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16th December, 1966.

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ABERFOYLE TIN N. L.

Report on

GIPP'S CREEK EXPLORATION

by

C.E. LAYDEN, GEOLOGIST

Contents :

Written report (7 pages).

Plates 1. Regional map (Sketch Only).
2. Sections (a) Across centre of system.
(b) Along proposed adit.

missing not recieved with report.

Plans. 1. 100 scale Hayes Old Tungsten Prospect.
2. 40 scale north end of Hayes Old Tungsten Prospect showing locality of "G" Adit.

(2) Is there a plan to go with the report ?

No plan supplied - I have written requesting this

Found again when plans arrived

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Aberfoyle Tin N. L.

Gipp's Creek Exploration.

The area under investigation is centred about the junction of the Cradle and Gipp's Creeks, situated in the north-western sector of the Exploration License holdings. Access to the area is gained by the Gipp's Creek road off the Rossarden-Avoca road and is approximately ten miles from Rossarden.

In the past, the area has been the scene of several mining ventures, the main operations being Renyolds', Clune's and the Long Tunnel workings, Hayes' Prospect and Ben Lomond Tungsten Mine.

Previous workers have compiled reports on the localities and operations of these ventures; the main workers concerned are : Blissett, Henderson, Nye and Reid.

The current investigation encompasses the above mentioned localities but the main emphasis has been centred around the Hayes' Prospect area.

General Geology.

Basically the area is composed of a faulted structure of Devonian granites (Blissett) and Permian sediments (Blissett). The major fault, the Castle Carey Fault, lies approximately in the valley of the Gipp's - Cradle Creeks and bisects the area such that the down thrown sediments are to the west and the granites are uplifted to the east. A more recent fault exists in the valley of the upper reaches of Gipp's Creek and displaces the Castle Carey Fault in the vicinity of the junction of Cradle and Gipp's Creeks. A probable consequence of this latter fault is the tilting of the southerly granite block. A little further to the north, a sub-parallel fault in the upper Cradle Creek has down thrown the northern block, thus preserving a small area of sediments of the Mathina Group.

The granite is the major interest of the area, for it is the host to veining, some of which contain metal values. The granite is medium to coarse grained and displays distinct jointing with a general north-westerly trend and easterly dips. The veining in the granite consists of three types : greisen, quartz-tourmoline and a chalcendony-like quartz. Excluding the latter type, the veining trend between 330° and 360° with easterly dips ranging between 12° and 55°. The similarity of jointing and veining trends and dips suggest that the jointing structure of the granite has been the controlling factor of the vein structure. The chalcedony-like quartz veins display east and west dips and are possibly associated with the major faulting of the area.

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Operations.

The Renyolds', Clune's and Long Tunnel workings are situated to the north of Gipp's Creek, on the eastern slopes of Cradle Creek. Both underground mining and sluicing have been undertaken in the past but present impressions give little hope for further large-scale exploitations. For a more complete understanding of the Clune's veining and associated Long Tunnel veining, which hold the most possibilities, cleaning of the existing adits would be necessary in conjunction with further underground development.

The Ben Lomond Tungsten Mine, to the south of the area, has only briefly been investigated but again further development does not appear a likely prospect. Further investigation is required to fully assess the system.

The remaining area, and the most promising, is the Hayes' Prospect.

Hayes' Old Tungsten Prospect.

Four major and several minor veins make up the Prospect's system and in general display strikes of 340° and varying dip of 30° to 55°. Minor greisen veins and threads are numerous and comply with the general character of the major veining. Only minor local faulting has been encountered and verified the local knowledge that faulting of the system is rare and of little significance with displacements being in the magnetude of only a few inches (D.Hayes).

The major veins are composed of mainly quartz and tourmoline of several generations, small amounts of wolframite and cassiterite and very minor occurrences of sulphide materials. The thicknesses vary along strike with the greatest widths attained in the central-south of the system. The maximum width recorded was 36 inches progressively narrowing to stringers to the north and south.

Although tourmoline is found present across the full width of a vein, the general tendency is for concentrations to be on the footwall of the veins while contrasting to this, wolframite has a tendency to be concentrated on the hanging walls in milky quartz. The tourmoline content also varies along the strike of the system, with high concentrations to the north progressively decreasing to the south. An impression gained from dump observations is that cassiterite is more prevalent to the south of the system with wolframite being more common in the central and northern regions. This impression is not upheld by assay evidence which more or less indicates an even wolframite -cassiterite distribution along the system. To the north the cassiterite tends to be inter-mixed with the tourmoline and to the south it has developed independently in the quartz.

The feature of the cassiterite grain size increasing to the south with reduction in elevation and the dilution of tourmoline suggests that

the host granite block has probably been tilted during faulting with the northern area being uplifted relative to the south.

For convenience, the four major veins have been termed "W","X","Y" and "Z", when observed from the east to west. Each of the veins have partially been exploited. Previous work has been in the nature of trenching, under hand stoping and over hand stoping from adit levels. Many of the old workings have either collapsed or been filled but six main working points (e.g. adits) are evident and for convenience are designated "A","B","C", etc. to "G".

The most easterly vein, "W", extends along strike for some 500 feet with dips ranging from 32° in the north to 42° in the south. About 400 feet of the vein has been exposed by trenching and in places has been under hand stoped. An adit, "F", was developed to intersect the vein in depth and was probably followed by overhand stoping. The maximum depth down dip from the surface that this vein has been worked would be about 25 feet. Metal values contained in dumps from the vein indicate good wolframite. Veining in the floor of accessible areas is quite strong and probably cessation of working the vein was due to difficulties involved with underhand stoping. The most northern stope face (under survey station G23) exhibits a strong vein but has only been exposed a short distance further north by surface trenching.

Vein"X" has been worked by underhand stoping for some 60 feet in the vicinity of G28 but can be traced to the south as far as "F" adit. At the northern extremity the vein joins with "Y" Vein and forms the vein "X-Y" which is exposed in "G" adit.

Vein "Y" extends along strike for some 800 feet south of it's junction with "X" Vein but has only been exposed for 300 feet. At the southern most exposure in "E" adit, the vein is 24 inches in width with an easterly dip of 40°. Dump evidence of this area indicates both cassiterite and wolframite values; the former being the more predominant. "C" adit has been developed to intersect the vein at about 60 feet down dip from the surface. In this exposure the vein is about 21 inches wide and dips easterly at 35°. Overhand stoping has been conducted from this adit level but the extent of extraction is unknown due to collapse of the workings.

The most westerly vein, "Z" has been worked by underhand stoping and from adits. The proven lateral extent of the vein is about 450 feet and easterly dips range from 42° to 55°. "A" adit intersects the vein at 40 feet down dip and has been driven to the north for 40 feet and to the south for at least 95 feet, connecting with a shaft from the surface. The southern face is not visible due to collapse but the northern face contains a strong vein of 26" in width with wolframite values. From this level overhand stoping has been conducted and in places, underhand stoping to a depth of about 15 feet down dip.

Around "D" adit there has been considerable collapse and infilling but probably a winze was developed from an adit, down the dip of "Z" vein. Underhand stoping from the surface has been employed but only to about 15 feet down dip. 004

Metal Occurrences.

Exposures of vein material in situ are very limited making assessment of the metal content of the system difficult. Exposures are limited to clean surface gouges and open stopes. Natural outcrops are rare due to the presence of over burden and many of the worked sites have suffered collapse, accumulated detritus or deliberate mullock filling.

(Another factor which hinders visual assessment of mineral content of veining is the similarity in appearance between wolframite and tourmoline. Where the two appear intermixed, distinction can be difficult and streak tests necessary).

Over the system a number of channel samples have been taken for assay. The sampling programme only gives an indication of the system's metal content due to the number of samples taken being limited to the sporadic exposures. It is probable that the assayed samples are of a lower grade than the overall system for sampled exposures are probably the remaining low grade blocks left during previous mining operations.

An idea of the merit of the veins is gained by examining the adjacent dumps. In most instances it is fair to assume that the grade of a stope would be somewhat higher than the material composing its dump since it is highly probable that the dump material is the rejects after hand sorting.

The assay results are as follows :

Sample Number	Location	%Sn	%WO_3	% CM. X	
5	Portal of "E" adit	0.58	0.20	0.62	
6	60 feet north of G23	0.12	0.10	0.07	
7	40 feet north of centre line of "A" adit in stope	0.12	2.11	1.94	Fair WO_3 in face.
8	70 feet from G30 in "G" adit.	0.78	0.4	0.16	
9	Veining in north bank of Ockle Gully	-	-	-	
10	Veining in north bank of Ockle Gully 90' from G30	0.10	0.20	0.08	The better looking vein.
11	65 feet from G30 in "G" adit	0.08	-	0.04	
12	156 feet south of "G" adit in trench on "X-Y" Vein	0.05	1.75	0.48	

X A nominal stoping width of 30" is used for the system.

Sample Number	Location	%Sn	%WO_3	%CM.	
13	12 feet south of centre line of "F" adit in stope	-	-	-	Faulted material.
14	3 feet south of centre line of "F" adit in stope	0.05	Tr	0.02	
15	75 feet from G30 in "G" adit	0.63	-	0.15	
16	28 feet northeast of G32 on "Y" Vein	-	-	-	Poor appearance.
17	86 feet easterly from G32 on "W" Vein	0.16	0.2	0.25	
18	140 feet south of G23 on "W" Vein	0.10	0.86	0.26	
19	126 feet from G23 on "W" Vein	0.92	-	0.28	
20	34 feet from G23 on "W" Vein in stope	-	0.20	0.07	
21	38 feet from G28 in trench near X-Y junction	-	-	-	
22	76 feet from G23 on "Y" Vein	-	-	-	
23	Near mouth of "C" adit	-	0.10	0.04	
24	152 feet from G30 on "Z" Vein, north end	0.42	0.20	0.16	
25	124 feet South of G30 on "W" Vein	3.5	-	0.93	Grab sample.
26	166 feet north of G32 on Vein	0.41	0.3	0.21	
27	Portal of "G" adit, main vein	-	0.1	0.03	
28	40 feet north of centre line "A" adit, 6' above adit level	-	0.1	0.03	
29	Shaft near G28	0.34	-	-	Pick sample only.
30	Junction of X & Y veins near G28	-	0.05	0.05	
31	Combination of 4 cuts of first vein back from face in "F" adit	-	-	-	
32	Combination of 3 cuts over 5 feet south of centre line "F" adit	0.88	-	0.44	
33	Combination of 4 cuts of second vein back from face in "F" adit	-	0.21	0.10	
34	Combination of 5 cuts over 9 feet south centre line "F" adit	0.05	0.05	0.04	
35	90 feet south from G30 on "X-Y" vein	-	0.96	0.35	
36	From small shaft opposite "G" adit portal	-	-	-	Pick sample only.
37	35 feet from G30 in trench leading to "G" adit	0.05	-	0.02	

Ore Reserve.

For ore reserve computations, only the four major veins have been considered. Other veins of lesser importance may be proven to be of value through the processes of development, thus adding to the figures stated below.

Ore reserve figures are quoted to the horizon of the new adit as proposed in the Recommendations, with the assumption that veining persists to this level. A nominal stoping width of thirty inches has been employed in conjunction with sample evidence to assess tonnages and grades of the system.

Vein	Length along strike	Tonnage
"W"	550 feet	23,600
"X"	200 "	9,800
"X-Y"	200 "	8,800
"Y"	600 "	18,300
"Z"	420 "	11,500
	TOTAL	72,000 Tons

The overall grade of the system as indicated by the sampling programme is 0.28 % combined metals, weighted over a nominal stoping width of thirty inches.

As previously stated, the sampled grade of the system is conservative due to the erratic distribution of sampled areas and probably represent areas of low grade left during previous mining operations.

RECOMMENDATIONS. 007

The exploratory development of the Hayes' Old Tungsten Prospect system is recommended to be approached in three stages :

Stage I

The driving of adit, "G", in the south bank of Ockle Gully should be extended along the strike of the main vein, "X-Y", for an additional 100 feet.

Accompanying this development, a truck and channel sampling programme should be conducted to gain further knowledge of grade and mineral distribution of the veining. Channel sampling of the existing adit indicates a grade of 0.17% combined metals but sampled outcrops (average 0.44%) suggest the values should improve with advancement along strike to payable values.

Stage II

"A" adit, the adit of lowest elevation, should be extended by crosscutting to intersect the more easterly veins. A maximum of 270 feet of advance will cover all known veining.

This development will prove the veins in depth and supply information of grade variations with depth. Additionally, the minor veining known at the surface, will be intersected and may possibly be proved of economic importance in depth.

(Further undertaking of this work, it will probably be necessary to strip off the walls of the existing adit for it is only approximately 2½ feet in width).

Stage III

If the above two stages prove the system to be an economic proposition, Stage III should be undertaken :
A new crosscutting adit should be commenced at the 2320 R.L. in the vicinity of the old hut, (see plan), and advanced along a bearing of 33° for some 330 feet to intersect the first major vein of the system, ("Y"). An additional 140 feet of crosscutting could be undertaken to intersect the most easterly known vein, "W".

Upon intercepting the first major vein, the vein should be driven northerly along strike for 170 feet, thus entering the centre of the system. From this stage of development, the walls should be diamond drilled to locate the other veins of the system and systematic exploitation planned.

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UNDERGROUND WORKINGS
2 SMALL VEINS SIMILAR
IN TREND TO HAYES SYSTEM

Ben Lemond Tungsten Mine

Hayes' Old Tungsten Prospect

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5 cm

ABERFOYLE TIN N.L.

GIPPS CREEK

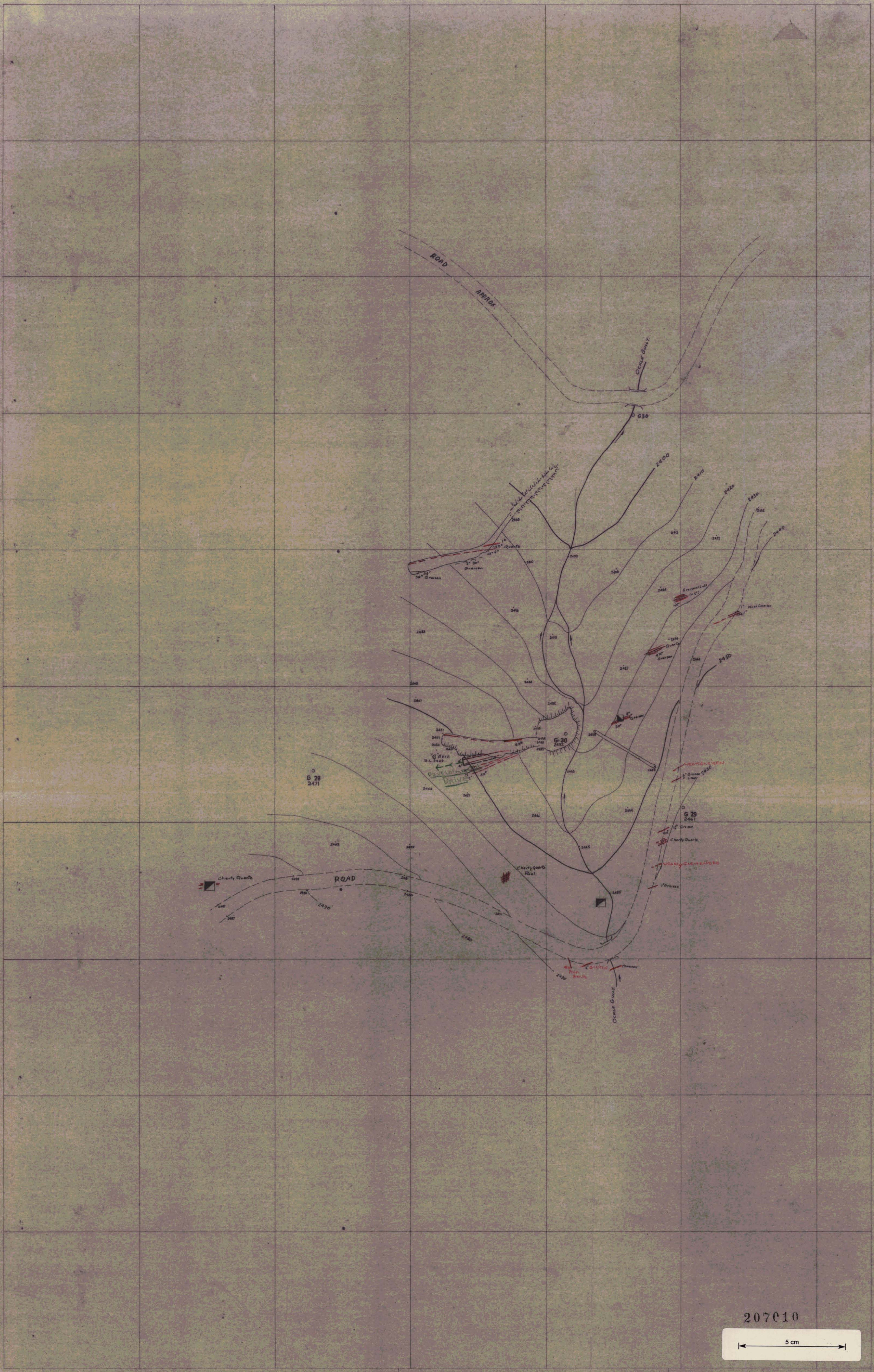
DRAWN

CHECKED

SCALE
100 FEET TO 1 INCH

SURFACE

Plan 1



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ABERFOYLE TIN N.L.

GIPPS CREEK

Plan 2

DRAWN	
CHECKED	
SCALE	40 FEET TO 1 INCH

HAYES' OLD TUNGSTEN PROSPECT (North End)