

LARA PROJECT

EAST GRID

1983 TRENCHING PROGRAM SUMMARY

September 15 - October 20, 1983

Preliminary Report #22-83

D. W. Blackadar
Aberford Resources Ltd.
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TABLE OF CONTENTS

	<u>Page No.</u>
I INTRODUCTION	1.
II TRENCHING TARGETS	2.
1. Southern Anomalous Trend	2.
2. Northern Anomalous Trend	2.
III GEOLOGICAL SUMMARY	4.
IV MINERALIZED HORIZONS	6.
1. Horizon A (Southern Anomalous Trend)	6.
2. Horizon B (Northern Anomalous Trend)	7.
V EXPLORATION SUMMARY	
1. Geophysics	10.
(i) VLF	10.
(ii) IP	11.
2. Geochemistry	12.
(i) Pb	12.
(ii) Cu x Zn, Cu	12.

LIST OF FIGURES

Figure 1	Lara Project; East Grid Geophysical and Geochemical Trends; 1983 Trench Locations	3.
Figure 2	Lara Project; East Grid Schematic Geological Section with Trench Locations	5.

I INTRODUCTION

A program of backhoe trenching was carried out in the East Grid area between September 15 and October 20, 1983. The primary objectives of this program, in order of priority were:

1. to test geophysical and geochemical targets for base metal mineralization,
2. to obtain geological control in anomalous areas,
3. to evaluate the response of geophysical (IP, VLF) and geochemical (Cu, Zn, Pb) exploration techniques in this area.

A total of 12 trenches (TR 83-19A to 83-30) were excavated in the area bounded by Lines 29+00W and 41+00W, between 1+00S and 6+00N (Figure 1). Significant mineralization (Cu ± Zn, Ag?) was intersected in 4 trenches (TR 83-19A, 20, 28 and 29). Minor copper mineralization was encountered in a further three trenches (83-23, 24 and 25).

Of the 7 mineralized trenches, only 83-19A and 83-20 were excavated in a known mineralized area. Trench 19A is essentially a re-opening of Trench 82-19 which intersected significant Zn-Cu-Ag mineralization in 1982. Trench 83-20 is a 40 metre step-out to the west of Trench 83-19A.

Trenches ranged in depth from less than 1 to more than 10 metres, and in length from 38.5 to 152 metres. All trenches reached bedrock. A total of 240 trencher hours were expended during this phase of the program.

II TRENCHING TARGETS (Refer to Figure 1)

Trenches were excavated to test geochemical (Cu, Cu x Zn, Pb), geophysical (VLF, IP) and geological targets. Two major trends were tested. Both lie parallel to the predominant geological strike and trend at about 110° to 120°.

1. Southern Anomalous Trend

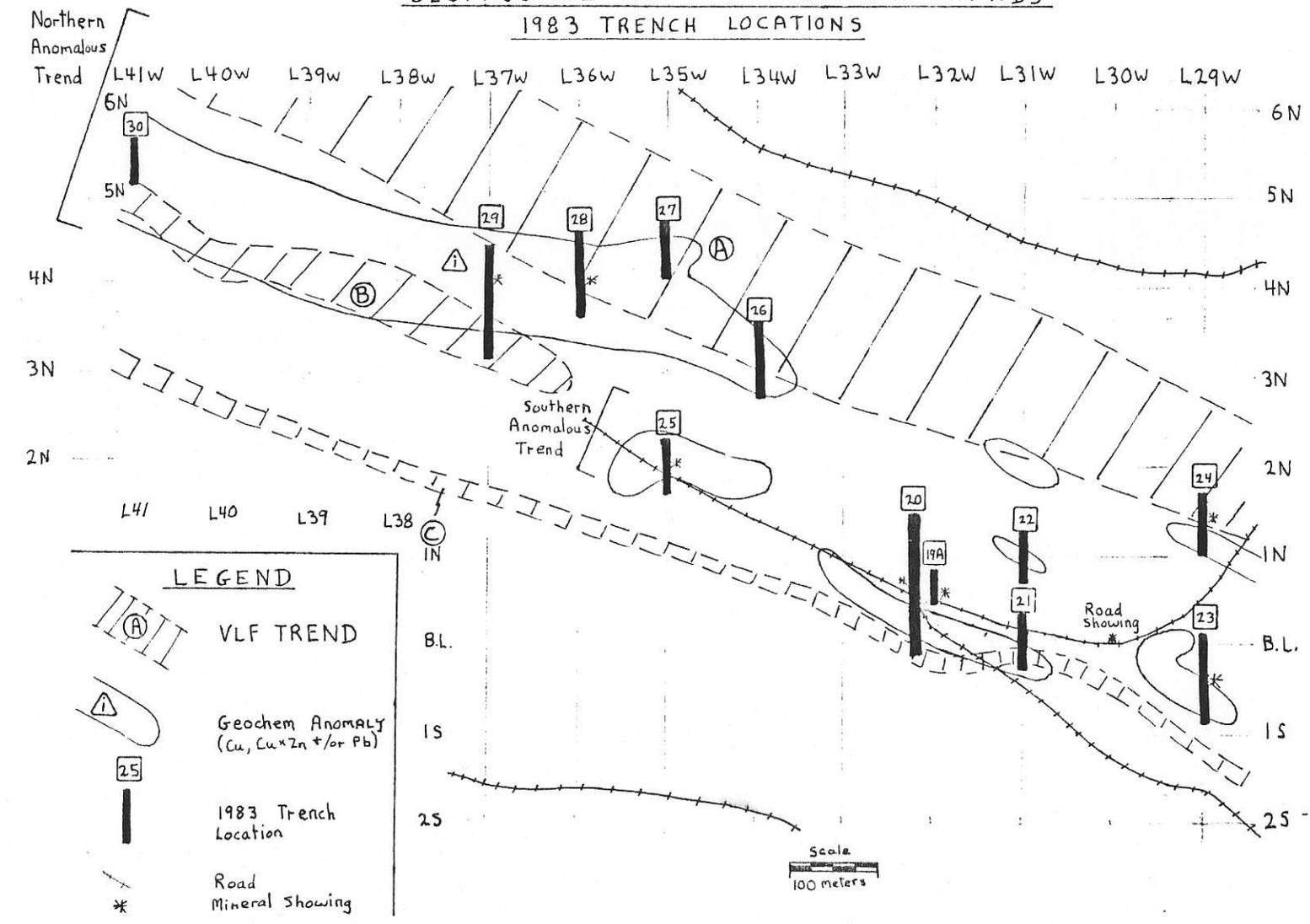
This trend, which extends between Lines 36W and 26W is primarily a geological, geochemical target. A series of discontinuous Cu, Cu x Zn and Pb geochemical anomalies lie across this trend. Geological control includes the road showing and Trench 82-19. A relatively narrow VLF trend and a pronounced resistivity low lie immediately south of this anomaly. The supposition that these represent the Nanaimo-Sicker contact was tested as a secondary objective in two trenches. Trenches 83-19A, 20, 21, 22, 23 and 25 were excavated along this trend.

2. Northern Anomalous Trend

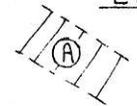
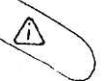
This trend is defined primarily by a relatively narrow Cu, Cu x Zn anomaly (i, Figure 1) extending continuously between Lines 34W and 41W. This anomaly is flanked to the north and south by Pb geochemical anomalies (i, Figure 1). Two strong VLF trends (A and B, Figure 1) also occur in this area, and in general lie to the north and south of the Cu x Zn anomaly. A number of definite IP anomalies are also associated with this trend.

LARA PROJECT ; EAST GRID
GEOPHYSICAL AND GEOCHEMICAL TRENDS
1983 TRENCH LOCATIONS

FIG. 1



LEGEND

-  VLF TREND
-  Geochem Anomaly (Cu, Cu*Zn +/- or Pb)
-  1983 Trench Location
-  Road Mineral Showing

Although IP and VLF surveys indicate that this trend is continuous right across the East Grid, geochemical anomalies are discontinuous to the east of Line 34W.

Because geophysical and geochemical anomalies defining this trend are not strongly coincident, it presents a relatively broad target from 150 to 250 metres in width. Trenching in this zone was carried out primarily along the relatively narrow Cu and Cu x Zn anomalous trend, which was judged to be the best target. IP, VLF and Pb geochemical anomalies were tested as a secondary priority.

Trenches excavated along this trend are as follows:

West Side: TR 83-30 (L41W)
Central: TR 83-29 (L37W), 83-28 (L36W), 83-27 (L35W) and
83-26 (L34W)
East Side: TR 83-24 (L29W).

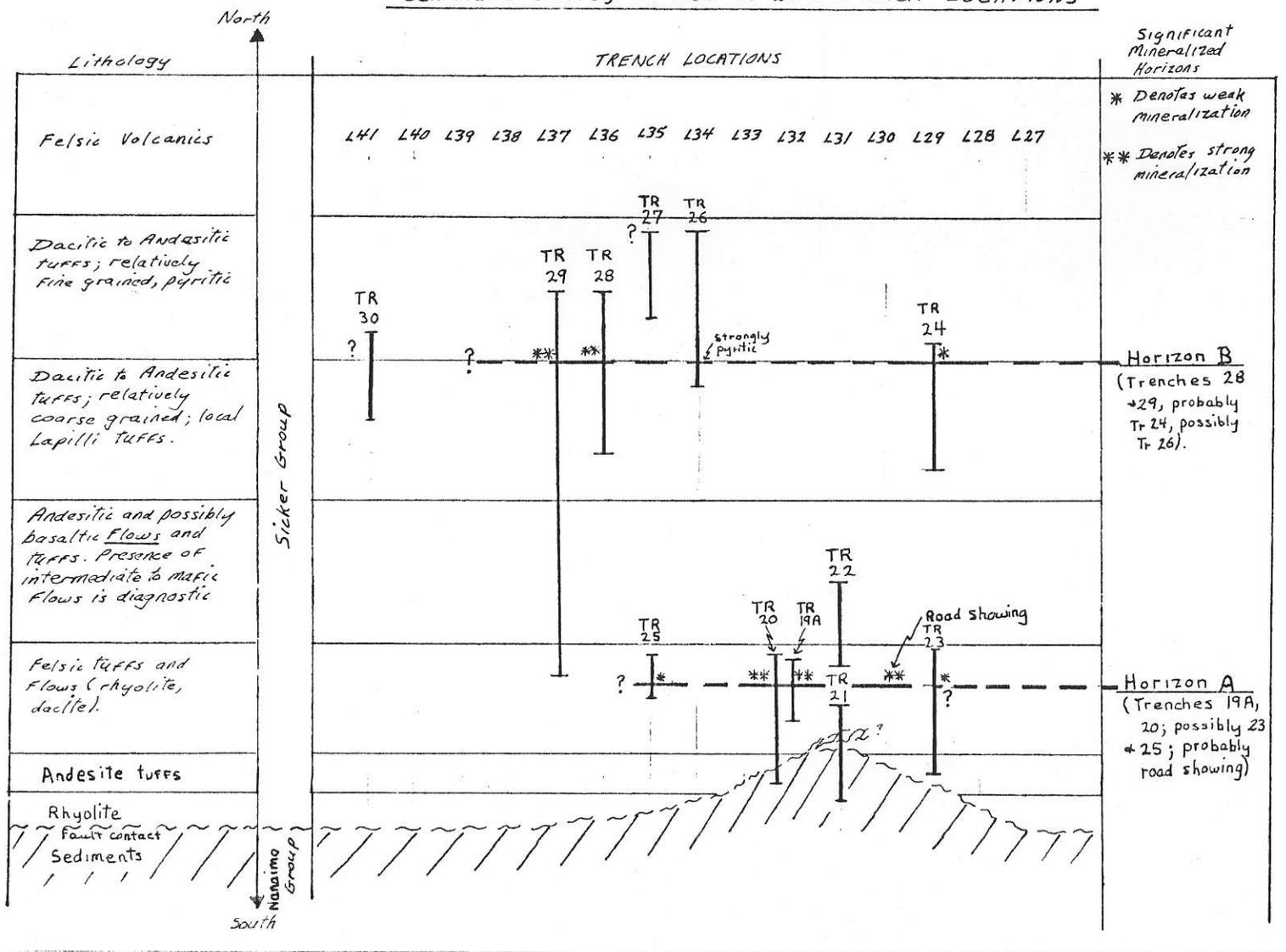
III GEOLOGICAL SUMMARY

The Lara property is predominantly underlain by a series of west-northwest striking felsic and intermediate to mafic volcanic rocks of the Paleozoic Sicker Group. Along the south margin of the property, these rocks are in fault contact with sediments of the Upper Cretaceous Nanaimo Group.

Figure 2 is a schematic geological section of the East Grid area, based almost entirely on the results of the 1983 trenching program. Outcrop exposure in this area is minimal, but supports and complements this model where data are available.

LARA PROJECT; EAST GRID
Schematic Geological Section with TRENCH LOCATIONS

FIG. 2



Two aspects of Figure 2 should be noted:

- (i) It is a schematic section. Trench lengths and the thicknesses of geologic units are not to scale. Although an attempt has been made to keep the relative lengths of trenches accurate, the primary function of this figure is to illustrate the geologic section intersected by each trench. Figure 1 shows the actual lengths and locations of East Grid trenches to scale, and should be used as a complement to Figure 2.
- (ii) Because our understanding of the geology of this area is limited, the "geologic" section cannot necessarily be considered a "stratigraphic" section. This belt of rocks is strongly deformed, and the possibility of fold repetition must be considered.

IV MINERALIZED HORIZONS

Two significant mineralized horizons have been defined in the East Grid area (Figure 2).

1. Horizon A (Southern Anomalous Trend)

This horizon was initially identified in 1982 in Trench 82-19. Horizon A is primarily defined on the basis of sulphide mineralization encountered in Trenches 19 (19A) and 20. This mineralization consists of visible chalcopyrite and sphalerite, and is hosted in a siliceous rhyolite tuff which comprises part of a major felsic volcanic sequence. Assays on grab samples from Trench 82-19 indicate that this horizon also locally carries substantial amounts of Ag. The road showing, which is lithologically very similar to mineralized intervals in Trenches 19A and 20, is also thought to belong to Horizon A. This showing and mineralized intervals in Trenches 19A and 20, lie virtually along a straight line parallel to geological strike.

Weak copper mineralization was also encountered in Trenches 23 and 25, hosted in a weakly carbonatized dacite tuff, and in a tuffaceous sediment (?) respectively. Although the host rocks differ from the "typical" lithologies seen in Trenches 19A and 20, it seems probable that these mineralized zones also represent Horizon A. This conclusion is based on the following observations:

- (i) Showings in both Trench 23 and Trench 25 are broadly hosted within a thick felsic volcanic sequence which lies along strike from that containing Horizon A.
- (ii) The road showing, and showings in Trenches 19A, 20, 23 and 25 lie more or less along a straight line paralleling geologic strike.

Assuming that the above five showings represent the same mineralized horizon, a strike length of 600 m is indicated.

2. Horizon B (Northern Anomalous Trend)

Horizon B is a newly defined mineralized zone in the East Grid area. This horizon is typified by mineralized intersections in Trenches 28 and 29. Showings in these trenches are described in some detail in the appropriate "Trench Summaries". Significant aspects of these showings are summarized below.

- (i) They are hosted by thin units of rhyolite tuff. These rhyolites are notable in that they lie within a thick sequence of dacitic to andesitic tuffs. This volcanic section is therefore distinct from the felsic section containing Horizon A.
- (ii) Intermediate tuffs to the north of Horizon B are relatively fine grained and pyritic; those to the south are relatively coarser grained with local lapilli tuffs, and in general, appear to contain only minor pyrite.
- (iii) Mineralization appears to be copper-rich, although sphalerite was noted in both trenches.

Item (ii) above, places Horizon B in a tentative stratigraphic framework which appears to be valid over a considerable strike length. A similar stratigraphy was noted in Trenches 24 and 30 as follows:

- (i) Trench 24 intersected a thick sequence of coarse grained andesitic to dacitic pyroclastics including lapilli tuffs and tuff breccias. These rocks are in abrupt contact to the north with altered, pyritic, relatively fine grained dacites. Minor amounts of chalcopyrite occur immediately south of this contact in an andesitic (?) tuff breccia. Both the mineralized breccia and the finer tuffs to the north are chloritized and carbonatized. These alterations decrease in intensity away from the mineralized zone, and are thought to be of hydrothermal origin.

- (ii) Trench 30 intersected a sequence of andesitic to dacitic tuffs with local interbedded rhyolite. Andesitic tuffs in the upper third of the trench are relatively finer grained than those to the south. No mineralized zone was encountered in Trench 30.

On the basis of the above, it can be tentatively suggested that a potential for mineralization at this stratigraphic level exists between Trenches 24 and 30, over a strike length of 1200 metres. This is supported by the observations that Trenches 30, 29, 28 and 24:

- (i) lie along geologic strike from each other,
- (ii) lie along a common anomalous geochemical trend,
- (iii) lie just south of a major VLF trend (Trend A, Figure 1).

It should be cautioned, however, that Trenches 24 and 30 represent substantial step-outs of several hundred metres to the East and West respectively of the mineralization in Trenches 28 and 29. Virtually no geological information is available from the intermediate areas.

Two further points of a more speculative nature should be noted at this time:

- (i) A strongly pyritic interval encountered in Trench 26 may represent a "barren" stratigraphic equivalent of Horizon B.
- (ii) Mineralization encountered in Trench 24 may be "proximal" relative to that in Trenches 28 and 29. This is consistent with the following:
 - (a) Strong chloritic and weak to moderate carbonate alteration in Trench 24.
 - (b) The volcanics hosting and lying to the south of mineralization in Trench 24 are much coarser grained than those further west in Trenches 28 and 29. This is consistent with proximity to a volcanic source.

V EXPLORATION SUMMARY

The following tentative conclusions can be drawn regarding the effectiveness and/or potential of geophysical and geochemical exploration techniques in the East Grid area.

1. Geophysics

(i) VLF

Major VLF trends in the East Grid area can be explained as follows (Figure 1):

Anomaly A has not been fully explained, but in general appears to overlie the pyritic rocks north of mineralized Horizon B. It is interesting to note that the south margin of this VLF trend lies almost precisely over Horizon B mineralization encountered in Trenches 24 and 28. VLF Anomaly A may have considerable exploration potential.

Anomaly B appears to represent a major fault, based on the results of Trench 29 and possibly Trench 30. The occurrence of this trend along strike to the west of mineralized Horizon A appears to be fortuitous.

Anomaly C has been confirmed in Trenches 20 and 21 to represent the faulted Nanaimo-Sicker contact.

(ii) IP

IP anomalies can be explained by the presence of disseminated pyrite in Sicker Group volcanics. IP does not appear to be beneficial in locating base metal mineralization in this area.

The Sicker-Nanaimo contact can be picked on IP surveys by an abrupt decrease in resistivity (R).

2. Geochemistry

(i) Pb

In almost all cases tested, Pb anomalies are spatially related to intermediate volcanic rocks (e.g. andesitic tuffs). The exact source of these anomalies is not known.

The major Pb anomaly along the Nanaimo-Sicker contact between Lines 31W and 33W is probably related to changes in soil chemistry across this contact, which have caused Pb from Sicker Group volcanics to drop out of solution. Andesitic rocks were also noted in this area, however.

(ii) Cu x Zn, Cu

Cu x Zn geochemical anomalies are extremely reliable in defining base metal mineralization in bedrock. Mineralization in Trenches 23, 24, 25, 28 and 29 was located by testing Cu x Zn anomalies. These anomalies have generally been found to lie within 1 sample interval (25 metres) downslope from mineralized zones. In Trenches 23, 25 and 28, the Cu x Zn anomaly actually straddled the mineralized zone.

Cu anomalies show the same general distribution pattern as Cu x Zn anomalies, but are broader and less useful in delineating mineralization.