

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	See title page
AUTHOR	Walch C; Bennett R; Kuhl O; Kenner K
DATE OF DOC(S)	1993
MULTI_DIST Y / <input checked="" type="radio"/> N?	
Additional Dist Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud project; Lac Minerals Ltd Dozer Hill; Main Zone; East Zone
COMMODITY If not obvious	gold; silver
NOTES	Society for Mining, Metallurgy, and Exploration Preprint No. 93-175; geology; geologic map 13 p. NOTE: Copyrighted, do not scan

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(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

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Initials Date

WALCK, ET AL. DISCOVERY & GEOLOGY OF GOLD
MINERALIZATION AT THE ROSEBUD PROJECT

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SOCIETY FOR MINING, METALLURGY, AND EXPLORATION, INC.

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PREPRINT
NUMBER

93-175

DISCOVERY AND GEOLOGY OF GOLD MINERALIZATION AT THE ROSEBUD PROJECT PERSHING COUNTY, NEVADA

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Agata Lako*

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LAC Minerals Limited
Reno, Nevada

For presentation at the SME Annual Meeting
Reno, Nevada -- February 15-18, 1993

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MINING ENGINEERING

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Cynthia M. Walck, Robert E. Bennett, Timothy O. Kuhl, and Kristen L. Kenner.

Abstract

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Introduction

The Rosebud project is located in northern Pershing County, approximately 50 miles NNW of Lovelock, Nevada (Figure 1). The Rosebud district was discovered in 1906, and has a recorded production of 3,700 ounces Au and 116,000 ounces Ag between 1908 and 1947 (Johnson, 1984). Most of the production was from the Dreamland mine, located approximately 3000 feet northwest of the current resource at Dozer Hill. Modern gold exploration in the district began in the late 1970's, and several major mining companies conducted exploration programs prior to LAC's involvement in the district.

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The oldest rocks in the district are folded and faulted Jurassic-Triassic carbonaceous metasedimentary rocks of the Auld Lang Syne Formation (Johnson, 1977). Unconformably overlying the metasediments, the Kamma volcanic sequence is composed of a thick section (>7000') of flows, pyroclastic, and

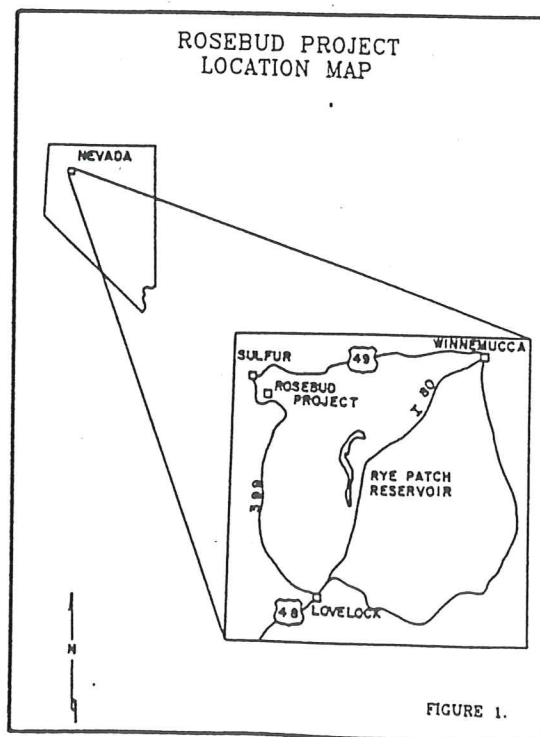


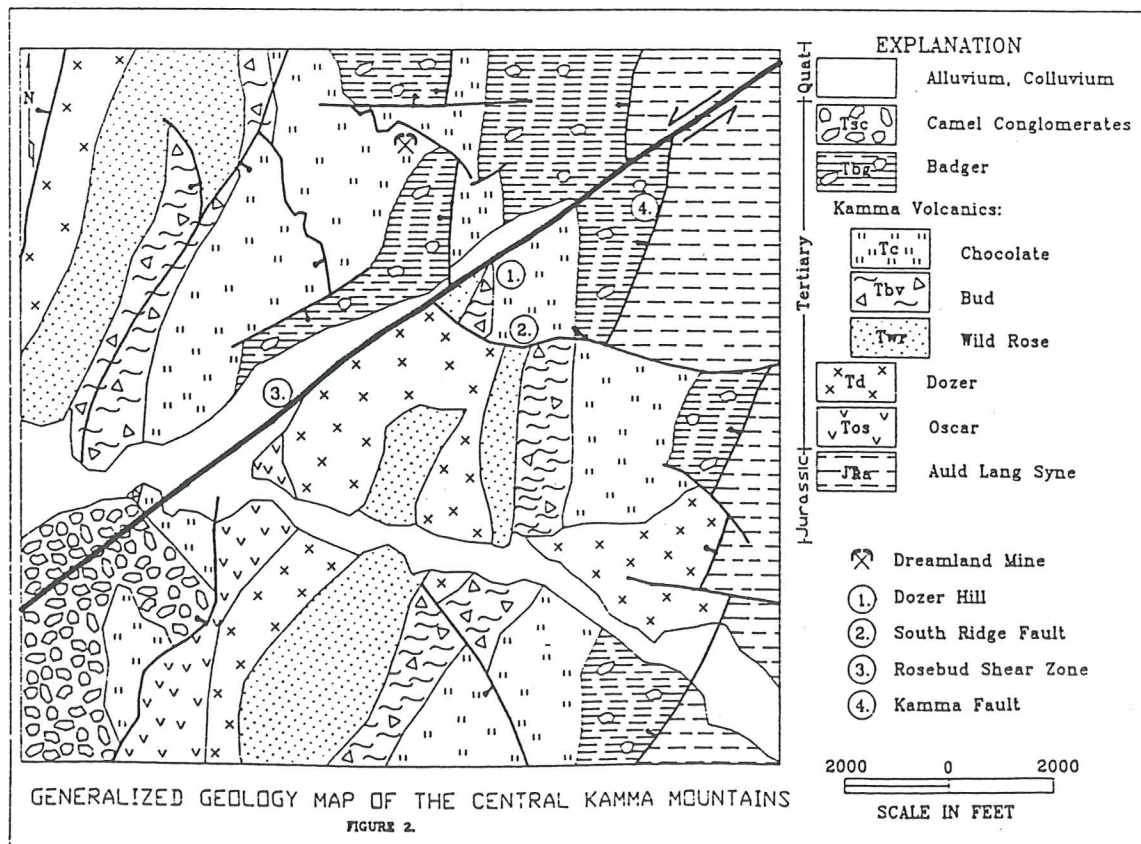
FIGURE 1.

epiclastic rocks, generally of quartz-latitude to rhyolite composition (Figure 2). LAC geologists have broken the undifferentiated Kamma volcanics into mappable stratigraphic units, these unit names will be described and used throughout this paper. At the bottom of the volcanic pile is the Oscar Sequence, which grades upwards from Triassic pebble conglomerates interbedded with tuffaceous sediments, into a series of andesitic flows. The Oscar Sequence thins to the north, and is overlapped by the Dozer Formation. The Dozer Formation consists of a rhyolitic fine-grained flow dome complex, and varies in thickness from approximately 800 to 1800 feet. Flow dome breccias, probably equivalent to the Dozer Formation, occur locally. Considerable topographic relief was developed on top of the Dozer Formation before the volcanics of the Kamma Formation were deposited.

The Kamma Formation can be subdivided into three units; from base to top these are: the Wildrose, the Bud, and the Chocolate Members. These volcanic units are all similar in composition, consisting of quartz-latitude to rhyolite flows and volcanic breccias with interbedded water-lain pyroclastics, often green in color. The Wildrose unit consists of an approximately 1300 foot thick sequence

of dense dark fine-grained flows and volcanic breccias, locally with interbedded green clastic units. In the Dozer Hill area, the upper part of the Wildrose unit is the main host for mineralization. The Wildrose is transitional into the overlying Bud unit. The Bud is a key marker unit in the Kamma volcanics, generally displaying a distinctive green color. Bud volcanics consist of water-lain bedded pyroclastic breccias and epiclastics (with a celadonite/ glauconite clayey matrix), interbedded with fine-grained flows. Individual beds within the Bud are often discontinuous, having been deposited in local depressions. The contact between the Bud and the overlying Chocolate Member is gradational. The Chocolate Member consists of at least 1500 feet of porphyritic quartz-latitude flows and volcanic breccias, and is the uppermost unit in the Kamma Formation. Unconformably overlying the Kamma Formation is the Badger Formation, a thick pile of volcanoclastic sediments with a distinctive red silt matrix.

Late Tertiary extensional tectonics have tilted the range to the east, and created a complex pattern of NE, NW, and E-W low- to high-angle faults. The most prominent regional structure is the Rosebud Shear zone, which trends N60E, appears to dip moderately to the

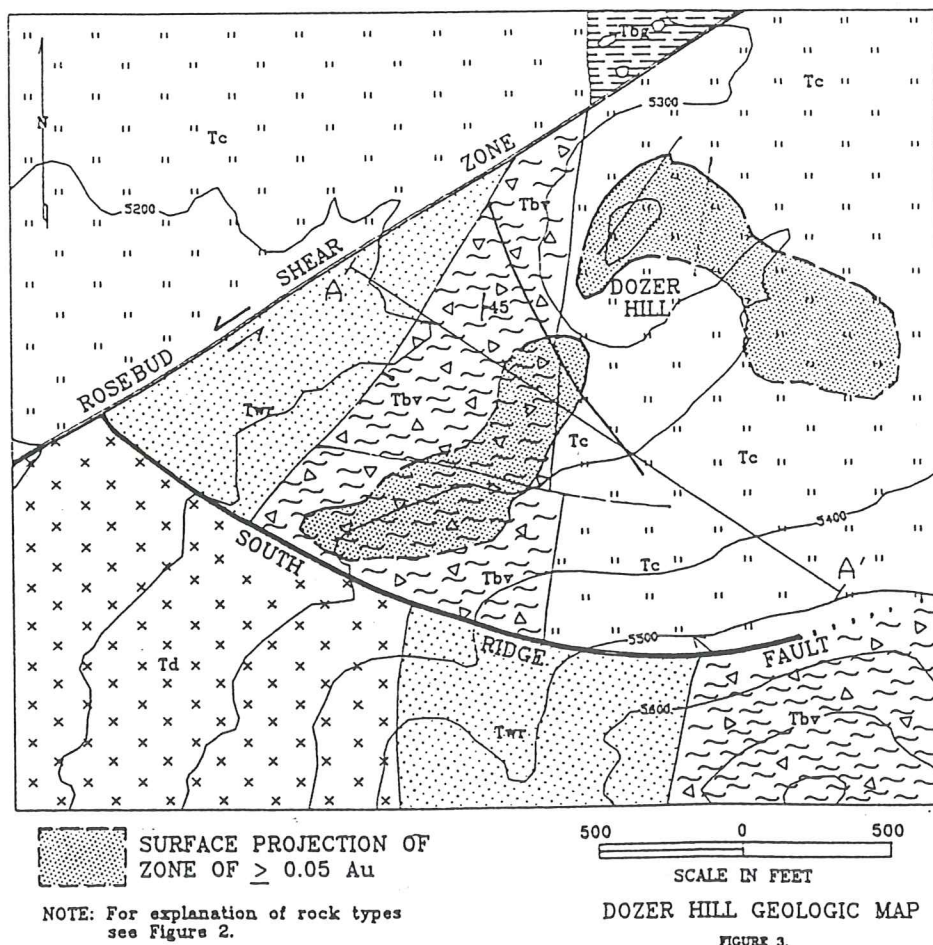


northwest, and has about 5000' of apparent left lateral displacement. Part of the left lateral movement on the eastern side of the range is taken up by the South Ridge fault, which strikes east-west and dips 25° to 45° to the north.

Geology and Mineralization of the Dozer Hill Area

The Dozer Hill area is bounded on the north by the Rosebud Shear zone and on the south by the South Ridge fault (Figure 3). Mineralization is hosted by the Wildrose Member of the Kamma Formation, and is localized in structural zones associated with the South Ridge fault. The South Ridge fault is expressed at the surface by a series of intensely silicified ribs; at depth the fault varies from calcite-rich to clay-rich to strongly silicified breccias. Mineralization occurs near the intersection of the South Ridge fault with high angle NE and NW structures, in favorable stratigraphy.

Dozer Hill mineralization can be divided into two areas: the Main zone and the East zone. Mineralization in the Main zone occurs in the hanging wall of the South Ridge fault, and is confined to the upper Wildrose unit, 10 to 200 feet below the contact with the overlying Bud unit (Figure 4). The Main zone is 1800 to 2000 feet long, and averages 250 to 300 feet wide and 25 to 45 feet thick. The orebody plunges 20° to 25° N35E (the orebody is 200 feet below the surface at the SW end, and 900 feet deep at the NE end). The NNE trend of the Main zone is defined by the intersection of the favorable hanging-wall wedge of the Wildrose unit (N15E, 42°E) with the north-dipping low-angle South Ridge fault. The Wildrose is a hard, dense unit, and fractures brittly, creating open spaces for ore deposition. Mineralization is localized within tabular, shallow to moderately dipping bodies, probably in tensional fractures antithetic to the South Ridge fault. The overlying Bud unit is relatively soft with a green clayey matrix, which deforms ductilely. Possibly the Bud has acted as



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Alteration in the Dozer Hill area is characterized by widespread bleaching and sericitization. Local areas are variably clay-altered, silicified, and brecciated. The ore is characterized by a crude stockwork and micro-veining of quartz, clay, pyrite, and marcasite. Gold and silver minerals include electrum, auriferous silver, and silver-bearing selenides and sulfosalts, which are generally contained in narrow discontinuous veinlets (less than 1 cm. thick) or in strongly clay altered rocks. Silver to gold ratios are highly variable, but average 10:1 overall. Elevated levels of Hg, Se, As, and Sb have been correlated with mineralization.

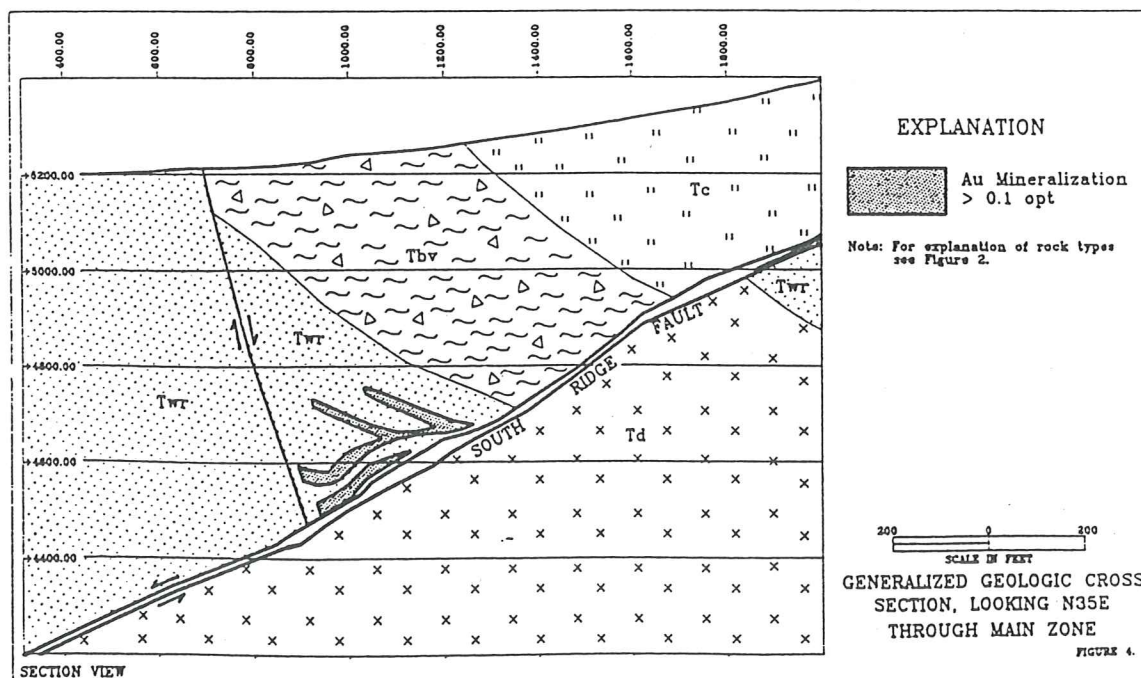
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References

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Presented at the 98th Annual
Northwest Mining Association Convention
Spokane, Washington
December 1-4, 1992

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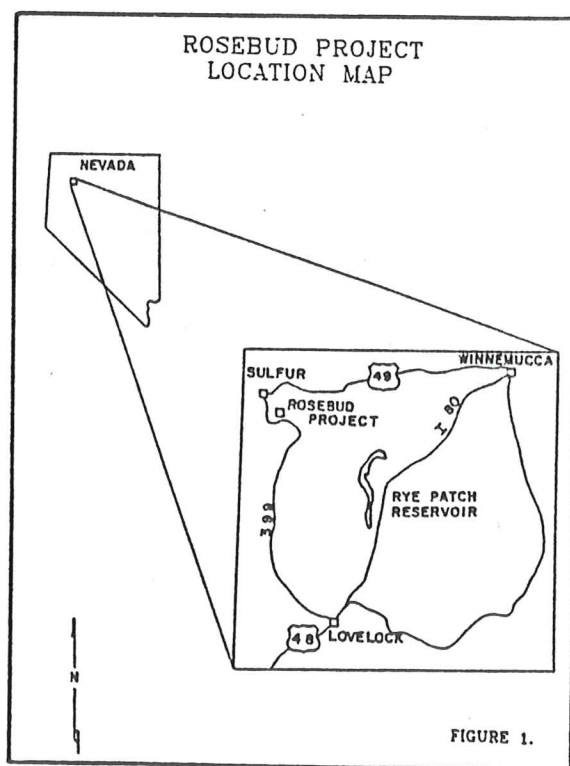
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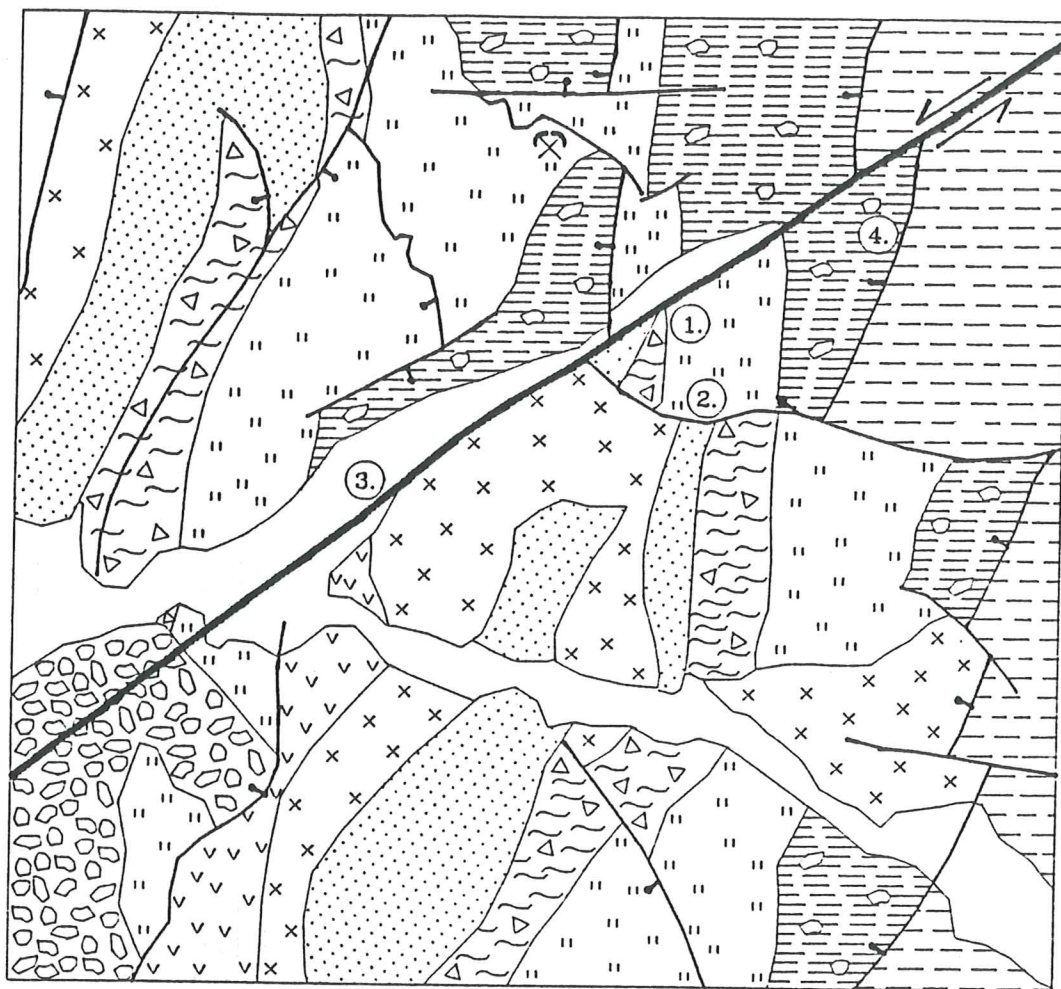
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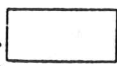
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EXPLANATION

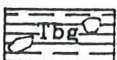
Quat



Alluvium, Colluvium

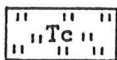


Camel Conglomerates

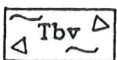


Badger

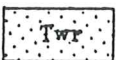
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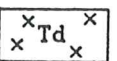
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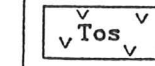
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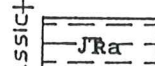
Wild Rose



Dozer



Oscar



Auld Lang Syne



Dreamland Mine



Dozer Hill



South Ridge Fault



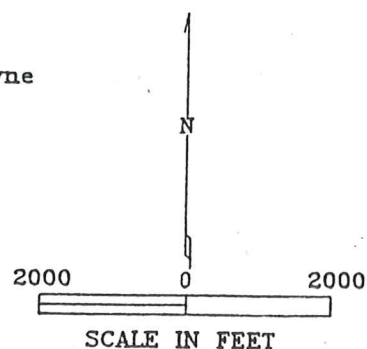
Rosebud Shear Zone



Kamma Fault

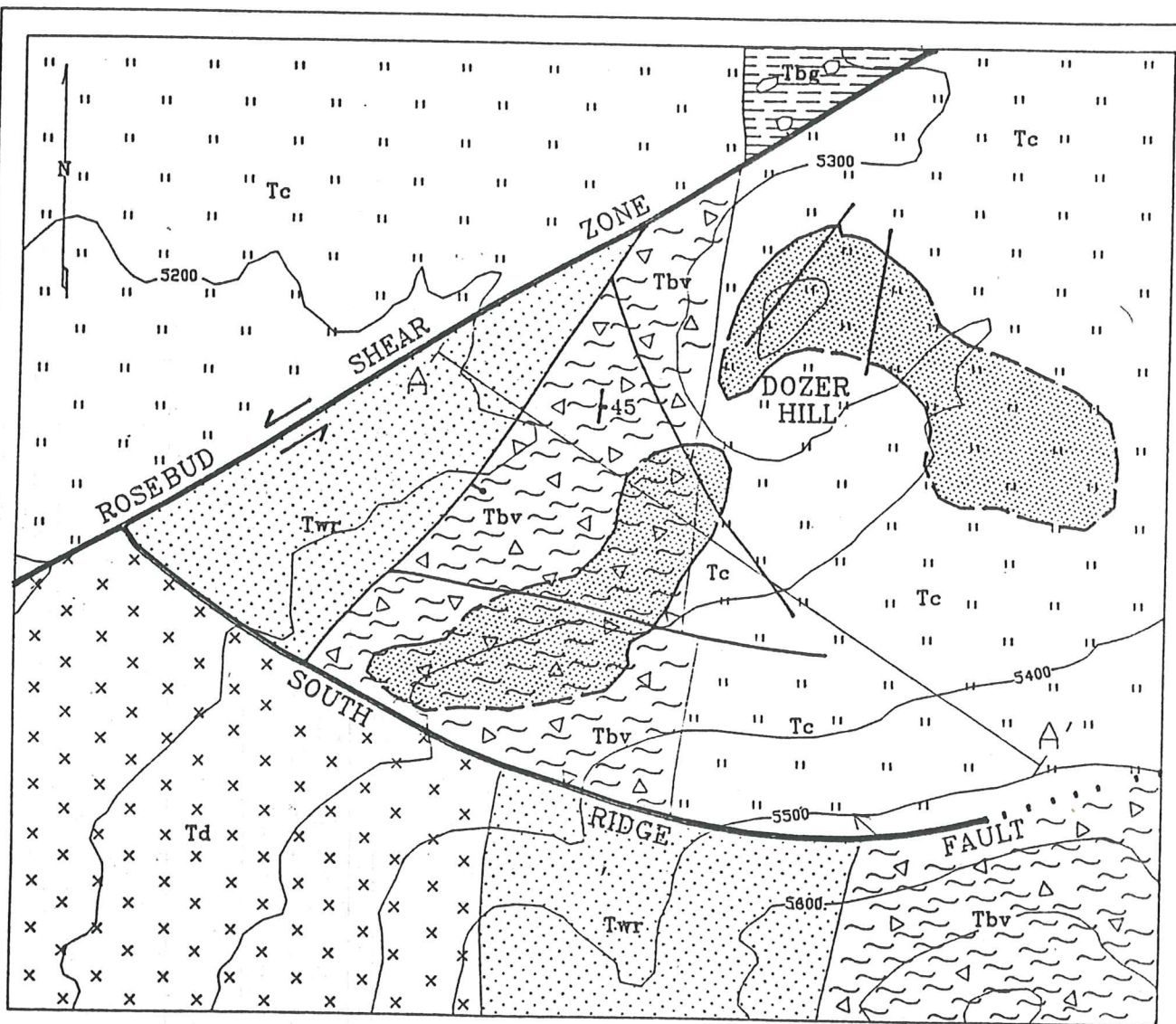
Tertiary

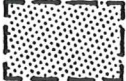
Jurassic



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ROSEBUD PROJECT
GENERALIZED GEOLOGY MAP
CENTRAL KAMMA MOUNTAINS
FIGURE 2.



 SURFACE PROJECTION OF
ZONE OF ≥ 0.05 Au

NOTE: For explanation of rock types
see Figure 2.

500 0 500
SCALE IN FEET

DOZER HILL GEOLOGIC MAP

FIGURE 3.

