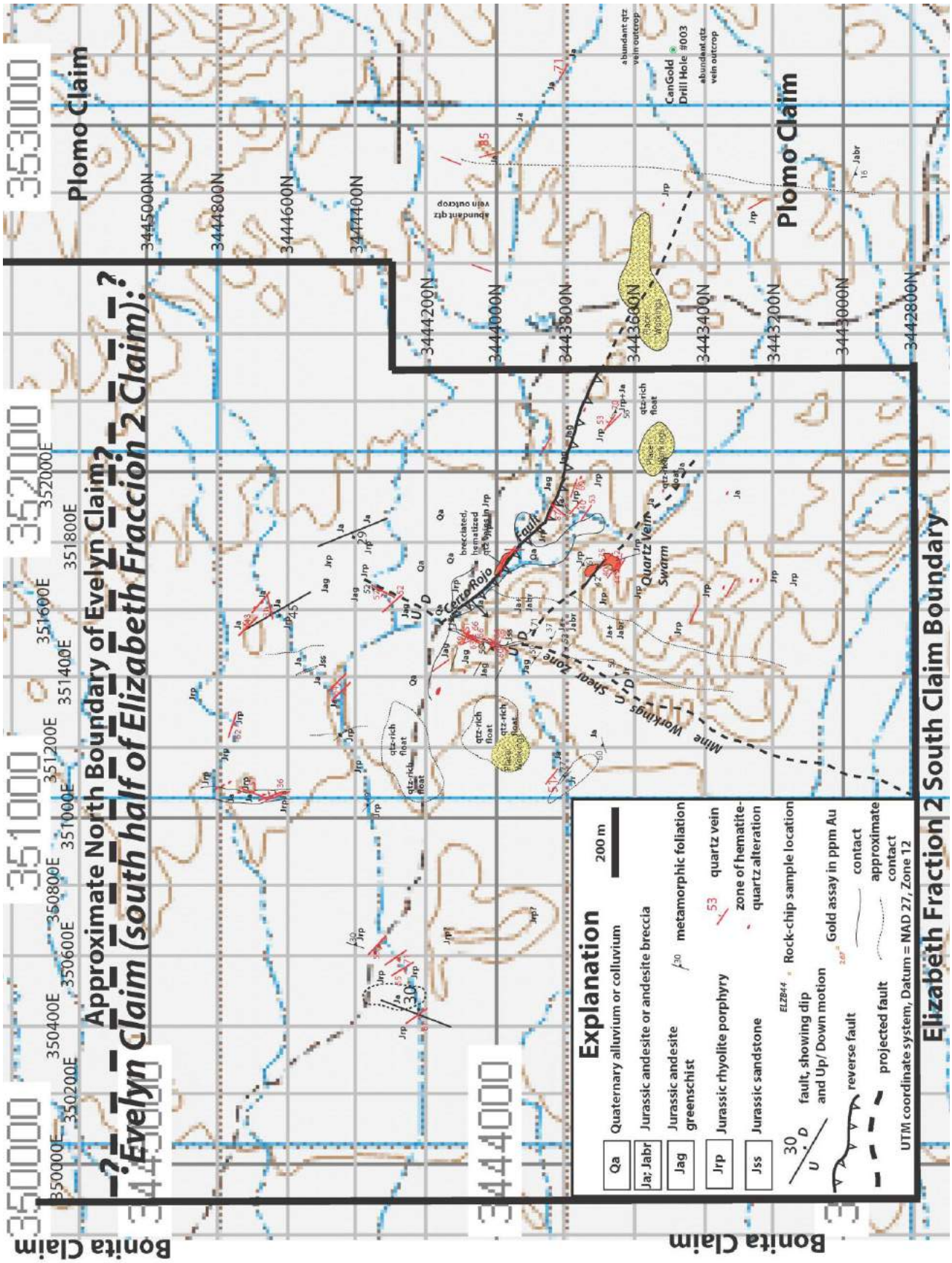

Figure 5. Geologic and structural map of Evelyn Property from 2008 observations

Mineralized Structures

I encountered multiple narrow zones where the Jurassic host rocks are mineralized with quartz and hematite. Most of these are associated with 1 cm to 70 cm wide quartz veins, whose strikes are indicated with red lines on **Figures 5 and 6**. Arrows show direction and angle of dip where observed. In general the quartz veins strike northeast or northwest. Many appear to be isolated occurrences, but three semi-continuous swarms of quartz veins coincide with the major structures described below.

Mine Workings Shear Zone

Several significant mine workings (>5 m deep) exploit a shear zone and associated quartz vein system that is well exposed for about 200 m along the north end of the southeastern ridge. This structure yielded the highest gold assays on the Evelyn Property—we collected nine chip samples that ran between 1.2 and 26 ppm Au. **Photo 1** shows a typical trench exposure located just north of the saddle where the last adit occurs.

The veins are localized within a 1 m-thick sheared sandstone unit that separates foliated greenschist-grade andesite on the west from lower grade andesite breccia and andesite on the east. As shown in **Figure 6**, the sandstone strikes N15-20E and dips about 60 degrees southeast. A primary set of quartz veins (6 cm to 70 cm wide) cuts the sandstone obliquely and forms a left-stepping system with average orientation N30E/50 SE). These veins are intermittently connected by a secondary northwest striking vein set, 1-6 cm wide. The sheared nature of the sandstone and en-echelon geometry of the main quartz veins suggest that mineralization was accompanied by an extensional component directed NW-SE. The primary vein set likely filled a dilational zone at oblique angles to the sandstone contacts that formed boundaries of the shear zone. I interpret this shear zone to be a southeast-dipping normal fault localized by the sandstone unit, with higher grade andesite in the footwall uplifted relative to lower grade andesite in the hanging wall (see **Figure 6**).

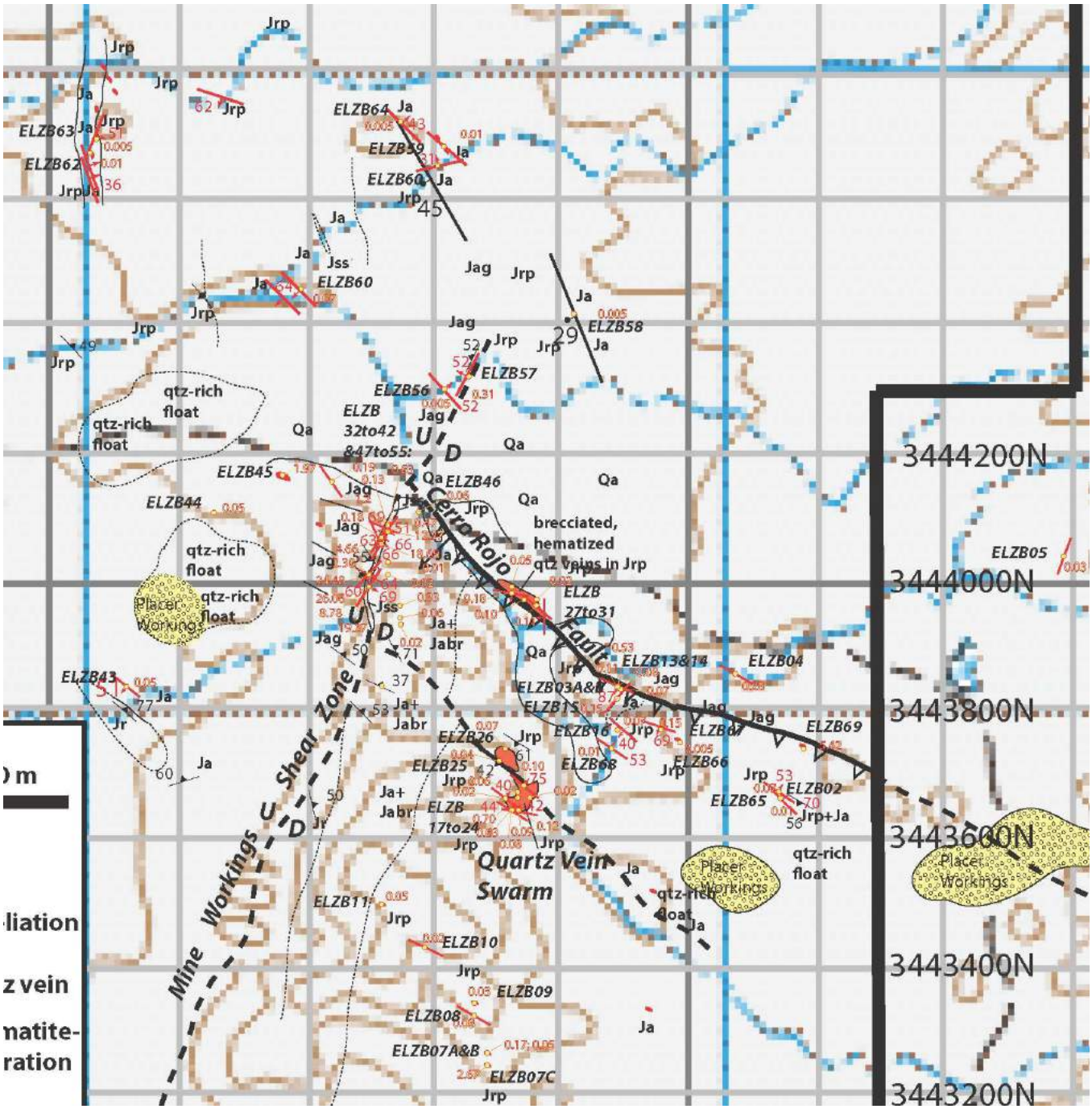

Figure 6. Enlarged version of geologic map showing rock-chip samples collected in the vicinity of three mineralized focus areas (Mine Workings Shear Zone, Cerro Rojo Fault, and Quartz Vein Swarm). Gold assays are indicated in ppm Au.

Some effort was expended trying to locate additional exposures of the Mine Workings Shear Zone along strike from the excavations. To the southwest, thin colluvium deposits along projection of this zone obscure the contact (**Photo 2**). To the northeast, several

quartz veins occur near a northeast-trending faulted contact between foliated green andesite and rhyolite porphyry. One sample returned 0.31 ppm Au. These observations suggest that the shear zone crosscuts and truncates the Cerro Rojo fault (described below).

Photo 1. View northeast of trench along Mine Workings Shear Zone at Waypoints 206-207. Rock-chip samples ELZB 40-42 collected here ran 26.1 ppm, 8.8 ppm, and 19.3 ppm Au, respectively.

Photo 2. View southwest from saddle along projection of Mine Workings Shear Zone that is covered by colluvium along the base of the ridge.

Cerro Rojo Fault

A mine working on a small isolated red hill east of the southeast ridge exploits another fault zone with quartz-hematite mineralization referred to hereafter as the "Cerro Rojo Fault." The main adit cuts westward across a steep fault (N60W/87SW) that juxtaposes brecciated rhyolite on the west with greenschist grade andesite on the east. Secondary limonite-mineralized shears within the rhyolite hanging wall dip 36 to 50 degrees SW, suggesting reverse motion on this fault. Quartz veins in the vicinity generally dip southwest.

100m to 200 m northwest of the mine working directly along strike of the main fault is a prominent outcrop exposing several quartz veins that are strongly hematized and locally

brecciated. **Photo 3** shows a representative exposure. The main quartz vein exposed at a prospect pit is 1.5 m wide and strikes N50W. This vein and two smaller veins (N78W/80SW and N45W/84SW) are oriented sub-parallel to the fault zone exposed at the mine.

Photo 3. View NW at brecciated quartz vein sampled along Cerro Rojo Fault at Waypoint 85 (ELZB 31)

Unfortunately, most rock chip samples collected from the Cerro Rojo fault returned marginal results. At the mine, a channel sample collected across 70 cm of rhyolite breccia within the main fault zone yielded 0.11 ppm Au. A composite sample taken from three limonite shears in the hanging wall rhyolite ran 0.07 ppm Au. A 3-4 cm quartz vein within the main fault zone yielded 0.53 ppm Au. We also collected 5 samples from the brecciated

vein system exposed northwest of the mine. These yielded assays between 0.02 and 0.18 ppm Au.

Quartz Vein Swarm

A prominent system of moderately northeast-dipping quartz veins outcrops in the lower east slope of the southeast ridge (**Photo 4**). The largest veins are about 30 cm thick, and appear to alternate with swarms of sub-parallel 1-3 cm thick quartz veinlets. Most of the veins and veinlets display a common orientation (N53-60W/40-47NE), and cut across southwest-dipping foliation in the host rhyolite. The vein system is broken into two parts by a fault (N52W/42 SW) that is locally marked by a resistant red breccia zone.

Photo 4. View northwest toward part of the Quartz Vein Swarm. Rock-chip sample ELZB 19, collected here at Waypoint 71, yielded 0.63 ppm Au.

Due to the relatively low dip of these veins and the promising character of hematite alteration we collected multiple samples in this area. Several of these were channels taken across thin vein networks with hematite-altered rhyolite host. Others were restricted to individual quartz veins or to breccia zones along the NW-striking fault. Eleven rock chip assays returned values between 0.02 and 0.70 ppm Au.

Rock Chip Samples

Table 1 summarizes the details of 74 rock-chip samples collected by me and Colibri field assistants Manuel Moreno, Juan Ayon Flores, Pedro Lopez, and David (??) during the course of this field study. Waypoint locations (in UTM coordinates, NAD27 Zone 12 datum) correspond to the observation stations shown on **Figure 4.** Locations of specific numbered samples (EZ-01through EZ-69) are also shown. *Note: My EZ sample prefix relates to that time period when the Evelyn Claim was still referred to as "Elizabeth."* The "Comments" column contains information from my field notes describing the type of rock sampled, alteration, structural context, and width of sample.

Each sample was assayed for the standard 30 elements, but only gold is reported here, given the focus of exploration on the Evelyn claim. Samples yielding Au values greater than 4 ppm Au from atomic absorption analysis were re-run with fire assay gravimetric methods to produce the more precise numbers that are plotted. **Figures 6 and 7** show the distribution of gold assays from individual rock chip samples with values plotted in ppm Au. These maps show the spatial relationship of the samples to structures described earlier. The reader may distinguish samples taken from individual quartz veins (or altered wall rock). For additional geologic context, one may also cross reference the sample numbers or assay values with my field notes included in **Table 1**.

Almost half (33 of 74) of the rock chip samples returned anomalous gold assays >0.10 ppm Au (highlighted in yellow on **Table 1**). Aside from that, probably the most significant result is the association of anomalous gold assays with northwest and northeast trending structures. Most of these samples were either quartz veins or altered, brecciated host rocks

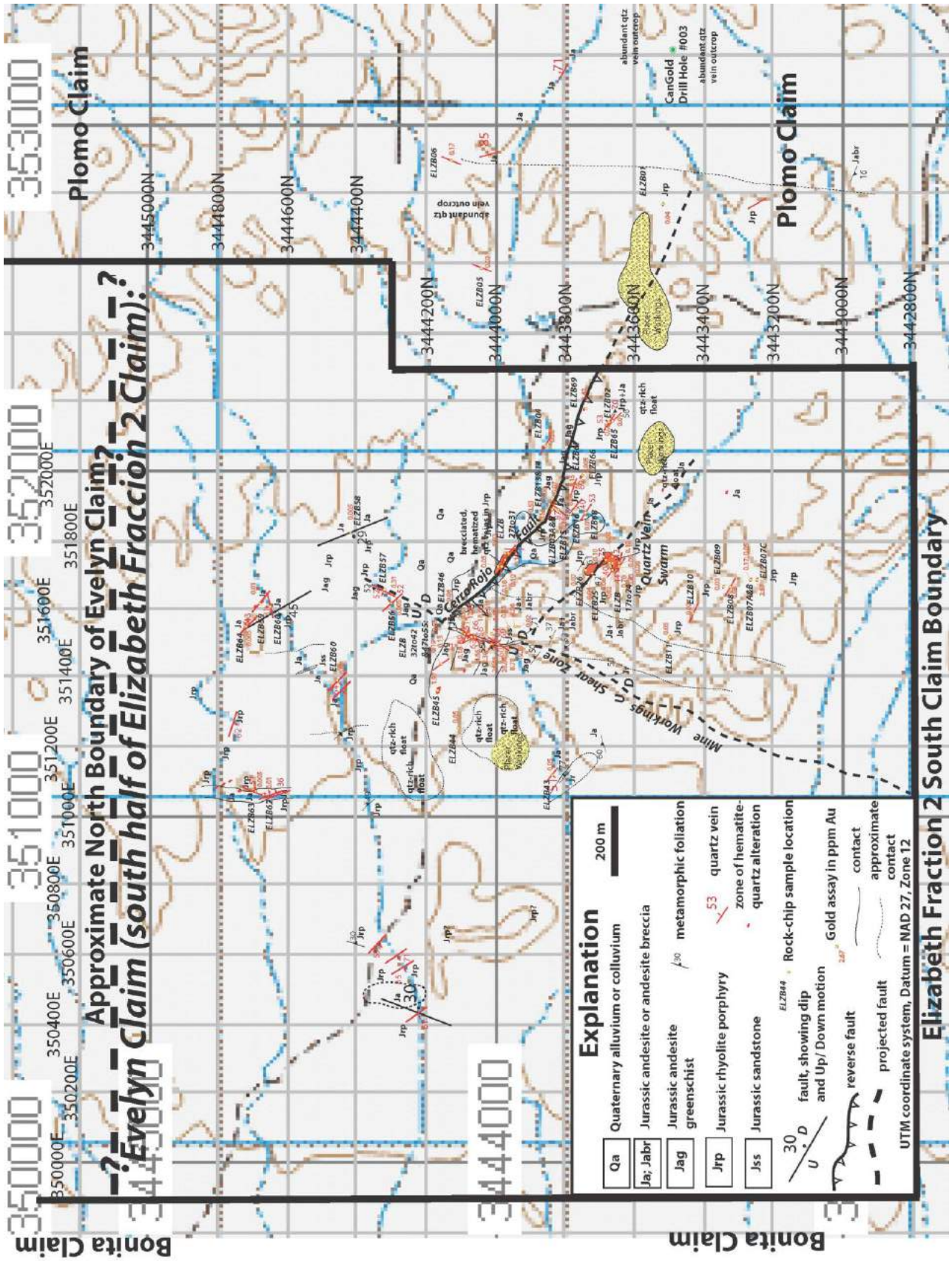

Figure 7. Assay results of rock-chip samples (in ppm Au) plotted on Geologic map of Figure 5.

of veins with visible hematite-silica mineralization. The best example of such a mineralized structure is the high grade vein system (Mine Workings Shear Zone) exposed at the north end of the southeast bedrock ridge (**Figure 6)**. This structure has good promise as a drill target, but its narrow width may be prohibitive (see **Recommendation 3** below). Most of the other anomalous samples were collected from much narrower structures. As discussed later, the challenge is to locate places in unmapped areas of Evelyn property where intersecting arrays of mineralized structures are dense enough to yield average grades exceeding 0.25 ppm Au (the cutoff grade at La Herradura mine).

Table 2 contains results of 30 rock chip samples collected by Manuel Moreno during summer 2012, in conjunction with the ongoing soil geochemistry survey. No information was provided about rock type, width of sample, or structural context. Most of these samples returned assays > 10 ppb Au). Samples EVE-13314 through EVE-13322, collected near the mine workings of the southeast ridge, yielded highly anomalous gold assays. These samples generally reproduce the results of my sampling, and included one analysis of 34.89 ppm Au.

Soil Geochemistry Survey

During summer of 2012, Colibri Corporation conducted a geochemical soil sampling endeavor to follow up on the positive results yielded by the rock chip assays. This survey covered most of the claim except for the bedrock ridge in the southeastern part of the claim where the Mine Workings Shear Zone is exposed. Results are shown in **Figure 8**, with gold-in-soil values contoured in **ppb gold**. This map reveals multiple areas with >100 ppb Au that occur in topographically low places not visited during my 2008 reconnaissance mapping. Anomalies indicated in the northeast, west central, and southeast parts of the Evelyn claim deserve future investigation to determine context relative to exposed bedrock or mineralized structures (see discussion associated with **Figure 9** and **Recommendations 1 and 2** below).

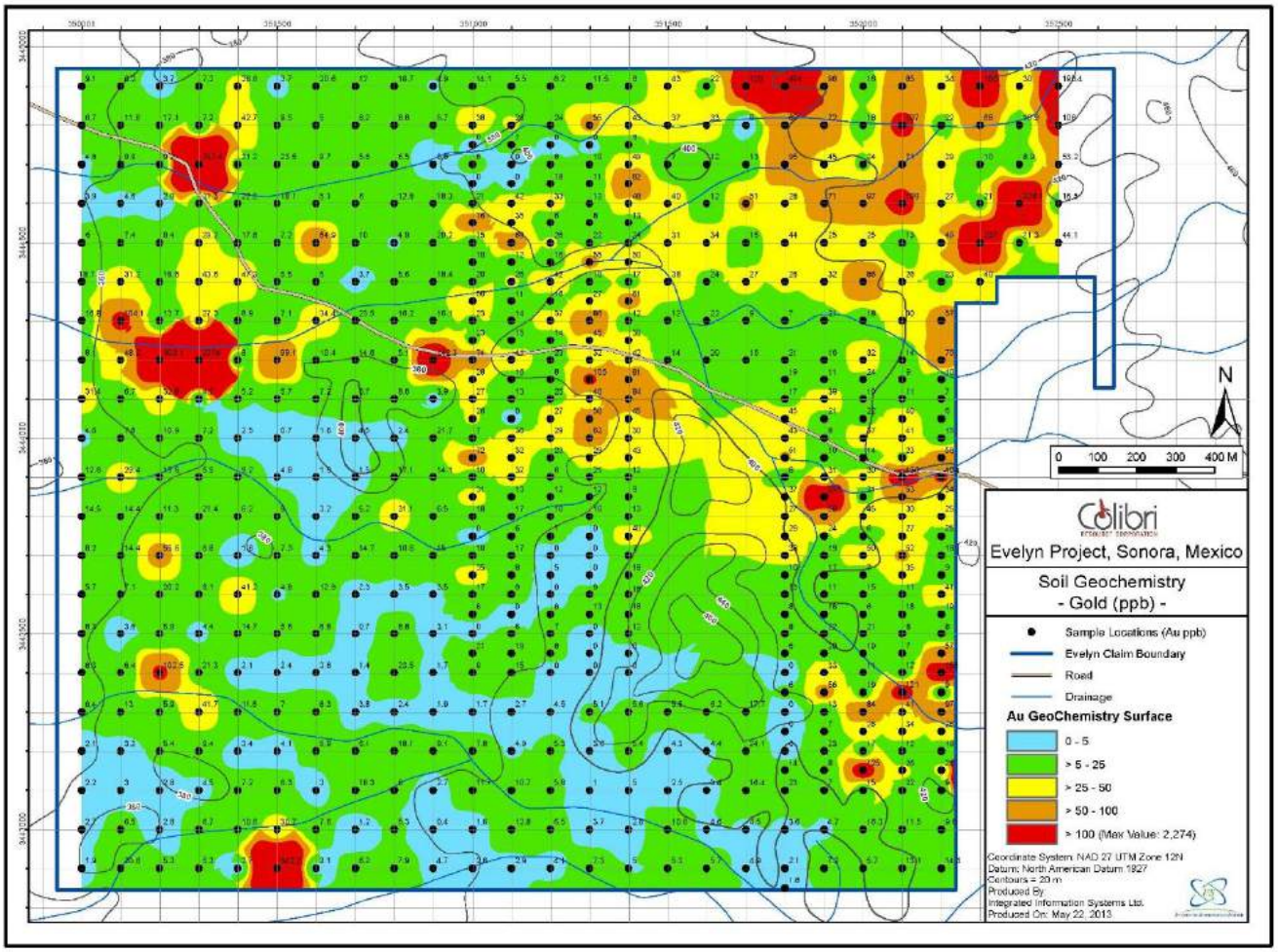

Figure 8. Results of 2012 soil geochemical survey. Gold-in-soil values are indicated in ppb Au. Sampling grid did not cover the bedrock ridge with the Mine Workings Shear Zone

Compilation of Mapping, Rock-Chip Assays, and Soil Geochemistry

Figure 9 is a composite view of my geologic-structural map, rock-chip gold assays, and contoured gold-in-soil values. As shown previously in **Figures 6, 7, and 8,** rock chip gold assays are indicated in **ppm Au**; values of gold-in-soil are indicated in **ppb Au.** Perhaps the most striking thing about this map is the tendency of the surface gold anomalies to follow northeast, northwest, or easterly trends. Depending on how the Mine Workings Shear Zone and Cerro Rojo Fault interact, it is possible that certain anomalies represent projections of these structures.

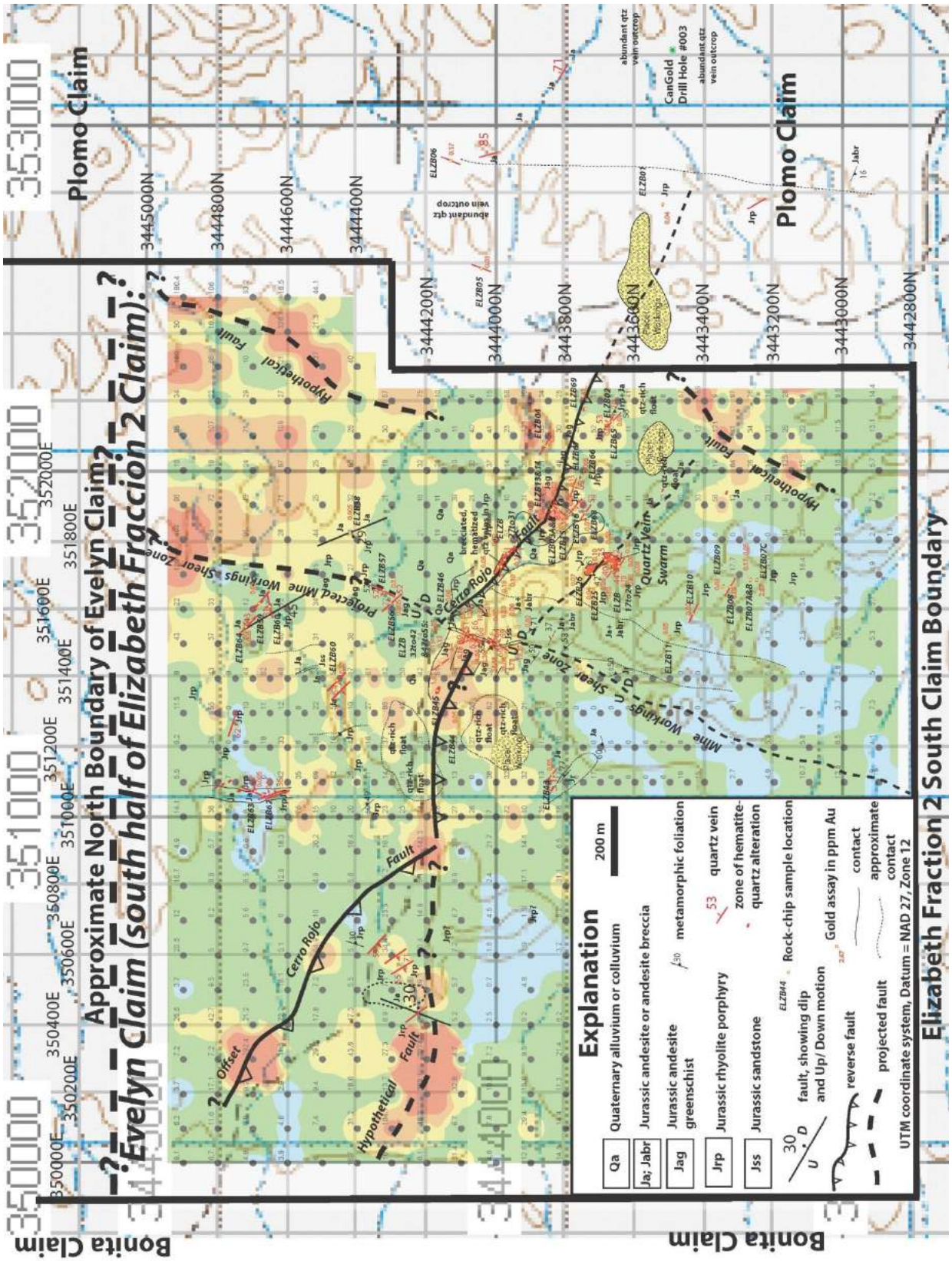

Figure 9. Composite map showing overlay of geology-structure, rock chip assays and soil geochemistry figures presented earlier. Also shown are hypothetical projections of known faults and other likely mineralized structures (see discussion in text).

I present one possible structural interpretation of this data set in **Figure 9**. The northeast-striking Mine Workings Shear Zone is interpreted as a normal fault (northwest side up) that offsets the northwest-trending Cerro Rojo Fault. In this perspective, the northeast projection of the Mine Workings shear zone intersects one set of gold-in-soil anomalies (404 ppb and 120 ppb Au) at the north edge of the property, while a buried, displaced Cerro Rojo reverse fault may coincide with a string of three soil anomalies (792 ppb, 65 ppb, and 142 ppb Au, respectively) that occur along a N45W line.

Left for speculation are two additional linear gold-in-soil anomalies in unmapped areas. At the northeast corner of the Evelyn property, four soil samples that returned 237 ppb, 326 ppb, 106 ppb, and 190 ppb Au occur on a N15-20E line very similar to the strike of the Mine Workings Shear Zone. Near the west central part of the property, a string of 5 soil anomalies, (including assay values of 2274 ppb and 303 ppb Au) follows an easterly trend. Also worth speculation is the fact that two main structures exploited by Noche Buena Mine follow similar easterly trends.

It is noteworthy that assay values greater than 0.25 ppm Au in rock or >100 ppb Au in soils are significant in the Sonora Gold Belt where cutoff ore grades are typically ~ 0.25-0.30ppm Au. Given the abundance of such values throughout the area of the Evelyn claim, I highly recommend additional follow-up work.

Summary and Recommendations

The Evelyn property has excellent potential for gold exploration for several reasons: **1)** Presence of anomalous gold (> 100 ppb Au) in multiple samples collected from NE and NW-trending structures associated with quartz veins and silica-hematite alteration; **2)** Favorable strategic location within the Sonora Gold Belt whose producing and depleted mines share similar host rock geology and mineralized structural trends; **3)** Coherence of structure and high-grade gold mineralization mapped at the surface along a significant NE-trending shear zone that is exploited by major artisanal mine workings; **4)** Numerous gold-in-soil anomalies between 100 and 2474 ppb Au (**Figure 8**) identified in areas of the

property that are still unmapped; and **5)** Overall fertility of the property demonstrated by the fact that of 67 of 74 rock-chip samples collected assayed ≥10 ppb gold (**Figures 6 and 7**).

The three mineralized structures described in this report are documented from well-exposed bedrock outcrops **(Figures 5 and 6)**. Although two of these structures returned relatively unimpressive gold assays, all should be viewed as representing the orientation and style of mineralization that underlies other parts of the property with subdued topography. The soil geochemistry survey yielded a two alignments of gold-in-soil anomalies that probably represent projections of the Mine Workings Shear Zone and the Cerro Rojo Fault **(Figure 9)**. In addition, the contoured results reveal several linear soil anomalies with even higher grade that may mark other mineralized structures that are not yet mapped. It is interesting that the unexplored soil anomalies yielded higher gold values than the soils close to mapped traces of the major structures.

The high-grade Mine Workings Shear Zone offers an obvious drill target with well-defined and consistent 3-dimensional structural orientation. However, given that the zone of mineralization currently defined at the surface may prove too narrow to make this structure economically viable, my first two recommendations center about testing the soil anomalies:

1. Investigate existing soil anomalies and quartz-float occurrences

The 2012 soil geochemistry survey offers an important guide for future field investigation. Each of the areas encompassing assay values >100ppb Au warrants detailed geologic mapping and rock-chip sampling. The northeast, northwest, and easterly trends suggested by contours near the gold-in soil anomalies imply a connection to mineralized structures (see also **Figure 9** discussion and **Recommendation 2** below). Likewise, the areas of soil covered by abundant subangular pebbles and cobbles of quartz float likely represent places where vein quartz has weathered out of underlying subcrop. Several of these places have been exploited by clandestine placer operations. Given that vein quartz is

commonly associated with mineralized zones in bedrock, these areas beg for further attention.

2. Map the small arroyos to target potential areas of intersecting mineralized structures

In general, it is well-known in the Sonora gold belt that intersecting structures provide optimal conduits for gold-bearing fluids and mineralization, with gold precipitated at irregularities such as dilational zones or step-overs of fault systems. Given the strategic location of the Evelyn project within a broad region where such gold-bearing structures are documented (Iriondo, 2001; Iriondo, personal communication, 2010), it is worth conducting a **detailed structural study**, focusing first on the soil anomalies discussed in **Recommendation 1** above, and moving on to any nearby arroyos that provide 3-dimensional exposures of fault, fracture, or vein systems.

Mapping of the many small arroyos will likely reveal decent bedrock exposures beneath colluvial or alluvial soil cover in these areas. A discerning eye should be able to distinguish minor quartz veins and mineralized faults or fracture zones at a small scale—each such feature should be measured, sampled, and categorized. At a larger scale these structural orientations may collectively reveal map patterns that relate to the alignment of bulls-eyes on the gold-in-soils contour map (**Figures 8 and 9**). Any observations on strike/dip of quartz veins or faults will be key to the analysis. Likewise, structural measurements of fault-surface striations will provide important information about direction(s) of fault displacement. The northeast corner and west-central part of the Evelyn property may prove especially fruitful given the irregular topography and existence of multiple soil anomalies in this area.

An important motivation for a detailed structural mapping study is the fact that the nearby La Herradura and Noche Buena gold mines are centered about topographically recessed, soil covered areas (similar to the ground surrounding the topographic highs in the Evelyn claim). Discovery of these ore bodies was facilitated by projection of mineralized structures that were exposed on the peripheries, but not apparent in the target zones until revealed by drilling and focused surface exploration. It is interesting that the dominant

mineralized structures at Noche Buena as described in the 2006 403-1 report have easterly strikes. Also, the Colibri-Pataya property (**Figures 1 and 2**) has a well-documented network of intersecting gold-bearing structures that trend east, northwest, and northeast.

3. Consider drilling the Mine Workings Shear Zone

The high grade vein system exposed by old mine workings in the southeastern ridge presents an obvious drill target that is attractive for a number of reasons. Rock chip assays collected from this structure yielded the highest gold assays recovered on the Evelyn Property. Orientations of the veins and host sandstone unit are very consistent, providing straightforward down-dip projections for a drill program. A couple of simple cross sections, field checked for feasible drill pad location, should facilitate definition of likely drill intercepts. The scale of the existing excavations suggests that significant gold has been recovered. The down side is the relatively narrow width of this shear zone along its 200 m exposed strike length; typically the hematite-silica mineralized rock encompassing the vein network measures only 2-3 meters true structural thickness. The key question is whether this mineralized zone pinches out or broadens with depth. That question can only be answered with a relatively expensive drill program.

4. Confirm details of northern and eastern boundaries of the claim

In comparing my study area with that covered by the 2012 soil grid, there was some uncertainty about the precise locations of the northern and eastern boundaries of the Evelyn claim. Because some of the gold-in-soil anomalies appear to project north and east into areas I thought were included in the Evelyn claim, it is important to determine exactly where boundaries with the adjacent Plomo and Elizabeth claims occur. Likewise it might be worth pursuing the status of these adjacent claims as some of the mineralized structures in Evelyn appear to project into these areas. The follow-up studies described in **Recommendations 1 and 2** above should shed some light on whether this is worthwhile.

5. Obtain details of previous work on the adjacent Plomo claim

In my research I encountered a press release describing a drill program conducted on the Plomo claim by CanGold in 2008 (**Appendix A**). This release includes results from Drill Hole SP08-003, which I believe was encountered close to the east edge of the Evelyn claim during my 2008 field work (see location of Hole 003 on Figure 4). CanGold reported the following: ***"SP08-003 was more intensely fractured and altered and intersected 11.65 metres grading 0.66g/t gold starting at 18.3 metres, including 2.28g/t over 2.0 metres."***

A 2012 report of field mapping by CanGold contains verbal descriptions of the geology and structure of multiple mineralized zones on the Plomo claim (**Appendix B**). Reference is made to a geologic map on the company web site. Unfortunately, I was not able to access that because CanGold and the Plomo property were acquired by Great Panther Silver, Ltd in 2015.

Given the similarities in geology and structure between Plomo and Evelyn properties, it is worth digging deeper to seek / acquire more detailed reports. Also, determining the status of the Plomo property and current exploration there would be useful.