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Lithologic, Structural and Alteration Characteristics of Gold Mineralized Zones:

The Mirado Occurrence, Northeastern Ontario.

Report Commissioned by

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Introduction and Terms of Reference

The following document provides a lithological and structural framework for gold mineralization at the Mirado Occurrence, northeastern Ontario. The report has been prepared at the request of Bill Yeomans and Kevin Piepgrass of Orefinders Resources. Technical observations compiled in this report are based on:

- Construction of rapid stratigraphic, alteration and structural borehole logs collected from observations on 6,144.8 m of NQ core from 20 boreholes. All geological observations were compiled by on-site core reviews conducted between March 7 - 16, 2014.

The report will deliver:

- A lithologic interpretation and legend which permits relatively easy unit correlations.
- Four interpretive 1:1000 scale cross-sections constructed through the principle mineralized zones at Mirado. The sections demonstrate the effectiveness of lithologic correlations.
- Relevant geological notes are provided for each cross-section.
- The regional scale structural and stratigraphic style is documented.

All observations relevant to the construction of the geological logs and cross-sections are based on macroscale characteristics of the drill core. Whole rock geochemical data, petrographic data or petrophysical characteristics of the rock have not been used in the construction of these drill logs. Where possible, pre-2013 diamond drillholes have been reviewed, on paper, and used to better constrain the morphology of rock and mineralized zones outside of the sphere of influence of the 2013 Orefinders boreholes, many of which were stratigraphyically and structurally logged.

On the geological sections any drillhole higher than MD 13 – 30 was not, at the time of writing, entered into a Gemcom data base available on site. For these drillholes, the drillhole traces have been hand-plotted and an average dip, calculated from all down hole survey points relevant to that drillhole, are used in the constructing the downhole trace.

Based on the interpretations and results of drill core macroscale analysis, the report provides recommendations relevant to:

- Most likely lithologic and structural controls on the development of mineralized zones.
- The number and type, or relative age relationships, between mineralized zones.
- The style and form of mineralized zones and characteristics of rock alteration patterns of those mineralized zones.
- The possible relationships between geophysical data, magnetic and IP data, with respect to geological and structural interpretations.
- Recommendations and potential best practices exploration strategies are forwarded for subsequent exploration of the Mirado occurrence.

Style and Form of Mineralized Zones:

Within the Mirado rock environment three distinct mineralized zones or styles of mineralization are identified:

1. *Gold – Zinc or Base and Precious Metal Stratigraphically Controlled "Vein" Systems.*

The historic "A and B" zones at Mirado, which were the pre – 1945 development targets of workings collared from the Yama shaft are very likely gold enriched, stratigraphically controlled volcanic hosted semi-massive sulphides. In this rock environment, narrow cm scale bands of pyrite, low iron sphalerite (honey sphalerite) and gold are consistently documented within fine grained felsic ash and crystal tuffs. The mineralized zone is commonly forming in the stratigraphic (?) footwall to cherty tuff horizons. Although these zones are narrow, 2 to 5 m's in width, they exhibit significant lateral and vertical continuity having been consistently developed nearly 300 m's vertically below surface and with a known strike length exceeding 400 m's. These mineralized zones are associated with quartz-sericite-pyrite rock alteration.

2. *Discordant Gold Rich Extensional Vein Arrays.*

Much of the historic and current resource at Mirado is contained within discordant auriferous vein systems. The following points are critical in the interpretation of discordant extensional vein systems:

a. In the vicinity of the South Zone mineralization, stratigraphy has a very shallow north dip.
b. The orientation of mineralized zones in the South Zone is strongly discordant to the flat dip of the stratigraphic section.
c. In the area of highest gold grades, the contact of the shallow dipping Mirado felsic section takes an un-expected and sudden displacement down to the west.
d. In the general area of this displacement, an un-expectedly high number of sub-vertical trending dykes or dyke swarms are identified.
e. Gold grades are enhanced near the upper contact of flat lying felsic flow or cherty tuffaceous horizons and decreases distally from both the hanging in and footwall contact of the felsic sections.
f. Not only is the dip direction of strongest mineralized zones highly discordant to bedding, so is the overall strike direction of the strongest mineralized zones. Historic data would suggest that the strike of the highest grade mineralized zones will be to the north-north west in contrast to the much more approximately east-west strike of stratigraphy.
g. Strongly gold mineralized vein systems cut, earlier high sulphide, bedding conformable veins and vein lets.
h. Strongly gold mineralized gold veins are always associated with dark green black hydrothermal chlorite and secondary quartz. This alteration assemblage is in marked

contrast to the sericite-pyrite-quartz alteration zones associated with semi-conformable mineralized zones.

i. The bulk of the data suggest that the south zone mineralization is formed from the intersection of an early west side down extension fault with competent rock units, cherty tuffs and felsic flows near the top of the Mirado felsic sequence. Gold mineralized zones are likely forming in numerous extensional dilatent sites within the competent rock units at the top of the felsic sequence.

3. *Planar High Strain Zones*

Throughout the drill core, planar high strain zones which host both shear and extensional vein arrays are sometimes noted. Most of these planar high strain zones are relatively weak, have narrow deformation envelopes and are flanked only by modest extensional vein arrays. Of the three styles of mineralization, auriferouis planar high strain zones, are likely the lowest ranked resident site for gold mineralization in the Mirado rock environment.

Generalized Structural Style:

Several significant structural elements are documented in the four interpretive cross sections which are attached to this report including:

1. Across much of the south-western half of the rock mass depicted in these cross sections, felsic stratigraphy exhibits very shallow to neutral dips. Some arguments might be made that one of the principle stratigraphic markers on these sections, cream-white fine grained felsic rocks, are felsic sills not flows. However, the bulk of the stratigraphic data strongly suggests that these rocks are felsic flows, and the very shallow to neutral dips of the southwestern stratigraphic section are "real". Stratigraphic dips in the area of the historic South Mineralized Zone will be relatively flat.
2. The very flat dips of the southwestern stratigraphic sections are not maintained in in the northeastern portion of the study area, including t mineralized zones "A" and "B" near the Yama shaft. In this portion of the Mirado claims, rocks have subvertical to steep northeast dips.
3. Discordant dip orientations between the shallow dipping southwest block and the steep to sub-vertical dipping northeast block may be reconciled by:
    a. Deforming the overall rock mass into a broad scale chevron style synform. In this interpretation the southwestern block forms the shallow dipping southeast limb of the synform and the northeast block forms the steeply dipping limb.
    b. Detach the southwest block from the northeast block through the action of a south verging thrust fault. This fault may be partially plugged by quartz

diorite intrusions. The potential trace of this south verging thrust is best identified at approximately the 95 m mark in DDH MD 13 – 25.

4. Combine both structural elements. Most of the data illustrated on these sections might suggest that the north limb of the broader scale syncline has been imbricated and slightly dislocated and stacked on-top of the flat lying southwestern limb across the trace of a southwest verging thrust fault. This fault will have an average dip of approximately 60 degrees (north) and an average strike of 110 to 120 degrees.
5. West side down extension faults displace the marker horizons on the southwestern block and are associated with the development of strongly discordant, sub-vertically orientated, mineralized extensional vein systems. These extension faults are likely closely spatially related to the development on gold rich extensional vein arrays which post-date the development of early synform-antiform couples and southwest verging thrust faults.
6. Limited evidence might suggest that the historical “A” and “B” zones, near the Yama shaft are structural repetitions and are repeated across the axial surface of a northwest striking tight antiform. The structure is likely plunging to the west and the two limbs will flare and separate when traversed in an eastern direction.

Generalized Lithologic Style:

The Mirado rocks may be interpreted as a distinctly bimodal rock mass containing both significant volumes of felsic flows and pyroclastics as well as significant volumes of mafic to intermediate fragmental rocks. Although the top of the felsic section is occasionally defined by the development of thin cherty tuffaceous horizons, large scale sedimentologic breaks, defined by the development of thick clastic accumulations, are not developed. A longer break in volcanism is often considered important to the development permissive massive sulphide depositional environments.

Ultramafic rocks are not identified in the 20 boreholes, and 6100 m of core reviewed in this study. Although some drill logs suggest the presence of ultramafic breccias, the sporadic green mica clots associated with these intervals may equally be either barium or vanadium bearing green micas as opposed to chrome micas. The magnetic susceptibilities, complete absent of talc sericite or brucite, and the absence of residual or remnant pyroxenes argues strongly against interpreting the rock protolith as an ultramafic.

Generalized Patterns of Rock Alteration.

Two forms of rock alteration have been documented in the boreholes examined in the Mirado claim area including:

1. Early quartz-sericite-pyrite alteration forms associated with semi-conformable gold and base metal mineralized zones, e.g. the “A” and “B” mineralized zones. These zones may have both a sphalerite and chalcopyrite association. In these alteration type sericite significantly exceeds chlorite.

2. Late quartz-chlorite-chalcopyrite extensional veinlets. These strongly auriferous veins are invariably associated with the formation of dark green black hydrothermal chlorite, quartz and base metal (copper) and gold assemblages. In this alteration type, chlorite exceeds sericite.

Macroscale data suggests that all early rock alteration assemblages have been overprinted by metamorphic processes. The likely presence of actinolite-chlorite-epidote-calcite and absence of metamorphic biotite suggests that these rocks have experienced middle greenschist metamorphic conditions. The transition to upper greenschist metamorphic fields defined in part in mafic rocks by “biotite in – chlorite out” is never reached.

Neither alteration form is compatible with interpretations which would suggest that gold mineralization at Mirado is related to an intrusive system. Potassic alteration assemblages appear to be absent from the Mirado rocks. When intrusive rocks are cored, they never contain the kinds of sulphide or silicate alteration assemblages associated with intrusive related systems. Typically these rocks appear as much more passive or simply rheological related hosts to mineralized zones or as intrusive bodies tracking zones of crustal weakness.

Geophysical Signatures of Rock and Mineralized Zones

The data derived from the four cross sections and the 20 stratigraphic logs suggests:

1. Most of these rocks have extremely low magnetic susceptibilities, typically less than 0.5 (x 10^{-3}) S.I. units. To place this in perspective, most basaltic rocks will have susceptibilities in the range 2 – 5 SI units and with ultramafic rocks have susceptibilities commonly exceeding several hundreds of SI units.
2. Most of these rocks have relatively low sulphide contents, generally less than 0.5%. Of these units, the top of fine grained felsic flows typically have the highest net sulphide contents, 2.0 – 2.5%. Any geophysical target looking at these rocks will likely have relatively modest, < 15 msec, chargeability’s.
3. The rapid change in orientation of the sub-surface rock mass may pose challenges to the development of 3D IP models. At least half of the area reviewed in this study will have very flat lying dips with the remainder having sub-vertical dips.
4. Fine grained clastic sediments are poorly represented on these cross sections. Linear, lithologically controlled conductors are likely to be weakly developed in this area.
5. Extension faults are often plugged by fined grained syenomonzonite dykes. Swarms of these dykes may define the locus of potentially auriferous extensional zones. All syenomonzonite dykes have significantly higher susceptibilities than the enclosing stratigraphy and could be defined by detailed ground magnetic surveys.
6. The South Mineralized Zone will be very unlikely to have a significant geophysical signature. The small extensional veins within this rock mass are unlikely to have

sufficient volume to alter either the resistivity or chargeability of the rock mass. If these extensional zones are plugged or tracked by slightly more magnetic dyke rocks than these subtle dilatant zones may be tracked by poorly defined magnetic highs.

7. The North Zone mineralization is likely to be associated with steeply dipping, but generally quite narrow, sulphidic felsic tuffs and cherty tuffs. Detailed ground IP surveys may be able to track the position of these zones which should appear as narrow and highly linear chargeability highs.

Geological Cross-sectional Notes:

Mirado Section 440 N:

This cross section is the most westerly section compiled within the Mirado project area. Much of the sectional plane will lie external to the recently developed (2013) pit outline. The lithological relationships on this section are defined principally by rock units cored in DDH's 13 – 24 and 13 – 27 and by historical drillhole 1050 – 10. The data within these boreholes suggests:

1. DDH 13 – 24 cores the upper contact of the permissive felsic flow unit which commonly hosts mineralization within the Mirado south zone but in this borehole it is not significantly mineralized. The same contact is cored by DDH 1050 – 10 and it is also non-mineralized. This would suggest that the strike orientation of the South Zone mineralization is not orientated parallel to stratigraphy and that some element in addition to simple felsic flow lithological contacts is required to generate South Zone style mineralization.
2. The felsic package cored in DDH 13 – 24 is relatively thick, with a true thickness exceeding 100m, and a similar felsic package is not identified in DDH 13 – 27. The relatively low density of the pierce points on this section suggests, but cannot conclusively demonstrate, a change in dip orientation or a discontinuity between the north and south blocks.
3. The felsic section cored deep in DDH 13 – 27 is likely the on-strike equivalent of the historic "A Zone" . In this borehole, significantly elevated gold mineralization is occurring in the proximal (within 12 – 30 m) structural footwall to the thin cherty tuffaceous horizon. Strongest mineralization (397.7 m) is formed at or near the contact between a massive felsic flow sequence and a narrow intermediate fragmental interbed. Mineralization is associated with sheeted, cm scale, pyrite, chalcopyrite, plus or minus sphalerite veins and disseminations. The lower felsic flow sequence does contain coarse clots and aggregates of green mica, either barium, vanadium or chrome bearing. The presence of a planar thin bedded cherty tuff and felsic ash tuff horizon, proximal to mineralized zones may suggest an early or primary stratigraphic control to the development of these mineralized zones.

Mirado Section 280 N:

This section is located along the western margin of the proposed (2013) Mirado conceptual pit. The geological contacts on this section are well constrained by the contact relationships developed on boreholes 1050 – 07, 1050 – 03, 13 – 23, 13 – 08 and 13 – 31. The following stratigraphic and structural relationships are notable:

1. Felsic rocks forming on the southern half of the cross section have very flat dips. The presence of multiple pierce points on two sectional planes eliminates any possibility that the flat apparent dip of the felsic section is simply a function drilling parallel to the unit strike. Strike parallel apparent dips are always shallow.
2. The large volume of felsic material, including both flows and tuffaceous rocks, cored in the south block cannot be replicated by the much more modest volume of tuffaceous felsic volcanic rock cored in the north block.
3. Weak and irregular gold mineralized zones are sometimes developed within a few m's to 10's of m of the main felsic volcanic contact on the southern block.
4. The contact relationships, particularly the rapid onset of tuffaceous felsic volcanic rocks in boreholes 13 – 08 and 13 – 31, will generate a panel of rock with steep northeast to subvertical dips. This rapid change in orientation can be achieved by stacking the north block over the south block across a southwest verging structural zone, likely a reverse fault. Within the south block, rapid changes in dip orientation also suggest that the long flat limb of the felsic section in the south block is rapidly rotated into nearly chevron style synform-antiform couples.
5. In both DDH 13 – 31 and 13 – 08 strongest gold mineralized zones have a close spatial relationship to the onset of felsic volcanic tuffaceous rocks with intermediate fragmentals. This contact relationship is very similar to that identified on the section 400 N through DDH 13 – 27. These drillholes have likely cored the on strike continuation of the historic Mirado "A" Zone. Continuity of gold mineralization, at or near a common stratigraphic break cored in DDH's 13 – 31 and 13 – 08 again suggest a primary stratigraphic control on the development of gold mineralized zones within the north block.

Mirado Section 200 West

Data relevant to this cross-section has been compiled predominantly from boreholes 85 – 54, 13 – 15, 13 – 16, 13 – 40, 1050 – 01, 13 – 25, 13 – 09 and 13 – 36. The contact relationships developed on this cross-section are quite well constrained by these boreholes. Relevant geological observations include:

1. Felsic volcanic flows within the south block have the characteristic shallow to neutral dip which has been well documented on the two more westerly cross sections. Of some

significance is the very planar, continuous, contact relationships noted over much of the felsic section.

2. On this section, gold mineralization has only a weak spatial relationship to the upper contact of the massive felsic flow sequence.
3. Within the south block, the rock mass which forms the immediate hangingwall contact to the main felsic flow horizon differs relative to the intermediate fragmental and finer grained tuffaceous rocks documented in the two more westerly cross sections. On this section, the immediate hangingwall to the felsic flow sequence is now a fine grained mottled cream-green rock unit which commonly develops coarse to medium grained amygdaloidal textures formed by the nucleation of epidote-chlorite-calcite aggregates after primary mafic mineral phases. This rock mass is very uniform over significant thicknesses with an estimated true width in the 50 to 100 m range. The unit always contains well defined euhedral free quartz grains which are often slightly coarser than the free quartz which is identified within the underlying felsic flows. This unit is commonly in contact with the underlying homogenous felsic flows across narrow, a few m wide zone, of either well defined extrusive or intrusive flow laminations. The rock mass could be interpreted alternatively as either a massive non-stratified quartz crystal tuff or alternatively as a discordant early sub-volcanic intrusion or crypto-dome. The strongly discordant contact relationships between the cross-sections suggests that the latter alternative is most likely.
4. Contact relationships on the north block are exceptionally well constrained by the position of a series of tuffaceous felsic volcanic markers and by narrow felsic volcaniclastic interbeds. Unlike the south block, rocks in the north block have sub-vertical dip orientations. As in DDH 13 – 27, narrow cherty tuffaceous horizons are cored in DDH's 1050 – 43 and 13 – 09. Strongest gold grade widths relationships in DDH 13 – 09 are associated with the contact position of the cherty tuffaceous marker found at the top of the felsic section and slighter deeper within the felsic section cored in the same borehole. This stratigraphic position is identical to that identified boreholes covering a minimum of 300 m's of strike length to the west. The onset of the cherty tuffaceous horizon in DDH 1050 – 43 also coincides with significantly elevated gold values, 3.3 g/t Au over 0.8 m. This zone is enveloped in a broader, lower grade Au halo.
5. The weak rotation of the felsic section cored in the upper portions of DDH 13 – 09 to from sub-vertical positions to steep northeast dips might suggest that the felsic stratigraphy which forms the historic "A" and "B" mineralized zones has been structurally repeated, potentially across the axis of an upright tight antiform.

Section 360 West

This cross section has been cut through the core of the South Mirado mineralized zone. Structural and stratigraphic interpretations in this drillhole are based largely on the contact relationships noted in DDH's 86 – 52, 86 – 48, 1050 – 26, 13 – 13, 1050 – 31, 1050 – 44, 85 – 04, 13 – 19, 13 – 35, 13 – 35, 1050 – 06 and 13 – 22. Of all the cross-sections compiled, this cross section contains the strongest spatial relationships between discordant structural surfaces, primary lithologic contacts and gold mineralized zones. These data suggest:

1. The flat lying felsic flow sequence which has been tracked in all of the sections to date demonstrates a well defined offset in the area of the higher grade mineralized zones. The offset in the felsic section of approximately 40 m's west side down appears to occur across several sub-vertical extension faults. These faults may be plugged by a series of syenomonzonite and mafic dykes.
2. Highest grade mineralized zones are best developed proximal to the competent upper contact of the massive felsic flow series but clearly penetrates several 10's of m's to a few hundred m's into rocks which are forming the stratigraphic footwall and hangingwall to the upper felsic flow contact.
3. Distal to this structural perturbation, the "normal" flat lying felsic flow contact is not associated with enhanced gold mineralized zones.
4. Rocks which from the south block appear to maintain very shallow dip orientations, typically less than 15 degrees to the north over long down dip distances, exceeding 600 m. This pattern suggests that the rotation of the north block dips to steep northeast dipping, or to subvertical positions, occurs farther north than was previously documented on the preceding sections.
5. The well defined detachment fault documented on the preceding sections is not as definitive on this section. One of the interpretative challenges on this section is the use of data obtained from DDH 1050 – 06. Rocks in this borehole have only very limited descriptions in the primary drill logs. The felsic rocks in this borehole may or may not be direct correlates of the felsic rocks within the south block. If the correlation is correct, than the rotation of the north block beds occurs across the hinge line of a regional synform. It is quite permissive that a combination of both incipient southwest verging thrusts and southwest verging synform antiform couples are responsible for the rapid changes in dip orientation between the north and south blocks.
6. The felsic tuffs cored in DDH 13 – 22, between 160 and 180 m are associated with a strong increase in early foliation parallel pyritic microveinlets along with significantly elevated matrix sericite. This interval also corresponds to elevated low grade gold mineralized envelops. The zone may be the on-strike equivalent to the mineralized "A" zone.

Recommendations for Further Exploration and Exploration Strategies:

The Mirado project area contains two radically different target types and styles of mineralization.

South Zone Targets.

South Zone target types are most likely controlled by late extensional faults and are highly discordant to lithology. These mineralized zones are likely to have relatively short down dip lengths, < 200 m, and likely short strike lengths. They will be best developed at the confluence between very hard rocks, felsic flows – tuffs – cherty tuffs and softer intermediate fragmental rocks. The position of these west side down extension faults may be in part defined by the locus or swarms of discordant syenomonzonite dykes. The following are relevant to exploration for South Zone targets:

a. In the current area of the South Zone open pits, no further drilling is recommended other than drilling conducted for delineation purposes. Further drilling in the immediate South Zone area, will likely not result in significant increases in tonnage.

b. An attempt to characterize the subsurface position of the south zone via ground magnetics, should be made. Look for narrow, a few 10's of m wide, higher magnetic zones, which are tracking magnetic syenomonzonite dykes. This will most likely have a sub-vertical orientation and northwest to north-northwest strike lines.

c. If detailed low level airborne data is available, carefully screen that data for linear higher magnetic features which are strongly discordant to the regional supracrustal grain.

d. The very flat dip of the permissive felsic section in the southwestern portions of historic pits and workings will allow other rock units to be stacked on-top of the permissive felsic section, still maintaining the preferred felsic contact at relatively shallow depths. The onset of a much stronger magnetic body approximately 300 m south of the Mirado pit could potentially be underlain by the permissive felsic statigraphy. Extension to the South Zone, or new South Zone style targets may well be blind targets.

e. Carefully examine the nature of what appear to be potentially isolated gold mineralized zones in the trenches to the northwest and southeast of the Mirado workings. Weak gold mineralized zones in surface trenches, particularly if these zones are associated with subtle extension faults which are plugged by syenomonzonite dykes may be a distal signature to much stronger mineralized zones flaring or developing at depth near the upper felsic stratigraphic contact.

f. The depth of overburden over much of the Mirado claim area appears quite thin. The thick clay deposits more characteristics of the Timmins and or northern Abitibi area appears to be absent. Although soil geochemical surveys are often not a preferred exploration approach in this part of Ontario, in the Mirado area they may be well worth attempting. Prior to entering into a more property wide geochemical survey construct a simple “B Horizon” orientation soil survey across areas of low surface disturbance but with known gold mineralized zones, e.g. the gold mineralization identified in the trenches located 300 m to the northwest of the South Zone pits.

North Zone Targets

Unlike the South Zone, the North Zone targets appear to be semi-conformable to stratigraphy and have significant lateral and down dip extensions. North Zone style mineralization has been identified at depths greater than 300 m subsurface and appears to be developed along strike distances exceeding 400 m’s. Although the mineralized sulphide “veins” in this zone are quite narrow, a few cms’ at best, most of the veins are forming within a broader envelop ranging in width from two to four m’s in apparent width. Effectively a moderate increase in grade width relationships, e.g. doubling, could make the North Zone target areas very attractive. North Zone targets are worthy of careful follow-up. It is recommended that:

1. Review the existing borehole data. The current North Zone mineralization appears to be quite distal. Sphalerite appears to exceed chalcopyrite, thick coherent flow sequences are absent and most tuffaceous members are quite fine grained. Look for permissive lithologic vectors, increasing thickness of the felsic sequence, increasing angularity of the felsic fragmental rocks associated with this zone and the onset of hematite in the immediate stratigraphic hangingwall rocks of this zone.
2. Look for increasing evidence of longer breaks in volcanism or increasing thickness of fine grained clastic sedimentary rocks in the immediate stratigraphic hangingwall to mineralized zones. Are there sulphidic felsic horizons located to the north of the “A” zone which may be forming closer to the contact of the bimodal Skead assemblage with the overlying more unimodal McElory assemblage?
3. Mineralization in the North Zone is associated with quartz-sericite-pyrite-sphalerite linear semi-conformable veins and aggregates. Sphalerite in these zones appears to be low iron, light yellow or blonde sphalerite, although that will be confirmed with subsequent follow-up petrographic studies. Regardless, the presence of sphalerite also suggests that surface soil geochemical surveys should be used to define the location of both zinc – gold plus or minus copper anomalies. Unlike the South Zone mineralization, North Zone mineralization and the associated geochemical anomalies will be conformable to stratigraphy. Prior to initiating larger surveys conduct a detailed orientation survey across the “A” and “B” zones paying particular attention to both zinc, gold and to a lesser extent copper in the surficial environment.

Development of successful targeting vectors for both South and North Zone mineralization types, will lead to subsequent follow-up drill programs.

Appendix 1: Legend to Accompany Geological Cross Sections

Lithologic Legend:

Quaternary Cover

Till: Non-stratified boulder and cobble till.

Supracrustal Rocks Including Early Intrusive Phases

It : Intermediate Tuffs Ash and Crystal. Intermediate tuffs are commonly light grey green in color. The rocks are rarely stratified and range in composition from fine grained ash tuffs (Ita) and crystal rich tuffs (Itp). Rocks which are interpreted as crystal tuffs contain abundant fine grained, 0.5 – 1.0 mm, white phenocrysts which have been preferentially replaced by calcite. Although free quartz grains may be identified, these grains from less than 5% of the rock volume. These rocks are commonly interdigitated with fragmental rich interbeds.

Il: Intermediate Tuffs – Monolithologic Lapilli Fragmentals. Monolithological lapilli tuffs are characterized by an abundance of cm scale sub-rounded medium to muddy green fragments which commonly contain abundant fine grained plagioclase phenocrysts. The fragments are embayed and supported in a slightly lighter green matrix which may also contain small plagioclase phenocrysts. These rocks exhibit no internal stratification.

Il-x: Intermediate Tuffs – Highly Angular Monolithologic Breccias. Intermediate tuffs which contain abundant, elongate green black cuspate fragments are often documented at or near the transition to felsic flow sequences. Fragments within these rocks commonly lack the abundant plagioclase phenocrysts noted in intermediate lapilli fragmentals. The matrix of these fragmentals contains elevated, diffuse, light grey silica.

IFi: Intermediate to Felsic Subvolcanic Intrusions (?). These rocks are characterized by (a) a blurred fine grained matrix which commonly contains small 0.25 mm quartz grains (b) elevated chloritized primary mafic mineral grains, likely hornblende. One variation of this rock unit forms amygdaloidal aggregates of clinozoisite-calcite-chlorite which appears to have formed after primary mafic mineral assemblages. Macroscale textural data for this unit suggests that it could also be interpreted as a fine grained crystal tuff. The interpretation of sub-volcanic intrusions is based in part on the distinctly discordant contact relationships of these rocks.

Cherty Felsic Tuffs (CFt): Cherty felsic tuffs are locally developed near the top of the Mirado felsic sequence. These rocks exhibit thin mm scale compositional layers. In the vicinity of the Mirado “B and A” Mineralized zones, cherty tuffs may also be associated with the development of bright green micas, either chrome, vanadium or barium bearing micas. They are also documented proximal to mineralized zones in the Mirado South Zone.

Felsic Flows (Ff): Massive coherent felsic flows are characterized by a fine grained, < 0.25 mm, matrix, consisting of abundant > 50% quartz grains. These grains are commonly embayed in a matrix of very fine grained white micas. Occasionally, incidental lithic fragments may be identified near the upper contacts of this unit. The rock mass is exceptionally homogenous and bone white to grey cream in color. The matrix is often cut my mm scale, early pyrite +/- quartz stockworks. Diffuse flow bands or flow laminations are sometimes documented.

Felsic Tuffs Ash and Crystal (Ft, Ftq): Fine grained well compositionally laminated cream to buff colored tuffaceous rocks form persistent markers within the Mirado felsic section. These rocks have relatively high matrix sericite contents and persistent, recognizable quartz grains. They are commonly associated with enhanced foliation and compositional parallel pyrite bands and lamella. Rocks which are interpreted as quartz crystal tuffs contain abundant quartz phenocyrsts set off against a fine grained light grey matrix locally containing sporadic hornblende grains. In quartz crystal tuffs, quartz phenocrysts have often been deformed into sub-mm ribbon banded aggregates.

Felsic Tuffs Lapilli (Fl): Coarser grained felsic tuffs are well defined by the presence of bleached white to cream fragments which are supported in a fine grained pale cream matrix. Most of these fragments are monolithologic and are felsic in origin. Like felsic ash and crystal tuffs, early foliation and compositional layer parallel pyrite bands and lamella are common.

Intermediate to Felsic Autogenous Monolithologic Breccias (IFl): This rock unit appears to have a close spatial relationship to felsic flow sequences. Fragments within this unit commonly exceed 5 cm in length, are highly angular, and are felsic in composition. The fragments may also display definitive flow laminations, lack internal plagioclase phenocrysts and locally may demonstrate "jig saw fit" fragment boundaries.

Felsic Volcaniclastics (FVC) to Felsic Volcanic Wackes (FVW): Competent fine grained felsic volcaniclastics are defined by an abundance of fine grained matrix quartz grains. These grains are often anhedral and slightly frosted and have exhibited some level of transport. Distinctive dark green, mm scale cuspate mafic fragments or clasts may also be identified. Coarser grained, cm scale, well rounded clasts are also documented. Felsic volcaniclastics are often noted structurally below massive felsic flow and felsic fragmental sequences.

Mafic Volcaniclastics (MVC) to Mafic Volcanic Wackes (MVW – LW): These dark green rocks are noted at several locales. Their hallmark characteristic is the presence of very well rounded, dark green brown, pebble size clasts which are embayed in a fine grained felted dark green matrix. Some caution is required as these rocks may occasionally be misidentified as mafic dykes.

Mafic Lapilli (Ml) and Mafic Tuffs Ash and Crystal (Mt): These units are distinguished from intermediate fragmentals by their overall higher color index, a reflection of the net mafic mineral content which commonly exceeds 50% by volume. Free quartz grains are not identified. Mafic tuffaceous units, unlike most mafic dykes, are well foliated and commonly contain highly elongate chlorite-amphibole aggregates. Mafic fragmentals have fragments which are similar in composition to their matrices.

"Late Discordant Intrusive and Dyke Rocks"

Mafic Dykes (Md): Fine grained, dark green-black mafic dykes, usually with subvertical contacts cut all supracrustal units and most other intrusive phases. These dykes, which are commonly only a few m in true thickness, have well developed chilled margins and are seldom mineralized. These intrusions never contain significant biotite and are not equivalent to lamprolites.

Syenomonzonites (SM): Fine grained strongly potassic dyke rocks have a widespread distribution. These dykes have fine grained brick red colored, potassium feldspar rich matrices, which contain felted aggregates of chloritized hornblende, small plagioclase grains and free magnetite. Primary matrix quartz grains are never identified. Magnetic susceptibilities are significantly elevated. These intrusions often have a loose spatial correlation to elevated gold grades.

Plagioclase Porphyritic Syenomonzonites (Sp0). These dykes are compositionally equivalent to syenomonzonite dykes and differ only in the significantly increased volume of strongly porphyritic plagioclase grains. These rocks contain no free quartz grains.

Granodiorite (GD): Small granodiorite dykes are sometimes noted in this rock mass. These rocks contain greater than 10% free quartz along with abundant crowded plagioclase grains. Granodiorite dykes are the least common of all dyke phases.

Quartz Diorites – Tonalites (QD): Rocks which are interpreted as quartz diorites are locally documented in these stratigraphic logs and during much earlier, 1985 to 1987, drill logs. These rocks have interlocked crystalline matrices, with blunt plagioclase and hornblende phenocrysts. Free quartz is less than 8%. These intrusive phase has a very limited spatial distribution and most commonly identified within the footwall to a south verging detachment zone.

Appendix II. Borehole Stratigraphic and Structural Log Summaries.

All Logs as Scanned Images; Digital Folder Attachment

Histogram codes, noted to the right hand side of the stratigraphic logs are as follows:

FU – green micas
Py/Cp: pyrite – chalcopyrite
Cc/Fc: calcium carbonates – iron carbonates
C/E: chlorite – epidote
A/K: albite – potassium feldspar
S/Q: sericite – quartz
H/M: hematite – magnetite
Z/E: brittle – ductile strain
S.I. susceptibility.

All histogram values express relative intensities.

Appendix III. 1:1000 Scale Geological Cross Sections.
All Sections As Scanned Images; Digital Folder Attachment.