

5330 0013

(305) 678

Item 13

(copy 1 of 2)

Report on the

LONG TUNGSTEN PROPERTY

PERSHING COUNTY, NEVADA

Nolan (2)
Lasky
Lemmon
Allen (2)
File (M. R. Klepper)

M. R. Klepper
Assistant Geologist
U. S. Geological Survey
November 30, 1942

TABLE OF CONTENTS

Abstract.....	1
Introduction.....	1
Location.....	2
Pertinent facts about the property	
Ownership.....	2
Production.....	3
Workings.....	3
Milling.....	3
Geology	
General.....	3
Rock units	
Metamorphic rocks.....	4
Igneous rocks.....	5
Structure.....	5
Contact metamorphism.....	6
Ore bodies	
Localization.....	7
Size.....	7
Grade.....	7
Description of specific ore bodies	
South ore body.....	7
North ore body.....	8
Bodies along the marble-monzonite contact.....	9
Reserves.....	9
Recommendations.....	9
Appendix	
Tabulation of production.....	11
Three plates included	

Report
on the
LONG TUNGSTEN PROPERTY
Pershing County, Nevada

ABSTRACT

The Long tungsten property is on the west flank of the Humboldt Range, eleven miles southeast of Lovelock, Pershing County, Nevada. The eastern part of the area is underlain by a folded sequence of marble, hornfels, argillite, and slate; the western part by a stock of quartz monzonite. Two tactite ore bodies have been found along the marble-hornfels contact in the west limb of a syncline. Very small tactite ore pods lie along the marble-monzonite contact. In May 1942, Rare Metals Corp. took a lease on the property. 18,850 pounds of scheelite concentrate were produced before November 1. The two known ore bodies are believed to contain 4,500 tons of measurable and indicated ore which will average between 0.5% and 0.75% WO_3 . It is recommended that 1,000' of diamond drilling be done by the U. S. Bureau of Mines to test the downward extension of the mineralized contact.

INTRODUCTION

During October 1942, the writer studied the Long tungsten property as a part of the strategic-mineral investigation program of the U. S. Geological Survey. A geologic and topographic map of the area in which scheelite deposits are known to occur was made, and the underground workings were mapped. At different times Kechin Hsu and C. W. Chesterman capably assisted in the field

and in the office. The writer appreciates the wholehearted cooperation of Messrs. John H. Heizer, Fred Johnson, and Harold Burbridge of Rare Metals Corp.

LOCATION

The Long tungsten property consists of four mining claims located in Sec. 33, T. 26 N., R. 32 E., Mount Diablo base and meridian, Big Meadow Mining District, Pershing County, Nevada. It lies at elevations of between 4,300' and 4,600' in the low hills that comprise the west flank of the Humboldt Range.

The property is reached by eleven miles of dirt and gravel roads. A gravel road turns east from U. S. Highway #40 at the northern town limit of Lovelock and leads to the Lovelock airport, a distance of $1\frac{1}{2}$ miles. From here the dirt mine road turns south and crosses the flat bordering the Humboldt River. A more direct road between the mine and the Toulon mill is now under construction.

In the vicinity of the mine, severe winter weather is uncommon and mining operations are seldom impeded.

PERTINENT FACTS ABOUT THE PROPERTY

Ownership.-- During the last war, these claims were prospected by Wm. Chalmers and J. S. Bedford of Lovelock (1). A few pits were dug but no ore was shipped. Part of this property was relocated by Wayne Stoker of Lovelock in 1939, and part by E. T. Long and W. K. Meissner of Lovelock in 1941. These three men reached an agreement and leased the property to Rare Metals Corp. on May 14, 1942.

(1) Hess, F. L. and Larsen, E. S. U. S. G. S. Bull 725-D, p. 294, 1921

Production.- Development work was started in June and ore was first shipped to the Toulon mill in August. Between August 1 and November 1, 1,508 tons of ore were milled and 18,850 pounds of concentrate were recovered. (See appendix for tabulation of monthly production). Until the end of 1942, shipments of ore are expected to average 35 tons daily. If the grade averages 0.5% WO_3 , as it has during the past few weeks, monthly production will be approximately 7,500 pounds of concentrate.

Workings.- The South ore body is explored for a length of 195' by an open cut and adit; the north ore body by a 60' drift in ore at the end of a barren cross cut. There are also a number of prospect pits and shallow shafts on the property.

Milling.- The ore is hauled by truck to the Toulon mill, a distance of 23 miles. When the road now under construction is completed, the haul will be only ten miles. The ore is concentrated by gravity, and much of the very fine-grained scheelite is lost. Mr. John Heizer estimates that recovery is about 80%, but there is not enough assay information to make significant calculations. Flotation cells may be installed in an attempt to increase the recovery.

GEOLOGY

General

Scheelite mineralization is confined to tactite lenses which have formed around the periphery of a northerly trending marble belt. This marble belt, 800' long and 100' wide as an average, is part of the west limb of a syncline. Quartz monzonite has

intruded along the base of the marble in this limb. The folded, mildly metamorphosed sedimentary rocks extend eastward at least as far as the low crest of the range, a distance of about half a mile. A few small pods of tactite ore occur along the marble-monzonite contact; two larger lenses along the marble-hornfels contact.

Rock Units

Metamorphic rocks.— The mildly metamorphosed sedimentary sequence exposed in this area consists of hornfels, argillite, slate, and a 50' limestone member. In the southern part of the area, the limestone is made up of contorted blue and white beds. Farther north recrystallization has been more intense and individual beds can be recognized in only a few places. The upper 10' of the limestone member is interbedded marble and light-colored hornfels. In this zone the main tactite ore bodies have been formed. The limestone is overlain and underlain by a sequence of blocky, dark-colored hornfels with a few argillite and slate beds.

Lenses of scheelite-bearing rock, collectively called tactite by the miners, occur around the periphery of the marble belt in the central part of the map. Most of the so-called tactite is a porous, friable aggregate of quartz and iron oxides with smaller amounts of *not true* chloropal (?), clay minerals, magnetite, manganese oxides, very fine-grained scheelite, and bladed clusters of a soft, white mineral, probably powellite pseudomorphs after molybdenite. (2). It has a yellow-white fluorescence and, in fine-grains, is difficult to distinguish from scheelite. This rock results from the oxidation of tactite. Unaltered tactite is fine and medium-grained and consists (2). A specimen of this mineral has been sent to Miss Jewel Glass. After the report was written a small amount of molybdenite was found by the mine foreman. He states that it was closely associated with the powellite (?).

of garnet, quartz, epidote, dark green pyroxene, magnetite (locally abundant), and very fine-grained scheelite. Most of the tactite outcrops have been oxidized.

Igneous rocks.- This metamorphic sequence has been intruded by a mass of coarse-grained biotite quartz monzonite, which underlies the western part of the map area and extends westward for half a mile where it is overlapped by an alluvial fan. Along the marble contact, especially where tactite bodies occur, the monzonite contains hornblende and epidote and most of the feldspar has been altered to sericite. At one locality thulite was found.

The granite is cut by a number of parallel, en echelon bands of dark green biotite lamprophyre. These bands strike northerly, dip steeply to the east, and average 7' wide. This segmented outcrop pattern may be the result of intrusion along parallel joints rather than faulting of a single dike.

In the northeast corner of the map, a poorly exposed siliceous dike cuts the hornfels sequence. It is exposed in a prospect shaft, and at this place it is intensely sheared and consists of quartz, muscovite, clay and iron oxides. It is reported to contain a little gold. To the west it grades into sericitized quartz monzonite.

STRUCTURE

The assymetric syncline shown on the map is part of a folded sequence of slightly metamorphosed sedimentary rocks which extends eastward to the crest of the range. The west limb dips steeply to the east and has been intruded by quartz monzonite; the south limb dips gently to the north. Exposures are poor in the northwestern corner of the map. The two small outcrops shown are believed to lie along a faulted anticlinal nose.

The marble beds in the west limb of the syncline are contorted and displaced slightly by faults along the axes of some of these contortions. These faults strike northeast and dip to the northwest at angles near 45 degrees. The marble-monzonite and the marble-hornfels contacts, and the tactite bodies that have been formed along them, have been displaced a few feet by some of these faults. Some of the "offsets" along the lamprophyre dike may have been caused by these same faults. The hornfels sequence was deformed by fracturing rather than by crumpling.

Quartz monzonite has intruded the west limb of the syncline. In the central part of the area the intrusive contact parallels the bedding of the marble, but near the north and south limits of the area mapped the contact cuts sharply across the bedding. Near the north limit the main contact swings sharply to the west, but a poorly-exposed tongue of quartz monzonite continues to the north.

CONTACT METAMORPHISM

The sedimentary beds in the area have been slightly metamorphosed as a result of the quartz monzonite intrusion. Pure limestone was recrystallized to marble, which is very coarse-grained near the intrusive contact. Argillaceous beds were converted to dark green, siliceous hornfels and blocky, black argillite. A few thin, rudely cleaved black beds resemble slate.

Tactite bodies have been formed (1) along the contact between marble and quartz monzonite and (2) along the contact between marble and the hornfels-argillite-slate sequence. The tactite along both contacts is similar in mineralogy and has been described on page 4, but the bodies along the marble-hornfels contact are larger.

ORE BODIES

Localization.-- The tactite ore bodies are confined to the contacts between (1) marble and quartz monzonite, and (2) marble and hornfels.

Size.-- The bodies along the marble-monzonite contact are small, irregularly shaped tactite pods. The two largest have been extracted except for small tongues of oxidized ore imbedded in the barren marble hanging wall. The volume of these pits indicates that each lens contained 150 or 200 tons of ore.

Two larger bodies have been found along the marble-hornfels contact. The South ore body is 130' long and averages about 7' wide. 1,500 tons of ore have already been mined from between the surface and a maximum depth of 55'. The North ore body can be traced for 200' in surface cuts and by float. It is explored at a depth of 35' beneath the outcrop by a drift 60' long. This body may contain a few thousand tons of ore.

Grade.-- Most of the ore milled to date has come from the south ore body. The overall recovery has been 12 pounds per ton. If the estimated 80% figure for recovery is correct, the average grade of this body has been approximately 0.75% WO_3 . Assays of ore from the North ore body suggest that the grade will average about 0.5% WO_3 .

DESCRIPTION OF SPECIFIC ORE BODIES

South ore body.-- The South ore body lies along the marble-hornfels contact on the west limb of the syncline. Narrow patches of low grade tactite crop out for 75' north of the open cut. In

the open cut two parallel ore bodies, separated by a horse of barren marble, were mined. The western lens has almost pinched out within the boundaries of the open cut and is only about 40' long. The eastern lens continues to the north and has been explored by the adit. At the level of the adit, it is 130' long and averages 7' wide. The length, width, and grade of ore at the adit level are better than at the surface. The adit is being driven northward along the contact beneath the barren zone on the surface. In the 50' that has been completed only very low grade scheelite mineralization occurs.

North ore body.- North of this barren interval oxidized scheelite-bearing tactite can be traced for 200' in 5 shallow cuts, a 15' incline shaft, and by float. Width of ore varies between 1' and 11'. Grade is estimated to average 0.5% WO_3 . The ore body has been intersected by a cross cut at a depth of 35' beneath the outcrop. At the end of this cross cut a drift follows the ore for 40' to the south 20' to the north. Both faces are still in ore. The hanging wall is determined by assay. An average width of 10' has been mined in the drift, but the grade of ore for this width is too low for profitable operation. An incline raise is being driven along the footwall of the ore body. By limiting its width to 6' the grade of ore is being maintained at 0.5% WO_3 .

The dip of the ore body has flattened from an average of 50 degrees at the surface to an average of 35 degrees in the drift, and it may continue to flatten below the drift if the writer's interpretation of the structure of the area is correct. Mining will be more difficult in this flatter structure and, as the marble-hornfels contact migrates farther from the quartz monzonite contact,

grade and width of ore may decrease. (See sections included).

Bodies along the Marble-monzonite contact.-These bodies have been adequately described on page 6. All the ore exposed at the surface has been removed and it is not likely that the amount of ore which occurs at greater depth would justify further prospecting of this contact.

RESERVES

South ore body.- Measurable ore between surface and adit level..

500 tons @ 0.5% WO_3 .

Indicated ore below adit level. Approximately 80 tons per foot of depth....1,000 tons @ 0.5%-0.75% WO_3 .

Inferred ore. No basis for estimate.

North ore body.- Measurable ore between surface and drift level..

2,000 tons @ 0.5% WO_3 .

Indicated ore below drift level. 1,000 tons @ 0.5% WO_3 .

Inferred ore. No basis for estimate.

Total measurable

and indicated ore.- 4,500 tons @ 0.5%-0.75% WO_3 .

RECOMMENDATIONS

I recommend that 1,000' of diamond drilling be done by the U.S. Bureau of Mines. (3) Eight proposed holes are plotted on the accompanying map. Preliminary sections through each hole also accompany the report.

(3). I suggest that, if it is possible, this drilling program be set up jointly with a 500' program recommended for the St. Anthony Mine in a separate report. Both properties are operated by the Rare Metals Corp., Lovelock, Nevada. A connecting road between the Long mine and the Toulon mill has recently been approved. When this road is completed, the Long and St. Anthony properties will be only 15 miles apart.

Three holes are planned to intersect the ore-bearing contact at a depth of 50' down dip beneath the adit and open cut in the South ore body; four at an average depth of 80' down dip below the outcrop of the North ore body; and one at a depth of 125' beneath the barren interval on the surface.

These drill holes are expected to indicate areas that merit underground exploration. As the ore is near marginal, this guidance may be necessary for continued operation of the mine. If either of the ore bodies continues to the depth that these holes are planned to explore, the estimate of reserves on page 8 will be increased by about 5,000 tons. A few deeper holes may be warranted if ore is found in the holes proposed above.

APPENDIX

11.

LONG LEASE

Rare Metals Corp., Lovelock, Nevada

Leased from Stoker, Meissner and Long of Lovelock, Nevada, May 14, 1942

PRODUCTION

<u>Date</u>	<u>Tons</u>	<u>Total</u>	<u>Concentrate</u> <u>Pounds</u>	<u>Total</u>	<u>Assay</u> <u>% WO₃</u>	<u>Units</u> <u>WO₃</u>
Aug. 1942	432.557	432.557	4400	4400		
Sept. 24	519.865	952.442	3600	8000	65.9	263.6
Sept. 30			2400	10400		
Oct.	556	1508.442	8450	18850		612.6*

* An assumed average assay of 65% WO₃ was used to calculate approximate total units of WO₃ produced.

5330 0013

(copy)

305

Item 14

A

Report on the

LONG TUNGSTEN PROPERTY

PERSHING COUNTY, NEVADA

(copy 2 of 2)
Long lease

U. S. GEOL. SURVEY
CONFIDENTIAL
FOR USE OF
U. S. GOVERNMENT
ONLY

Nolan (2)
Lasky
Lemmon
Allen (2)
File (M. R. Klepper) ✓

M. R. Klepper
Assistant Geologist
U. S. Geological Survey
November 30, 1942

TABLE OF CONTENTS

Abstract.....	1
Introduction.....	1
Location.....	2
Pertinent facts about the property	
Ownership.....	2
Production.....	3
Workings.....	3
Milling.....	3
Geology	
General.....	3
Rock units	
Metamorphic rocks.....	4
Igneous rocks.....	5
Structure.....	5
Contact metamorphism.....	6
Ore bodies	
Localization.....	7
Size.....	7
Grade.....	7
Description of specific ore bodies	
South ore body.....	7
North ore body.....	8
Bodies along the marble-monzonite contact.....	9
Reserves.....	9
Recommendations.....	9
Appendix	
Tabulation of production.....	11
Three plates included	

Report
on the
LONG TUNGSTEN PROPERTY
Pershing County, Nevada

ABSTRACT

The Long tungsten property is on the west flank of the Humboldt Range, eleven miles southeast of Lovelock, Pershing County, Nevada. The eastern part of the area is underlain by a folded sequence of marble, hornfels, argillite, and slate; the western part by a stock of quartz monzonite. Two tactite ore bodies have been found along the marble-hornfels contact in the west limb of a syncline. Very small tactite ore pods lie along the marble-monzonite contact. In May 1942, Rare Metals Corp. took a lease on the property. 18,850 pounds of scheelite concentrate were produced before November 1. The two known ore bodies are believed to contain 4,500 tons of measurable and indicated ore which will average between 0.5% and 0.75% WO_3 . It is recommended that 1,000' of diamond drilling be done by the U. S. Bureau of Mines to test the downward extension of the mineralized contact.

INTRODUCTION

During October 1942, the writer studied the Long tungsten property as a part of the strategic-mineral investigation program of the U. S. Geological Survey. A geologic and topographic map of the area in which scheelite deposits are known to occur was made, and the underground workings were mapped. At different times Kechin Hsu and C. W. Chesterman capably assisted in the field

and in the office. The writer appreciates the wholehearted cooperation of Messrs. John H. Heizer, Fred Johnson, and Harold Burbridge of Rare Metals Corp. (Segerstrom)

LOCATION

The Long tungsten property consists of four mining claims located in Sec. 33, T. 26 N., R. 32 E., Mount Diablo base and meridian, Big Meadow Mining District, Pershing County, Nevada. It lies at elevations of between 4,300' and 4,600' in the low hills that comprise the west flank of the Humboldt Range.

The property is reached by eleven miles of dirt and gravel roads. A gravel road turns east from U. S. Highway #40 at the northern town limit of Lovelock and leads to the Lovelock airport, a distance of $1\frac{1}{2}$ miles. From here the dirt mine road turns south and crosses the flat bordering the Humboldt River. A more direct road between the mine and the Toulon mill is now under construction.

In the vicinity of the mine, severe winter weather is uncommon and mining operations are seldom impeded.

PERTINENT FACTS ABOUT THE PROPERTY

Ownership.- During the last war, these claims were prospected by Wm. Chalmers and J. S. Bedford of Lovelock (1). A few pits were dug but no ore was shipped. Part of this property was relocated by Wayne Stoker of Lovelock in 1939, and part by E. T. Long and W. K. Meissner of Lovelock in 1941. These three men reached an agreement and leased the property to Rare Metals Corp. on May 14, 1942.

(1) Hess, F. L. and Larsen, E. S. U. S. G. S. Bull 725-D, p. 294, 1921

Production.- Development work was started in June and ore was first shipped to the Toulon mill in August. Between August 1 and November 1, 1,508 tons of ore were milled and 18,850 pounds of concentrate were recovered. (See appendix for tabulation of monthly production). Until the end of 1942, shipments of ore are expected to average 35 tons daily. If the grade averages 0.5% WO_3 , as it has during the past few weeks, monthly production will be approximately 7,500 pounds of concentrate.

Workings.- The South ore body is explored for a length of 195' by an open cut and adit; the north ore body by a 60' drift in ore at the end of a barren cross cut. There are also a number of prospect pits and shallow shafts on the property.

Milling.- The ore is hauled by truck to the Toulon mill, a distance of 23 miles. When the road now under construction is completed, the haul will be only ten miles. The ore is concentrated by gravity, and much of the very fine-grained scheelite is lost. Mr. John Heizer estimates that recovery is about 89%, but there is not enough assay information to make significant calculations. Flotation cells may be installed in an attempt to increase the recovery.

GEOLOGY

General

Scheelite mineralization is confined to tactite lenses which have formed around the periphery of a northerly trending marble belt. This marble belt, 800' long and 100' wide as an average, is part of the west limb of a syncline. Quartz monzonite has

intruded along the base of the marble in this limb. The folded, mildly metamorphosed sedimentary rocks extend eastward at least as far as the low crest of the range, a distance of about half a mile. A few small pods of tactite ore occur along the marble-monzonite contact; two larger lenses along the marble-hornfels contact.

Rock Units

Metamorphic rocks.-- The mildly metamorphosed sedimentary sequence exposed in this area consists of hornfels, argillite, slate, and a 50' limestone member. In the souther part of the area, the limestone is made up of contorted blue and white beds. Farther north recrystallization has been more intense and individual beds can be recognized in only a few places. The upper 10' of the limestone member is interbedded marble and light-colored hornfels. In this zone the main tactite ore bodies have been formed. The limestone is overlain and underlain by a sequence of blocky, dark-colored hornfels with a few argillite and slate beds.

Lenses of scheelite-bearing rock, collectively called tactite by the miners, occur around the periphery of the marble belt in the central part of the map. Most of the so-called tactite is a porous, friable aggregate of quartz and iron oxides with smaller amounts of chloropal (?), clay minerals, magnetite, manganese oxides, very fine-grained scheelite, and bladed clusters of a soft, white mineral, probably powellite pseudomorphs after molybdenite. (2). It has a yellow-white fluorescence and, in fine-grains, is difficult to distinguish from scheelite. This rock results from the oxidation of

tactite. Unaltered tactite is fine and medium-grained and consists (2). A specimen of this mineral has been sent to Miss Jewel Glass. After the report was written a small amount of molybdenite was found by the mine foreman. He states that it was closely associated with the powellite (?).

of garnet, quartz, epidote, dark green pyroxene, magnetite (locally abundant), and very fine-grained scheelite. Most of the tactite outcrops have been oxidized.

Igneous rocks.- This metamorphic sequence has been intruded by a mass of coarse-grained biotite quartz monzonite, which underlies the western part of the map area and extends westward for half a mile where it is overlapped by an alluvial fan. Along the marble contact, especially where tactite bodies occur, the monzonite contains hornblende and epidote and most of the feldspar has been altered to sericite. At one locality thulite was found.

The granite is cut by a number of parallel, en echelon bands of dark green biotite lamprophyre. These bands strike northerly, dip steeply to the east, and average 7' wide. This segmented outcrop pattern may be the result of intrusion along parallel joints rather than faulting of a single dike.

In the northeast corner of the map, a poorly exposed siliceous dike cuts the hornfels sequence. It is exposed in a prospect shaft, and at this place it is intensely sheared and consists of quartz, muscovite, clay and iron oxides. It is reported to contain a little gold. To the west it grades into sericitized quartz monzonite.

STRUCTURE

The assymetric syncline shown on the map is part of a folded sequence of slightly metamorphosed sedimentary rocks which extends eastward to the crest of the range. The west limb dips steeply to the east and has been intruded by quartz monzonite; the south limb dips gently to the north. Exposures are poor in the northwestern corner of the map. The two small outcrops shown are believed to lie along a faulted anticlinal nose.

The marble beds in the west limb of the syncline are contorted and displaced slightly by faults along the axes of some of these contortions. These faults strike northeast and dip to the northwest at angles near 45 degrees. The marble-monzonite and the marble-hornfels contacts, and the tactite bodies that have been formed along them, have been displaced a few feet by some of these faults. Some of the "offsets" along the lamprophyre dike may have been caused by these same faults. The hornfels sequence was deformed by fracturing rather than by crumpling.

Quartz monzonite has intruded the west limb of the syncline. In the central part of the area the intrusive contact parallels the bedding of the marble, but near the north and south limits of the area mapped the contact cuts sharply across the bedding. Near the north limit the main contact swings sharply to the west, but a poorly-exposed tongue of quartz monzonite continues to the north.

CONTACT METAMORPHISM

The sedimentary beds in the area have been slightly metamorphosed as a result of the quartz monzonite intrusion. Pure limestone was recrystallized to marble, which is very coarse-grained near the intrusive contact. Argillaceous beds were converted to dark green, siliceous hornfels and blocky, black argillite. A few thin, rudely cleaved black beds resemble slate.

Tactite bodies have been formed (1) along the contact between marble and quartz monzonite and (2) along the contact between marble and the hornfels-argillite-slate sequence. The tactite along both contacts is similar in mineralogy and has been described on page 4, but the bodies along the marble-hornfels contact are larger.

ORE BODIES

Localization.- The tactite ore bodies are confined to the contacts between (1) marble and quartz monzonite, and (2) marble and hornfels.

Size.- The bodies along the marble-monzonite contact are small, irregularly shaped tactite pods. The two largest have been extracted except for small tongues of oxidized ore imbedded in the barren marble hanging wall. The volume of these pits indicates that each lens contained 150 or 200 tons of ore.

Two larger bodies have been found along the marble-hornfels contact. The South ore body is 130' long and averages about 7' wide. 1,500 tons of ore have already been mined from between the surface and a maximum depth of 55'. The North ore body can be traced for 200' in surface cuts and by float. It is explored at a depth of 35' beneath the outcrop by a drift 60' long. This body may contain a few thousand tons of ore.

Grade.- Most of the ore milled to date has come from the south ore body. The overall recovery has been 12 pounds per ton. If the estimated 80% figure for recovery is correct, the average grade of this body has been approximately 0.75% WO_3 . Assays of ore from the North ore body suggest that the grade will average about 0.5% WO_3 .

DESCRIPTION OF SPECIFIC ORE BODIES

South ore body.- The South ore body lies along the marble-hornfels contact on the west limb of the syncline. Narrow patches of low grade tactite crop out for 75' north of the open cut. In

the open cut two parallel ore bodies, separated by a horse of barren marble, were mined. The western lens has almost pinched out within the boundaries of the open cut and is only about 40' long. The eastern lens continues to the north and has been explored by the adit. At the level of the adit, it is 130' long and averages 7' wide. The length, width, and grade of ore at the adit level are better than at the surface. The adit is being driven northward along the contact beneath the barren zone on the surface. In the 50' that has been completed only very low grade scheelite mineralization occurs.

North ore body.- North of this barren interval oxidized scheelite-bearing tactite can be traced for 200' in 5 shallow cuts, a 15' incline shaft, and by float. Width of ore varies between 1' and 11'. Grade is estimated to average 0.5% WO_3 . The ore body has been intersected by a cross cut at a depth of 35' beneath the outcrop. At the end of this cross cut a drift follows the ore for 40' to the south 20' to the north. Both faces are still in ore. The hanging wall is determined by assay. An average width of 10' has been mined in the drift, but the grade of ore for this width is too low for profitable operation. An incline raise is being driven along the footwall of the ore body. By limiting its width to 6' the grade of ore is being maintained at 9.5% WO_3 .

The dip of the ore body has flattened from an average of 50 degrees at the surface to an average of 35 degrees in the drift, and it may continue to flatten below the drift if the writer's interpretation of the structure of the area is correct. Mining will be more difficult in this flatter structure and, as the marble-hornfels contact migrates farther from the quartz monzonite contact,

grade and width of ore may decrease. (See sections included).

Bodies along the Marble-monzonite contact.-These bodies have been adequately described on page 6. All the ore exposed at the surface has been removed and it is not likely that the amount of ore which occurs at greater depth would justify further prospecting of this contact.

RESERVES

South ore body.- Measurable ore between surface and adit level..

500 tons @ 0.5% WO_3 .

Indicated ore below adit level. Approximately 80 tons per foot of depth....1,000 tons @ 0.5%-0.75% WO_3 .

Inferred ore. No basis for estimate.

North ore body.- Measurable ore between surface and drift level..

2,000 tons @ 0.5% WO_3 .

Indicated ore below drift level. 1,000 tons @ 0.5% WO_3 .

Inferred ore. No basis for estimate.

Total measurable

and indicated ore.- 4,500 tons @ 0.5%-0.75% WO_3 .

RECOMMENDATIONS

I recommend that 1,000' of diamond drilling be done by the U.S. Bureau of Mines. (3) Eight proposed holes are plotted on the accompanying map. Preliminary sections through each hole also accompany the report.

(3). I suggest that, if it is possible, this drilling program be set up jointly with a 500' program recommended for the St. Anthony Mine in a separate report. Both properties are operated by the Rare Metals Corp., Lovelock, Nevada. A connecting road between the Long mine and the Toulon mill has recently been approved. When this road is completed, the Long and St. Anthony properties will be only 15 miles apart.

Three holes are planned to intersect the ore-bearing contact at a depth of 50' down dip beneath the adit and open cut in the South ore body; four at an average depth of 80' down dip below the outcrop of the North ore body; and one at a depth of 125' beneath the barren interval on the surface.

These drill holes are expected to indicate areas that merit underground exploration. As the ore is near marginal, this guidance may be necessary for continued operation of the mine. If either of the ore bodies continues to the depth that these holes are planned to explore, the estimate of reserves on page 8 will be increased by about 5,000 tons. A few deeper holes may be warranted if ore is found in the holes proposed above.

U.S. GEOLOGICAL SURVEY
CONFIDENTIAL
FOR USE OF
U.S. GOVERNMENT ONLY

APPENDIX
LONG LEASE

Rare Metals Corp., Lovelock, Nevada

Leased from Stoker, Meissner and Long of Lovelock, Nevada, May 14, 1942

PRODUCTION

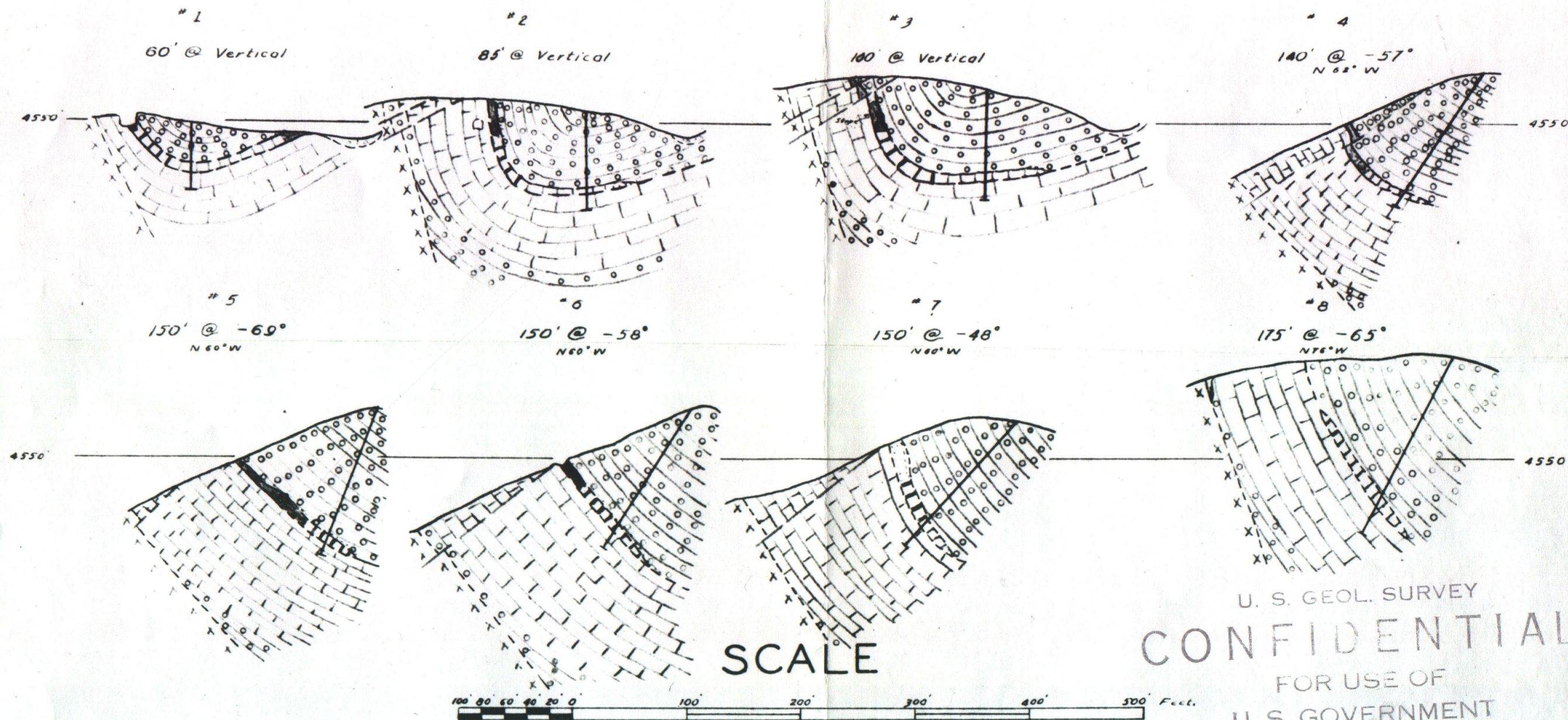
<u>Date</u>	<u>Tons</u>	<u>Total</u>	<u>Concentrate</u> <u>Pounds</u>	<u>Total</u>	<u>Assay</u> <u>% WO₃</u>	<u>Units</u> <u>WO₃</u>
Aug. 1942	432.557	432.557	4400	4400		
Sept. 24	519.865	952.442	3600	8000	65.9	263.6
Sept. 39			2400	10400		
Oct.	556	1508.442	8450	18850		612.6*

U. S. GEOL. SURVEY
CONFIDENTIAL
FOR USE OF
U. S. GOVERNMENT
ONLY

* An assumed average assay of 65% WO₃ was used to calculate approximate total units of WO₃ produced.

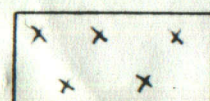
VERTICAL SECTIONS THROUGH PROPOSED DIAMOND DRILL HOLES

305
Item 14

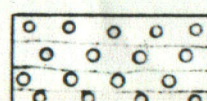


DATUM ASSUMED

EXPLANATION



Qtz. Monzonite

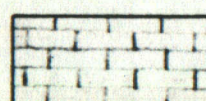


Hornfels



Scheelite-bearing Tactite.

- 1- Scheelite Ore
- 2- Low grade scheelite mineralization
- 3- Possible extension of known scheelite ore bodies.



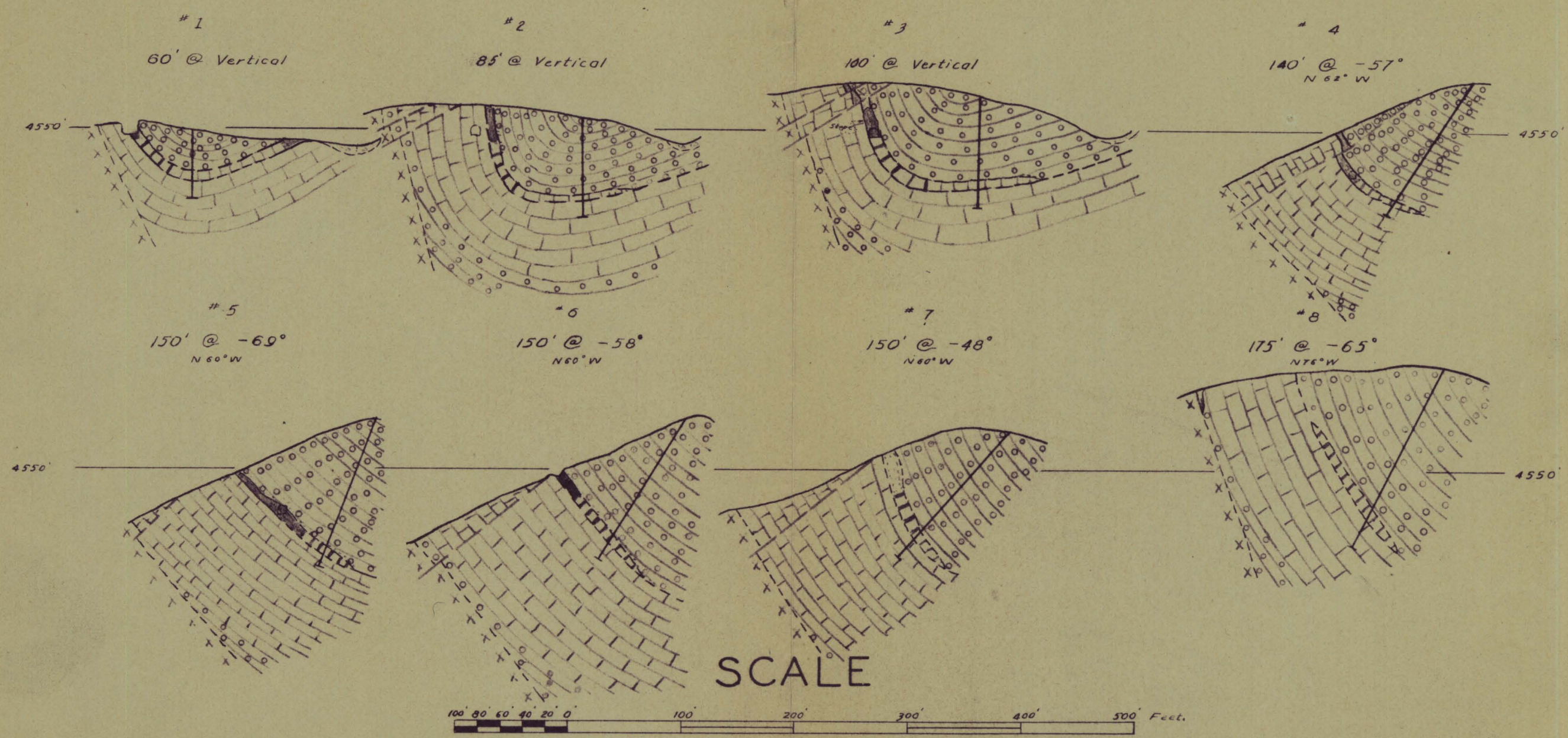
Marble.

- Fault
- Contact - Located
- - - Contact - Approximate
- D. Drill Hole

U. S. GEOL. SURVEY
CONFIDENTIAL
FOR USE OF
U. S. GOVERNMENT

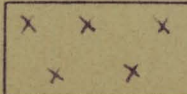
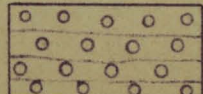

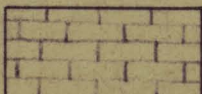
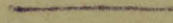
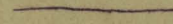


Note: To accompany "Geologic Map" of the Long Tungsten Property, Pershing County, Nevada. M.R. Klepper-Rechin Hsu USGS October 1942.

VERTICAL SECTIONS THROUGH PROPOSED DIAMOND DRILL HOLES



DATUM ASSUMED

EXPLANATION

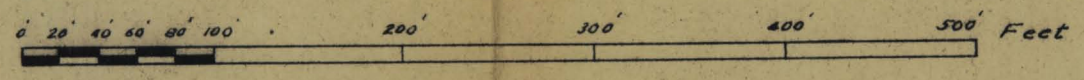
- | | | | | | | | | | |
|--|----------------|---|----------|---|----------------------------|---|---------|---|-----------------------|
|  | Qtz. Monzonite |  | Hornfels |  | Scheelite-bearing Tactite. |  | Marble. |  | Fault. |
| | | | | 1- Scheelite Ore. | | | |  | Contact - Located |
| | | | | 2- Low grade scheelite mineralization. | | | |  | Contact - Approximate |
| | | | | 3- Possible extension of known scheelite ore bodies. | | | |  | D. Drill Hole |

Note: To accompany "Geologic Map" of the Long Tungsten Property, Pershing County, Nevada. M.R. Klepper-Kechin Hsu U.S.G.S. October 1942.

GEOLOGIC AND TOPOGRAPHIC MAP
of
THE LONG TUNGSTEN PROPERTY
PERSHING COUNTY, NEVADA
M.R. KLEPPER U.S. GEOLOGICAL SURVEY
KECHIN HSU OCTOBER 1942



SCALE

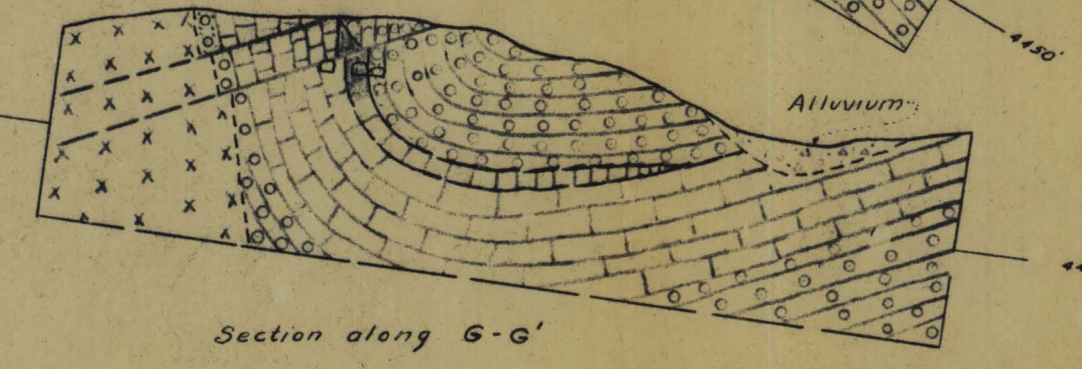
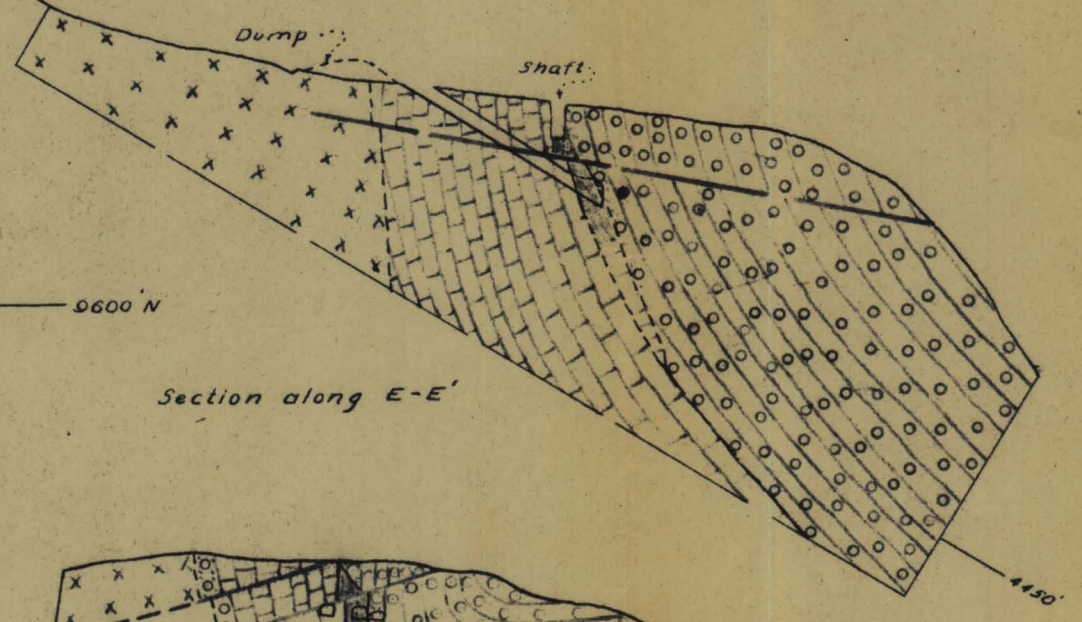
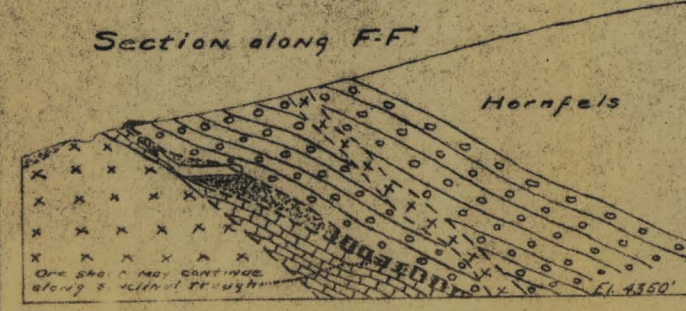


DATUM ASSUMED

CONTOUR INTERVAL 10'

EXPLANATION

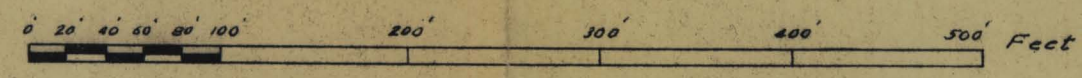
- | | | | |
|--|------------------------------|---|---|
| | Qtz. Monzonite. | | Quartzose Vein. |
| | Map } Hornfels.
Section } | | Scheelite Ore.
(tactite and oxidized tactite) |
| | Map } Marble.
Section } | | Low grade scheelite mineralization.
(in tactite and hornfels.) |
| | Lamprophyre. | | Possible extension of known scheelite ore-bodies. |
| | | Contact, located. | |
| | | Contact, approximate. | |
| | | Contact, gradational. | |
| | | Fault, located. | |
| | | Fault, approximate. | |
| | | Underground workings. | |
| | | Proposed Diamond Drill Holes and line through them. | |



GEOLOGIC AND TOPOGRAPHIC MAP
of
THE LONG TUNGSTEN PROPERTY
PERSHING COUNTY, NEVADA
M.R. KLEPPER U.S. GEOLOGICAL SURVEY
KECHIN HSU OCTOBER 1942

U. S. GEOL. SURVEY
CONFIDENTIAL
FOR USE OF
U. S. GOVERNMENT
ONLY

SCALE

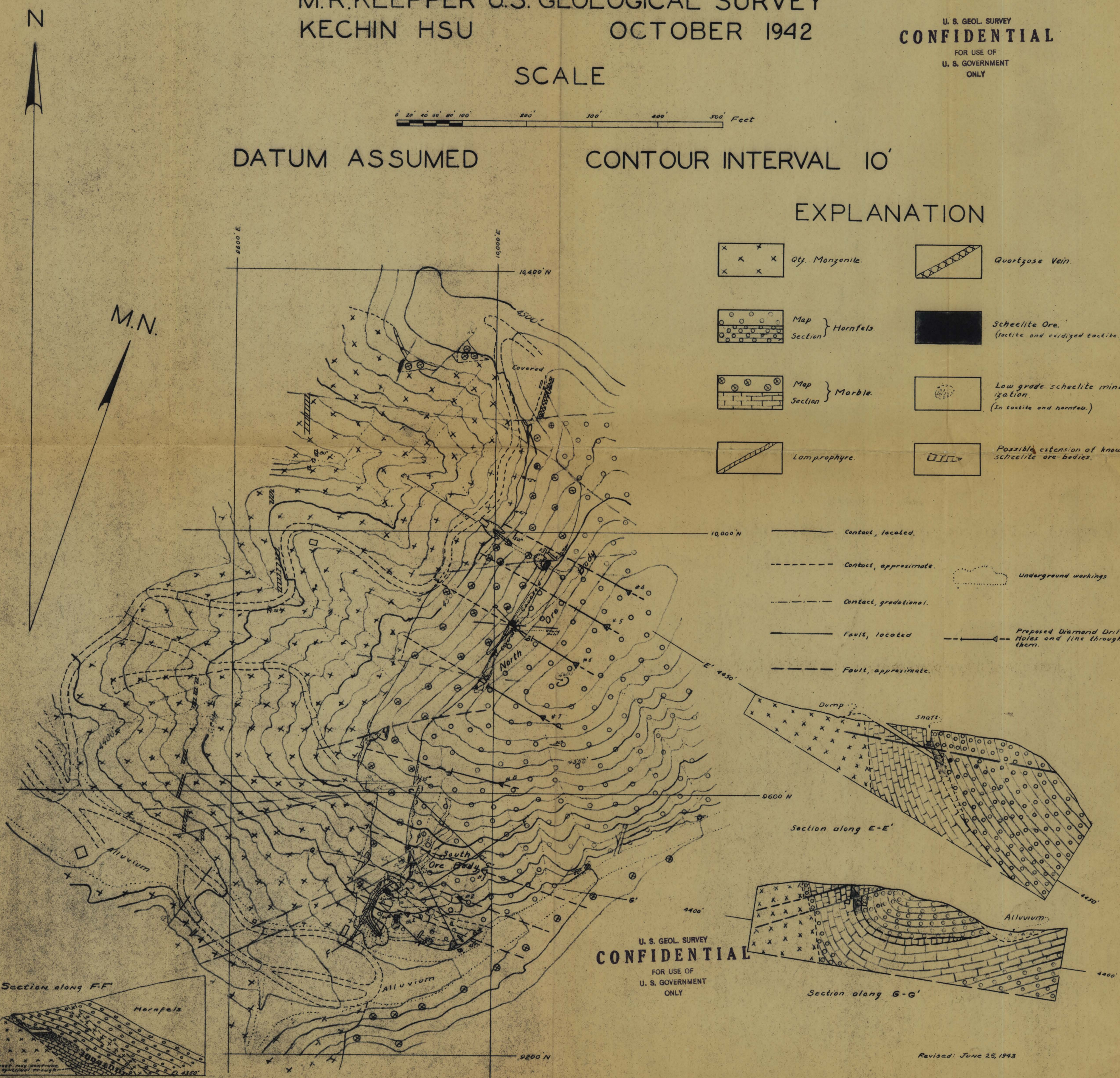


DATUM ASSUMED

CONTOUR INTERVAL 10'

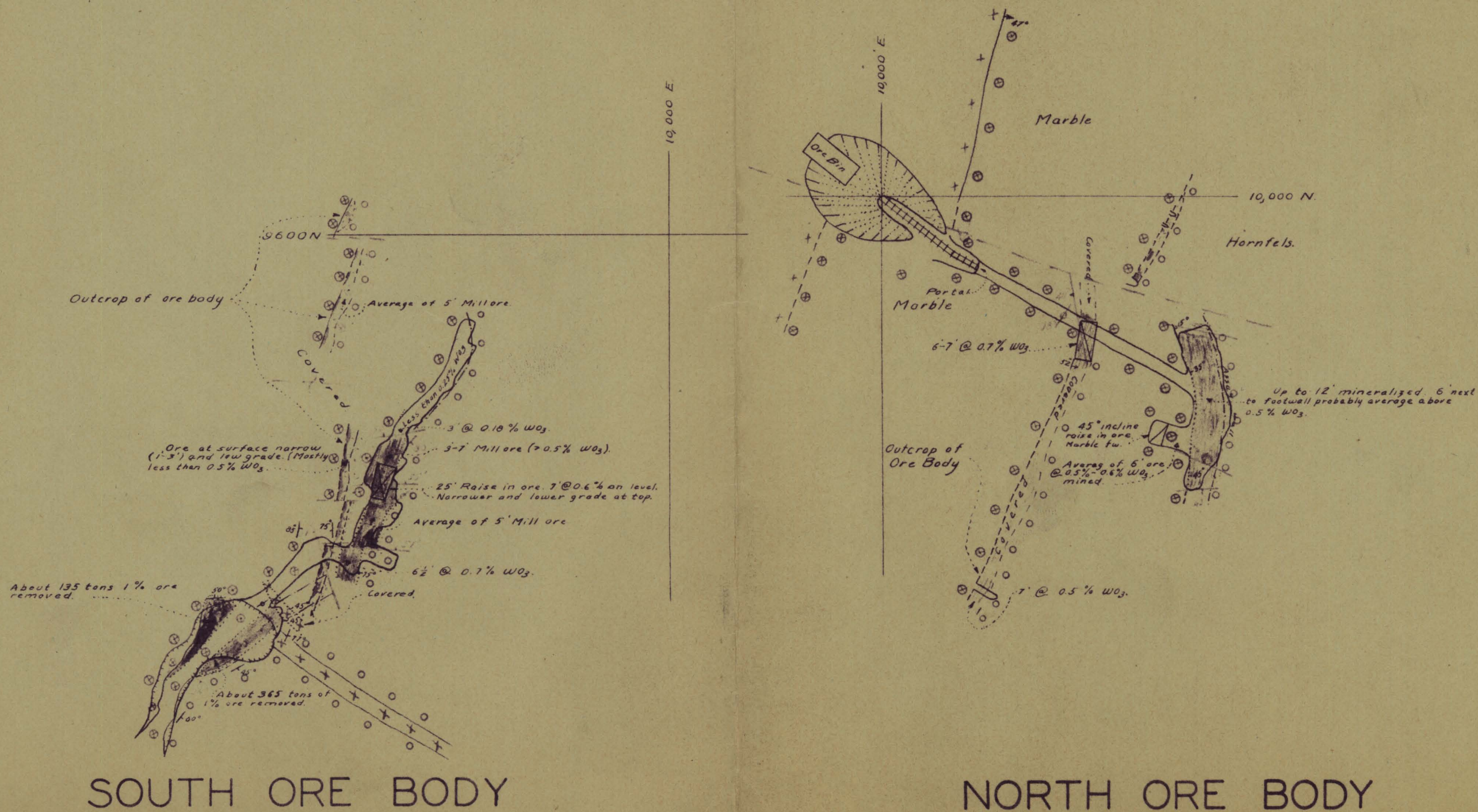
EXPLANATION

- | | | | |
|--|------------------------------|---|---|
| | Qtz. Monzonite. | | Quartzose Vein. |
| | Map } Hornfels.
Section } | | Scheelite Ore.
(tactite and oxidized tactite) |
| | Map } Marble.
Section } | | Low grade scheelite mineralization.
(In tactite and hornfels.) |
| | Lamprophyre. | | Possible extension of known scheelite ore-bodies. |
| | | Contact, located. | |
| | | Contact, approximate. | |
| | | Contact, gradational. | |
| | | Fault, located. | |
| | | Fault, approximate. | |
| | | Underground workings. | |
| | | Proposed Diamond Drill Holes and line through them. | |

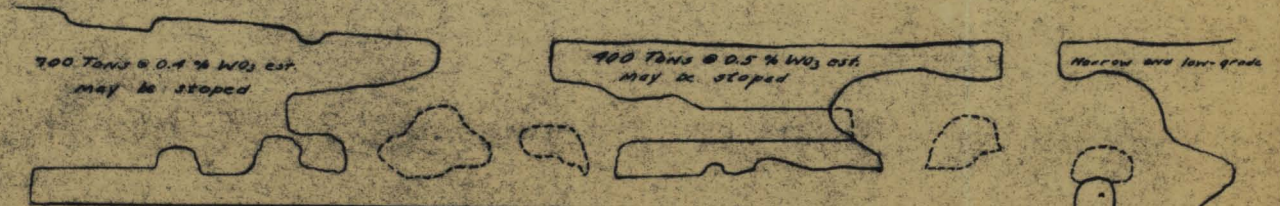


U. S. GEOL. SURVEY
CONFIDENTIAL
FOR USE OF
U. S. GOVERNMENT
ONLY

GEOLOGIC MAP
of
THE LONG MINE WORKINGS
PERSHING COUNTY, NEVADA
M.R. KLEPPER U. S. GEOLOGICAL SURVEY
C.W. CHESTERMAN OCTOBER 1942



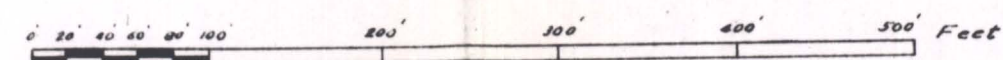
MAY sink WINZE
here



GEOLOGIC AND TOPOGRAPHIC MAP
of
THE LONG TUNGSTEN PROPERTY
PERSHING COUNTY, NEVADA
M.R. KLEPPER U.S. GEOLOGICAL SURVEY
KECHIN HSU OCTOBER 1942



SCALE

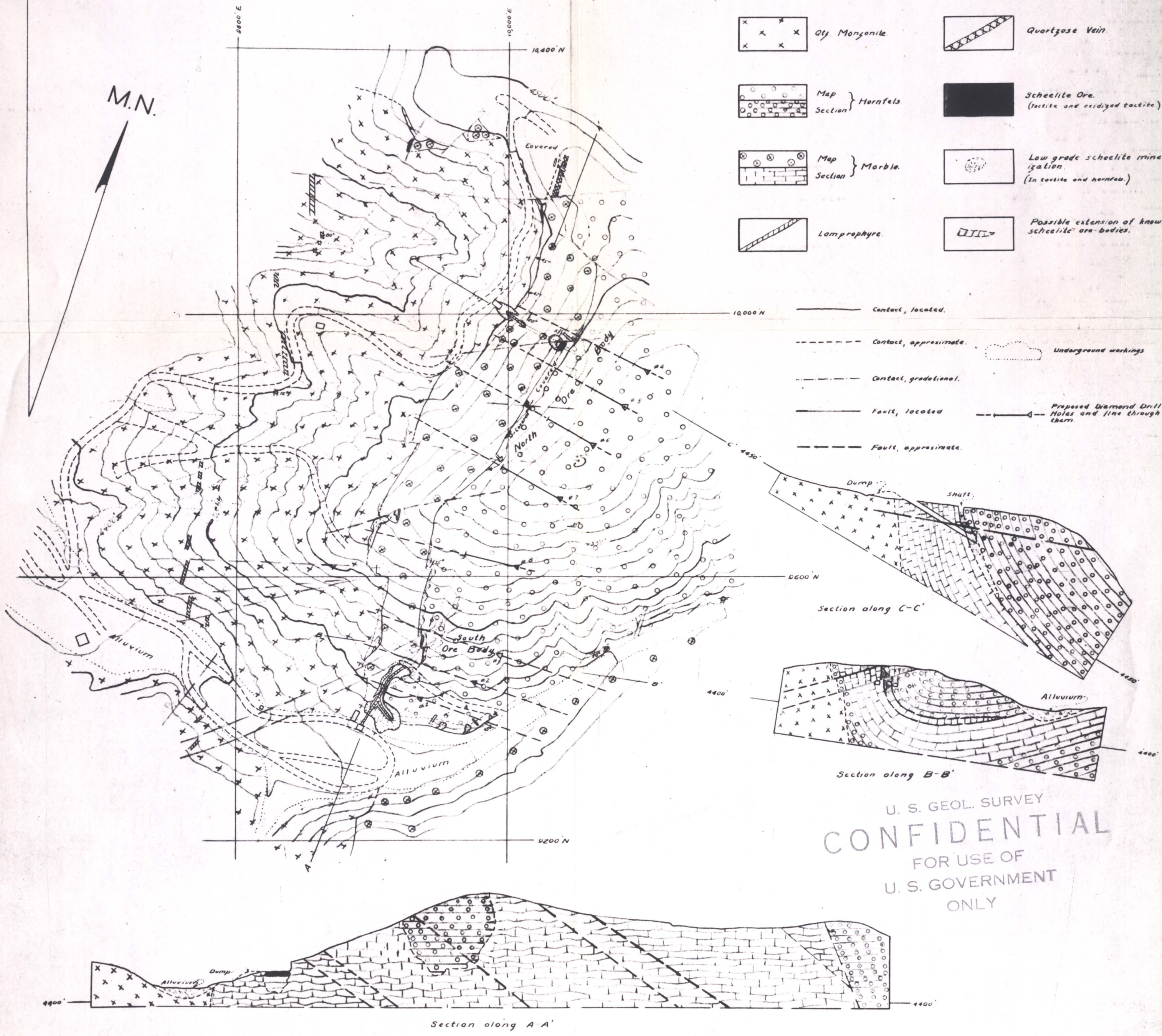


DATUM ASSUMED

CONTOUR INTERVAL 10'

EXPLANATION

- | | | | |
|--|-----------------------------|--|--|
| | Qtz. Monzonite | | Quartzose Vein |
| | Map } Hornfels
Section } | | Scheelite Ore.
(tactite and oxidized tactite) |
| | Map } Marble.
Section } | | Low grade scheelite mineralization.
(in tactite and hornfels) |
| | Lamprophyre | | Possible extension of known scheelite ore-bodies. |



U. S. GEOL. SURVEY
CONFIDENTIAL
FOR USE OF
U. S. GOVERNMENT
ONLY