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FERNIE PHOSPHATE PROJECT

Cabin Creek	82G/02E	Lat 49° 07'	Long 114° 41'
Hunger Lake	82G/02E	Lat 49° 09'	Long 114° 40'
Barnes Lake	82G/07E	Lat 49° 27'	Long 114° 42'
Michel Creek	82G/02E	Lat 49° 27'	Long 114° 40'

1996 EXPLORATION PROGRAM

NTS sheets: 82G/02E and 082G/07E
Fort Steele Mining Division

FOR MAMMOTH GEOLOGICAL LTD.

R.Tim Henneberry, P.Geo.
May 20, 1997

SUMMARY

The Fernie Phosphorite Project consists of three properties totaling 48 units. The sedimentary phosphorite properties lie in the Jurassic Fernie Basin, in the Fort Steele Mining Division of southeastern British Columbia.

Exploration programs completed between 1970 and 1990 outlined a mineral resource of 475,000 tonnes grading approximately 20% P_2O_5 and 600 ppm yttrium to a depth of 25 metres. A recent government compilation has speculated the total mineral resource of these properties could be in excess of 45 million tonnes to 300 metres of depth.

The metallurgy of the Fernie phosphorites is not conducive to the present standard beneficiation techniques of grinding and flotation. Recent bench scale testing of a new process, direct leaching of raw phosphate rock, has met with considerable success and may prove to be applicable to the Fernie phosphorites.

Exploration in 1996 consisted of staking and prospecting across the 48 units over a 6 day period. The prospecting consisted primarily of checking locations of existing outcrops and trenches from earlier mapping and scouting locations for the planned trenching program to obtain metallurgical samples. Existing data was compiled into a complete report with mineral resources estimates calculated.

Phase I - Property acquisition	$10,097
Phase II - Trenching and metallurgical testing	$45,678
Phase III - Rotary drilling	$281,785
	========
Total Budget	$337,560

A staged three phase exploration program is recommended for the Fernie phosphorite project. Phase I will consist of additional staking to bring the property base to a minimum of 110 units. Phase II is a program of backhoe trenching to obtain sufficient phosphorite material to conduct a series of bench scale leaching tests. Phase III will consist of 12,000 feet (3,660 metres) of rotary drilling to firm up and expand mineral resource estimates. The total cost of the this three phase program is estimated at $337,560.

The cost of the 1996 exploration program was $8,395 and has been apportioned across the 4 claim groups for assessment credits.

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INTRODUCTION

The Fernie Phosphorite Project was initiated after a library search of open industrial mineral projects. The phosphorites generated interest because of two key aspects. First, Canada imports all of its phosphate. Western Canada imports its phosphate from the United States, predominantly the western United States. Second, these United States reserves are being rapidly depleted, leading to an anticipated phosphate resource shortfall by the turn of the century.

The main use of phosphate is in the production of phosphoric acid, and more importantly fertilizers.

Over $350,000 in prior exploration has been expended on the properties of the Fernie Phosphorite Project. These programs included: mapping, sampling, hand trenching, backhoe trenching and drilling.

	1970's Expenditures	1980's Expenditures	1990 Expenditures
Barnes Lake	$31,166 *		$18,266
Cabin Creek			$21,485
Hunger Lake			$32,227
Cabin and Hunger **	$25,121	$263,644	

* Data (hence costs) is only available after 1975, though program started in 1969.
** During these programs both properties were united and costs were not separated.

Initial metallurgical testing of the Fernie phosphorites has yielded poor recoveries utilizing the standard beneficiation techniques for phosphorites. Recent laboratory and bench scale tests utilizing a vat leaching process appears to be more suited to the ore and gangue suite of the Fernie Basin phosphorites.

These new metallurgical developments, combined with the previous exploration results and the preliminary mineral resource make the Fernie Phosphorite Project an attractive exploration project.

The Jurassic Fernie basin lies in the southeastern corner of British Columbia, within the Fort Steele Mining Division. The area of the basin is bounded by the Alberta border to the east and highways 3 and 43 to the west. The basin disappears to the north of the International Border to the south and disappears north of Elkford to the north

The area is serviced by the towns of Elkford in the north, Sparwood in the centre and Fernie in the south. A myriad of logging roads provide access to much of the basin.

GENERAL INFORMATION ON THE PHOSPHATE INDUSTRY

Geology

Phosphorus is present in the earths crust in concentrations averaging 0.10 to 0.12 percent and is the eleventh element in order of crustal abundance. Phosphate is concentrated in three main environments: marine sediments deposited in mid-paleolatitudes within restricted basins where there is upwelling of cold currents from great depths; in basic and ultrabasic alkaline igneous rocks; and in deposits of guano. Marine sedimentary ores account for approximately 80 percent of the worlds phosphate reserves, igneous deposits for around 18 percent and the remaining 2 percent from guano deposits (Krauss et al, 1984; Russell, 1987)

Sedimentary phosphate ores are commonly referred to as phosphorites. They are nondescript, white to dark greyish-brown to black, shaley to sandy rocks and can contain structureless pellets or have a nodular texture. A bluish-grey "phosphate bloom" may be present on weathered surfaces.

Deposits are mined which contain between 4 and 38 percent P_2O_5. In most cases, ores mined are beneficiated to produce a phosphate concentrate which is often referred to commercially as phosphate rock. Phosphate concentrates commonly contain 29 to 40 percent P_2O_5. The phosphorous content of ores and concentrates is often referred to, in the industry, as "bone phosphate of lime" (BPL) or "tricalcium phosphate" (TCP), which refers to the apatite content or $Ca_3(P_2O_4)_2$ rather than the weight percent P_2O_5 (Christie, 1978; Krauss et al, 1984). Conversion between the various expressions is as follows:

	P	P_2O_5	BPL (or TCP)
1.0% P	1.0	2.2914	5.0072
1.0% P_2O_5	0.4364	1.0	2.1852
1.0% BPL (or TCP)	0.1997	0.4576	1.0

Mining

Nearly 88 percent of the phosphate rock produced in market economy countries is recovered by surface mining techniques, with strip mining and open pit mining the most commonly used techniques. Commonly, between 2 and 7 tonnes of overburden and waste are moved per tonne of ore mined. Run-of-mine ore production capacity is 0.6 to 1.0 million tonnes per annum in small operations, 1 to 8 million tonnes per annum in medium-sized operations and 8 to 25 million tonnes per annum in large operations. In almost all cases, the run-of-mine phosphate material has to be beneficiated. The basic beneficiation methods employed are sizing, washing, flotation, calcining, and calcining with leaching. A phosphate beneficiation plant may use one or more of these techniques to produce a marketable product (Fantel et al, 1984; Krauss et al, 1984).

Location	Type	Overburden Thickness	Ore Thickness	Grade P_2O_5
Western U.S.	Open pit	5 to 10 m	9 to 18 m	21.3%
Western U.S.	Underground		1 to 1.2 m	31%
Florida	Open pit	3 to 10 m	3 to 8 m	7%
Tennessee	Open pit		0.6 to 1.2 m	16%

Phosphate rock mined in the western United States (Idaho, Montana, Wyoming, Utah) is from the Retort and Meade Peak members of the Permian Phosphoria Formation. The majority of mines are strip mining operations with ore zones ranging from 9 to 18 metres thick, with an average grade of 21.3 percent P_2O_5 and over 400 ppm yttrium. Overburden thickness is commonly 5 to 10 metres (Fantel at al, 1984). Cominco American operates an underground phosphate mine in Montana in which the phosphate horizon is 1 to 1.2 metres thick and has an average grade of >31 percent P_2O_5.

Phosphates mined in Florida and South Carolina are from the Miocene Hawthorne Formation and the younger, reworked deposits of the Bone Valley Formation. Ore thicknesses range from 3 to 8 metres, with overburden of 3 to 10 metres. Average grade is 7 percent P_2O_5. Flotation processes are used to beneficiate the ores. Phosphates mined in Tennessee have a minimum cutoff grade of 16 to 17.2 percent P_2O_5 and a minimum thickness of 0.6 to 1.2 metres. (Fantel et al. 1984).

Milling

The purpose of beneficiation is to raise the P_2O_5 level to commercial standards (30 to 37 percent P_2O_5) and to reduce the proportion of carbonate, iron and alumina oxides, organic matter or trace elements. Most phosphate rock requires some beneficiation prior to shipment to processing plants, hence the mineralogical and chemical characteristics of the deposits are important.

Acid grade phosphate rock	+31% P_2O_5
Furnace grade phosphate rock	24% to 31% P_2O_5
Beneficiation grade phosphate rock	18% to 24% P_2O_5

Phosphate rock produced in the western U.S. is classified as acid or fertilizer grade, more than 31 percent P_2O_5; furnace grade 24 to 31 percent P_2O_5; and beneficiation grade, 18 to 24 percent P_2O_5. Acid-grade rock is used directly in fertilizer plants, furnace-grade rock is charged to electric furnaces and beneficiation-grade rock is upgraded to acid-grade or furnace feed. Most western U.S. phosphate ore is beneficiated by crushing, washing, classifying and drying (Stowasser, 1985).

Processing

The first step in the processing of phosphate rock into fertilizers is producing phosphoric acid. This is done by either the "dry" or "wet" process. In the dry process, phosphate rock is roasted to elemental phosphorous. The phosphorous is then oxidized to produce P_2O_5 and finally absorbed in water to yield H_3PO_4. This process produces a very high quality acid, however, the high cost usually precludes it as the most favored method in making fertilizers.

The wet process involves acidifying raw phosphate rock (finely ground to 200 mesh sieve size) with a strong acid as sulphuric, nitric, phosphoric or hydrochloric. Sulphuric acid is favored in western Canada because of its low cost, high availability and lower corrosiveness. The resulting crystallized gypsum ($CaSO_4$) is removed and the "Filter Acid" (26% to 30% P_2O_5) is evaporated under vacuum to produce concentrated "plant phosphoric acid" (40% to 44% P_2O_5) or higher grade "commercial" or "merchant" grade acid (45% to 54% P_2O_5). Plant phosphoric acid is then transferred to the fertilizer production units where varying amounts of ammonia are added. The final step is the formation of uniform size granules, and the drying of the granules. The over-all production of ammonium phosphate fertilizers by the wet process is about 88% to 92% efficient in recovering the available P_2O_5 in the raw phosphate rock.

Filter grade phosphoric acid	26% to 30% P_2O_5
Plant grade phosphoric acid	40% to 44% P_2O_5
Merchant grade phosphoric acid	45% to 54% P_2O_5

Most commercial fertilizer plants use a wet acidulation method in the initial stage of fertilizer production. Phosphate rock is treated with sulphuric acid to produce phosphoric acid and gypsum ($CaSO_4$) as a waste product. A high calcium carbonate content in the phosphate rock increases the consumption of sulphuric acid while magnesium renders the phosphoric acid unacceptably viscous. Elevated concentrations of organic matter are also undesirable (but can be removed by calcining), as are trace elements such as cadmium, lead, mercury, arsenic and chromium (Butrenchuk, 1987; Krauss et al, 1984).

Phosphate rock to be used in fertilizer plants must meet the following specifications:

-> P_2O_5 content : 27 to 42 percent
-> $CaO:P_2O_5$ ratio: 1.32 to 1.60 for apatite
-> $\frac{Al_2O_3 + Fe_2O_3 + MgO}{P_2O_5}$ < 0.1 (optimum value)
-> MgO tolerance is approximately 1.0 percent
-> Cl: < 0.2 percent
-> BPL:MgO ratio : 170 or higher
-> BPL:(Al_2O_3 + Fe_2O_3 ratio : > 20
-> BPL:CaO ratio : > 1.5

BPL = Bone phosphate of lime = (2.1852 * percent P_2O_5)

The wet acidulation fertilizer production process involves:

Starting materials:	3.5 tonnes of phosphate concentrate
	1 tonne of sulphur or,
	3 tonnes of sulphuric acid (H_2SO_4)
Products :	1 tonne of P_2O_5 in the form of H_3PO_4
	5.5 tonnes of hydrated calcium sulfate (phosphogypsum)
	<81 kg of fluorine as HF or
	102.5 kg of H_2SiF_6 of which 36 kg are recoverable

The phosphogypsum is generally considered a waste product as it cannot compete with other commercial sources of gypsum due to its fine grain size and numerous impurities (Krauss et al. 1984).

In North Carolina, phosphogypsum has been mixed with flocculated colloidal clays produced in washing plants and used to backfill mined out excavations; research is also underway to determine if it could be used as a compacted sub-base for highways, secondary roads and parking lots. The economics of calcining phosphogypsum to produce a cement-type clinker and sulphur dioxide, from which elemental sulphur could be recovered, are also being examined (Stowasser, 1988).

End Products

Four main products are produced from phosphate rock: elemental phosphorous, phosphoric acid, phosphatic fertilizers and phosphate chemicals. The majority of phosphate ores mined (approximately 90%) is used in the production of fertilizers; some also goes into the production of detergents, animal feed supplements, food preservatives, water treatment substances, anti-corrosion agents, cosmetics and fungicides; and minor amounts are used in the metallurgy and ceramics industries.

In western Canada, phosphoric acid is produced at three plants: Cominco Ltd at Trail, B.C.; Esso Chemical Canada at Redwater, Alberta and Sherritt Gordon Mines Limited at Fort Saskatchewan, Alberta. Most of the product is used in the manufacture of fertilizers, with a minor amount used to produce calcium phosphate. Phosphate fertilizers produced are mainly of the diammonium phosphate (DAP) and monoammonium phosphate (MAP) varieties.

World Supply

The principle world phosphate producing countries over the last five years were the United States, China, Morocco and the former U.S.S.R. Jordan, Tunisia, Israel, South Africa, Senegal, and Togo also produce significant volumes of phosphate rock.

Phosphate Rock World Production (thousand tons) by Country
From: Cantrell (1995)

Country	1990	1991	1992	1993	1994
United States	46,300	48,100	47,000	35,500	41,100
China	21,600	22,000	23,000	24,000	24,000
Morocco	21,400	17,900	19,100	18,300	18,000
Former U.S.S.R.	36,800	28,400	18,500	13,400	11,000
Jordan	6,080	4,430	4,300	3,570	3,500
Tunisia	6,260	6,350	6,400	5,500	5,500
Israel	3,520	3,370	3,600	3,590	3,600
South Africa	3,170	3,180	3,080	2,470	2,880
Senegal	2,150	1,740	2,280	1,670	1,600
Togo	2,310	2,970	2,080	1,750	1,800
Remainder	12,410	11,560	8,060	11,250	11,020
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Totals	162,000	150,000	141,000	121,000	124,000

More than 50 percent of the phosphate rock produced in the United States is exported, placing it second to Morocco in exporting countries. Other important exporting countries are: Israel, Jordan, the former U.S.S.R., the Pacific Islands, and west Africa. Asia, western Europe, Latin America, Oceania and Canada were the major phosphate importing regions of the world.

Although Canada has substantial phosphate deposits, none are near production. Therefore, Canada imports all of its phosphate rock. Most of these imports come from Togo, which has recently supplanted the United States as the number one Canadian supplier. A large portion of western Canada's phosphates are still imported from the western United States.

Canada will likely continue to source phosphate rock outside the United States unless new sources, either local or foreign, are found. Experts predict by the year 2000 the demand on U.S. phosphates will far exceed the capacity. This will also have an effect on the other major importers of U.S. phosphate rock, Japan and Korea.

The price of phosphate rock showed a dramatic slump in the late 1970's, but has subsequently stabilized. The present prices (f.o.b. Florida) are from Gurr (1996):

Location	December 1994	December 1995
Central Florida	US$19.85-24.25/t	US$24.25-26.45/t
US Gulf (68% BPL)	US$33.00-35.25/t	US$35.25-37.50/t
US Gulf (72% BPL)	US$38.80-41.90/t	US$39.70-44.10/t
US West (72% BPL)	US$37.48/t	US$35.72/t

After accounting for ship transport to Vancouver, followed by rail transport to the Alberta plants, prices in the range of Cdn$70 to Cdn$80 (delivered to plant) could make Canadian deposits economic. (Barry, 1987).

In 1986 the annual capacity of fertilizer plants in western Canada was 724,000 tonnes, of which, the greatest capacity was in Alberta. At present there is only a single fertilizer plant in British Columbia, operated by Cominco Limited at Trail.

By-products that may be recovered from the processing of phosphate rock include uranium, vanadium, fluorine and rare earth elements. Uranium has the best potential for by-product recovery but is generally only recovered at a very few plants. Vanadium, used in the iron and steel industry, is the only metal currently being recovered as a by-product of phosphate extraction in the United States. Fluorine is used in the chemical, ceramics and steel industries and in the refining of uranium ores.

Yttrium	US$23.63 per kilogram
Cerium	US$4.05 per kilogram
Lanthanum	US$3.94 per kilogram

A variety of rare earth metals and yttrium occur in sedimentary phosphate deposits, including the British Columbia deposits. Rare-earth growth in the United States is forecast to be less than 3 percent while in Japan demand for yttrium, lanthanum, cerium, and europium is expected to increase at the rate of 13 percent compounded annually until the year 2000. The actual growth rate for yttrium in Japan in the past few years has been 35 percent (King, 1986). At the present time world consumption for yttrium is growing at a rate of 10 to 17 percent per annum. In 1991 the price of yttrium (99.99% purity) was US$23.63 per kilogram; the price for cerium was US$4.05 per kilogram, and the price for lanthanum was US$3.94 per kilogram (Castor, 1994). Yttrium, lanthanum and cerium are used as dilutents in nuclear reactors. Rare earth elements are also used in magnetic materials, phosphors, neutron capture applications, glass, ceramics, and other uses (Castor, 1994).

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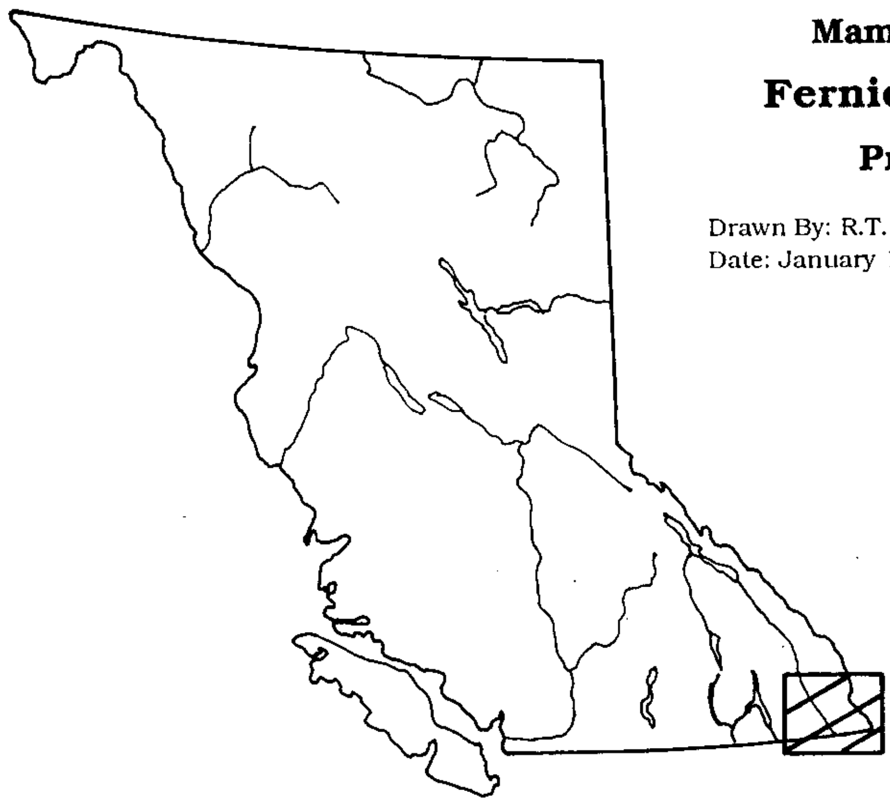
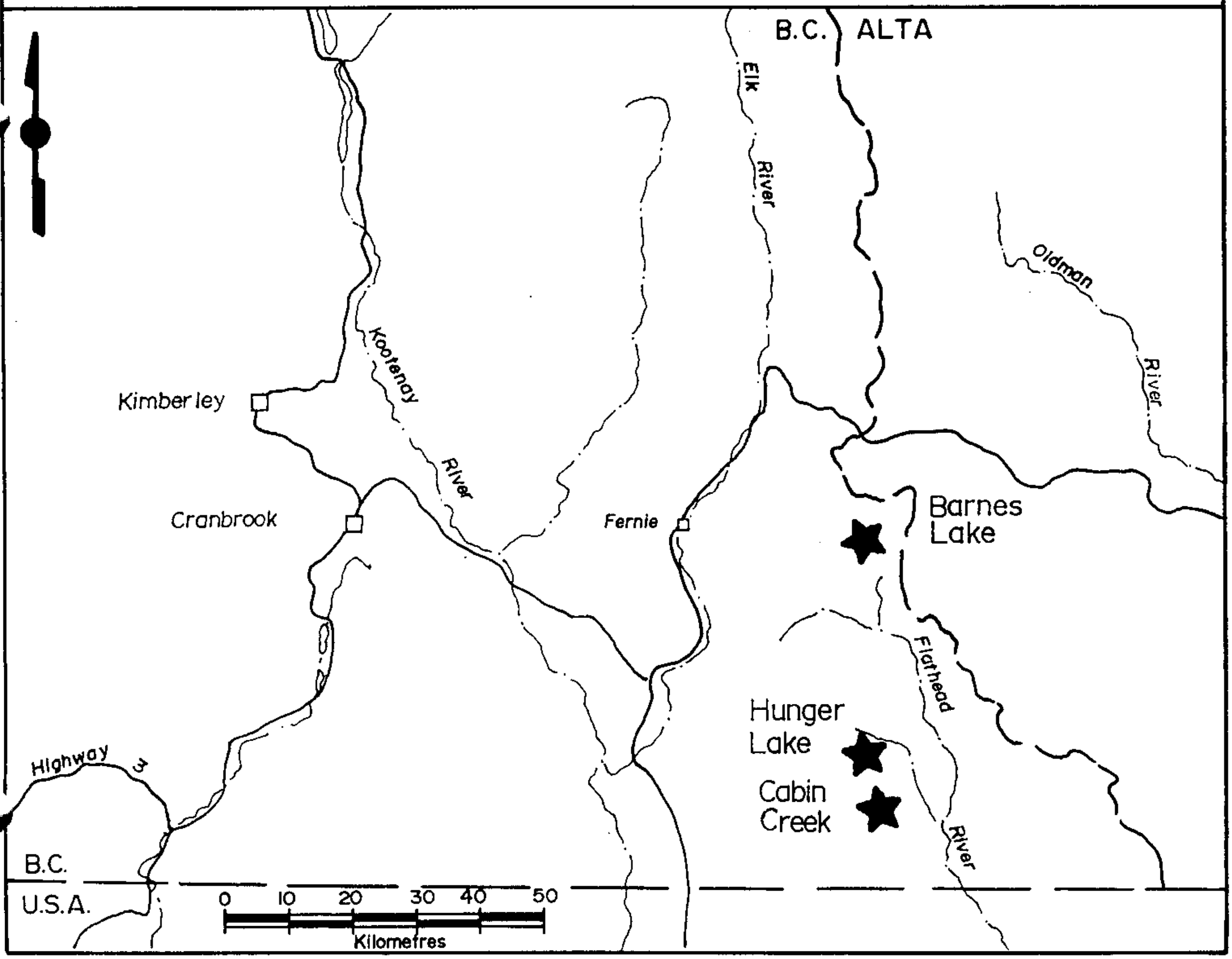
Fernie Phosphate Project

Property Locations

Drawn By: R.T. Henneberry
Date: January 1997

Figure 1





REGIONAL GEOLOGY
(Summarized from Butrenchuk, 1987; 1996)

Southeastern British Columbia is characterized by a sequence of Devonian to lower Jurassic marine strata deposited in a miogeosyncline along the western edge of the stable proto-North American craton. Depositional environments for the different sequences varied from platformal to basinal.

Cambrian to Mississippian strata, consisting of shallow-water carbonate assemblages that pass westward into deeper water, are predominantly limestone, shale and siltstone. Pennsylvanian strata were deposited in a shallow marine environment, producing fine clastic and carbonate units. Low energy, shoreline conditions characterized the Permian, depositing fine grained sandstone, siltstone, chert and minor shale. The end of the Permian is marked by a major unconformity.

Triassic sedimentation took place in a stable shelf environment, marked by bar and deltaic deposits on the eastern limits of the shelf and widespread finer clastic sediments to the west. The end of the Triassic is also defined by a major unconformity.

Moderately deep-water sedimentation, and minimal miogeosynclinal subsidence characterized the Jurassic. Deposition of widespread phosphorite and phosphatic shales carried throughout the lower Jurassic, especially at the base of the Fernie Formation, within the Fernie Basin.

Non-marine Cretaceous strata containing extensive coal measures overlie the miogeosynclinal stratigraphy.

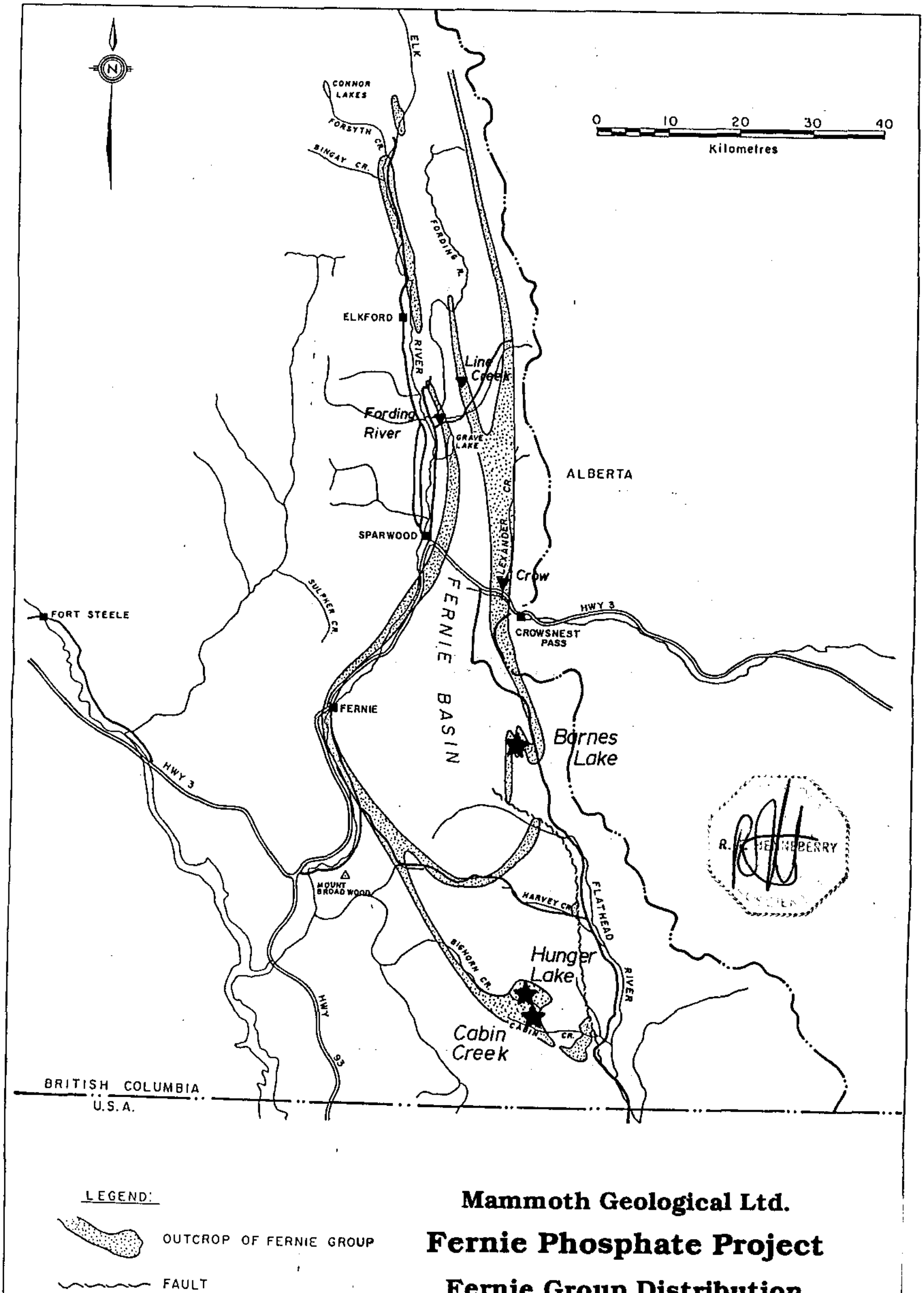
Thrust faulting, with older rocks overriding younger rocks to the east is a common phenomenon of the eastern Rocky Mountains. Further complicating structure, the Fernie Basin has been folded in a doubly-plunging syncline. Several west-side-down normal faults cut the centre of the synclinorium.

Fernie Formation

Yttrium-rich phosphatic rocks occur in a number of stratigraphic intervals within the miogeosyncline; however, the thickest and most continuous phosphate horizon was developed at the base of the Jurassic Fernie Formation. The basal Fernie phosphatic strata are generally one to two metres thick, and contain unusually high concentrations of yttrium.

The base of the Fernie Group is marked by a persistent pelletal phosphorite horizon that is 1 to 2 metres in thickness and generally contains greater than 15% P_2O_5. Grades in excess of 30% P_2O_5 have been located. The horizon commonly consists of two pelletal phosphorite beds separated by a thin chocolate brown to black phosphatic shale bed. The basal phosphorite rests either directly on Triassic strata or is separated from the underlying rocks by a thin phosphatic conglomerate. Phosphatic shales of variable thickness, generally less than 3 metres, overlie the phosphorites. The top of this sequence is locally marked by a yellow-orange bentonite bed.

The entire Triassic / Jurassic sequence has been structurally deformed, primarily by folding and thrust faulting. This structural deformation is important as it can result in considerable thickening of the phosphorite horizon, either by thrusting one section of the horizon directly on top of another, or by slumping during folding resulting in increased thicknesses at the nose of folds. The folding can also bring larger areas of the horizon close to surface, paralleling the topography. A combination of any or all of these phenomenon makes an especially attractive target.



Mammoth Geological Ltd.

Fernie Phosphate Project

Fernie Group Distribution

Drawn By: R.T. Henneberry From: Butrenchuk (1987)
Date: January 1997 **Figure 2**

REGIONAL EXPLORATION HISTORY

The exploration history of the Fernie Basin began in the period 1925 to 1932 when Consolidated Mining and Smelting Company of Canada, Limited (later Cominco Ltd.) outlined various phosphate horizons in the Devonian to Jurassic stratigraphic succession, and defined the areas which offered the greatest economic potential. Exploration development work was highlighted by the opening of three small exploratory underground mines. Bulk sampling and metallurgical testing attempted to identify a beneficiation method to upgrade the phosphate rock, without success. Cominco obtained mining leases on the important showings of the time. (Kenny, 1977).

The next period of exploration was again initiated by Cominco Ltd. in the early to mid 1960's. Several of the phosphate leases were further explored to upgrade Cominco's data base. New metallurgical techniques were utilized on bulk samples from some of the lease and preliminary feasibility studies were conducted on two of the leases. (Kenny, 1977).

The entire basin became active in the late 1970's through to earlier 1980's, when the exploration moved further south as these areas became accessible through the construction of logging roads. Cominco Ltd. located additional properties, conducting trenching and drilling programs, as well as further metallurgical testing (Kenny, 1978).

Several other companies, including Imperial Oil Ltd. and First Nuclear Corporation Ltd. were active in the southern section of the Fernie basin, conducting mapping, trenching and percussion or diamond drilling programs (Heffernan, 1978; Van Fraassen, 1978; Hartley, 1982). Metallurgical testing was undertaken on samples from the southern Fernie Basin by both the Federal Government (Hartman and Wyman, 1974) and industry (Corder, 1972).

Formosa Resources Corporation explored several of the known showings in the southern Fernie Basin during 1989-1990 (Pell, 1990a, 1990b, 1990c). These programs consisted of mapping and backhoe trenching. No metallurgical work was completed during this program.

The provincial geological survey has directed two recent programs at the phosphate potential of the Fernie Basin, leading to two publications: Butrenchuk (1987) and Butrenchuk (1996). These programs consisted of compilation of known data, supplemented by a fill-in mapping and sampling program.

The exploration programs have shown there to be a considerable phosphate resource within the Fernie Basin, estimated by Butrenchuk (1996) at 340 million tons grading 15% to 20% P_2O_5.

The last hurdle to be overcome is metallurgy. On-going testing by Cominco Ltd., supplemented by others has not yet reached the point where the phosphorites can be beneficiated to produce a saleable concentrate. According to Butrenchuk (1996) the last metallurgical testing was Cominco Ltd.'s, now over 10 years old.

Recent industry research has been directed at direct leaching of raw phosphate rock. Recoveries ranging from 98% on Phosphoria Formation phosphorite (Judd et al, 1986) to 90% on Florida phosphorites (Wilemon and Scheiner, 1987) have been obtained. Habashi (1994) is also conducting leaching tests on the Florida phosphorites and has designed a preliminary bench scale flow sheet. Direct leaching of the phosphorites also enhances the rare earth element recoveries (Habashi, 1994), a key consideration for the Fernie phosphorites.

BARNES LAKE

The Barnes Lake phosphate occurrence lies within the basal Fernie Formation phosphorite bed. This area was first explored in the late 1960's. Two claim groups (totalling 18 units) were staked to cover the key areas of the occurrence. The claims lie on sheet 082G/07E.

Claim Name	Record Numbers	Record Date
MC #1-#6	348594-348599	July 15, 1996
BL #1-#12	348582-348593	July 16, 1996

Location and Access

The Barnes Lake phosphate occurrence is located in the Fort Steele Mining Division, approximately 32 kilometres south of Sparwood and 27 kilometres east of Fernie. The Flathead Forest Service Road provides access to the northern section of the property. Recent flooding has washed out the Michel Creek bridge, requiring minor repairs to complete a ford or level crossing of the creek. As well, two areas of the exploration road on the west side of Michel Creek will require some repairs to re-establish four wheel drive access to the main showing areas. Presently, a four wheel drive ATV could utilize the road as is.

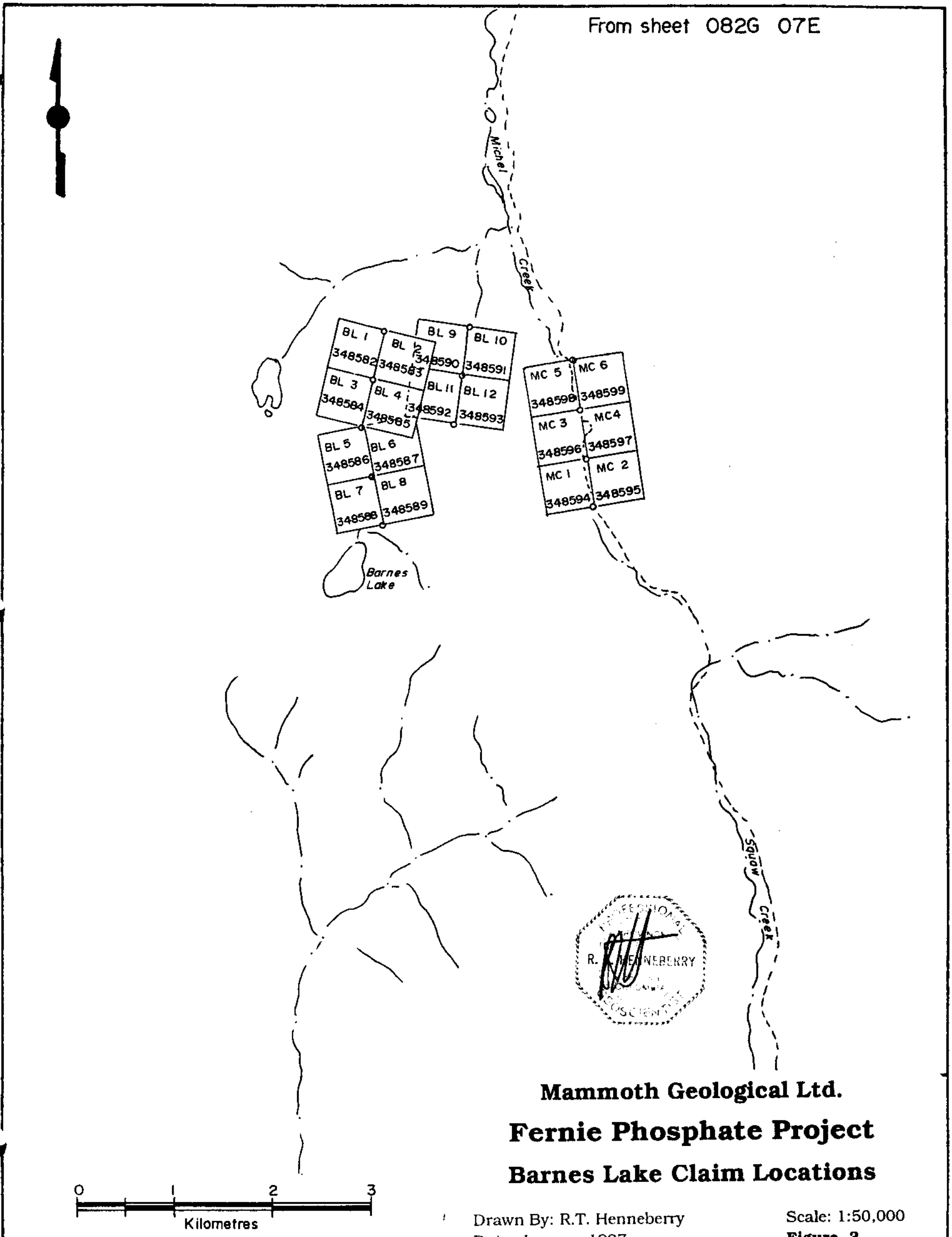
Elevations in the area range from 1585 metres to 2255 metres. Stands of spruce and timber are present at lower elevations, while alpine terrain predominates as elevation increase. The claims are readily accessible from early July to mid-October. Water for drilling is available from numerous creeks at lower elevations, but likely only from Barnes Lake itself at higher elevations.

Previous Exploration

The Barnes Lake occurrence has undergone two periods of exploration, the Western Warner Oils / Medesto Exploration programs in the 1970's and the Formosa Resources Corporation program in 1989.

The Western Warner / Medesto programs have been poorly documented. Exploration activity consisting of mapping, trenching, drilling and bulk testing were reported (1968 Ministry of Mines Annual Report, 1969 through to 1972 Ministry of Mines Geology, Exploration and Mining in British Columbia; 1968 MMAR, 1969 GEM to 1972 GEM) but documentation is not available nor is it in the public domain.

The first documented program was a refraction seismic survey completed in 1975. Four seismic lines were run, three on the west side of Michel Creek and one on the east side over a strike length of 4.5 kilometres. Prior to the field testing of the conclusions, the survey was deemed to have located the phosphorite bed on each of the lines. (Dorian, 1975).



Mammoth Geological Ltd.

Fernie Phosphate Project

Barnes Lake Claim Locations

Drawn By: R.T. Henneberry
Date: January 1997

Scale: 1:50,000
Figure 3

Percussion and diamond drilling was undertaken in 1977 to test the phosphorite to depth on two of the seismic lines. Neither of the drill holes reached the phosphorite horizon, the first not reaching bedrock and the second falling short of the horizon. The drilling results cast considerable doubt on the conclusions of the 1975 seismic survey. (Pelzer, 1977).

Undocumented 1968-1972 Barnes Lake Exploration Programs

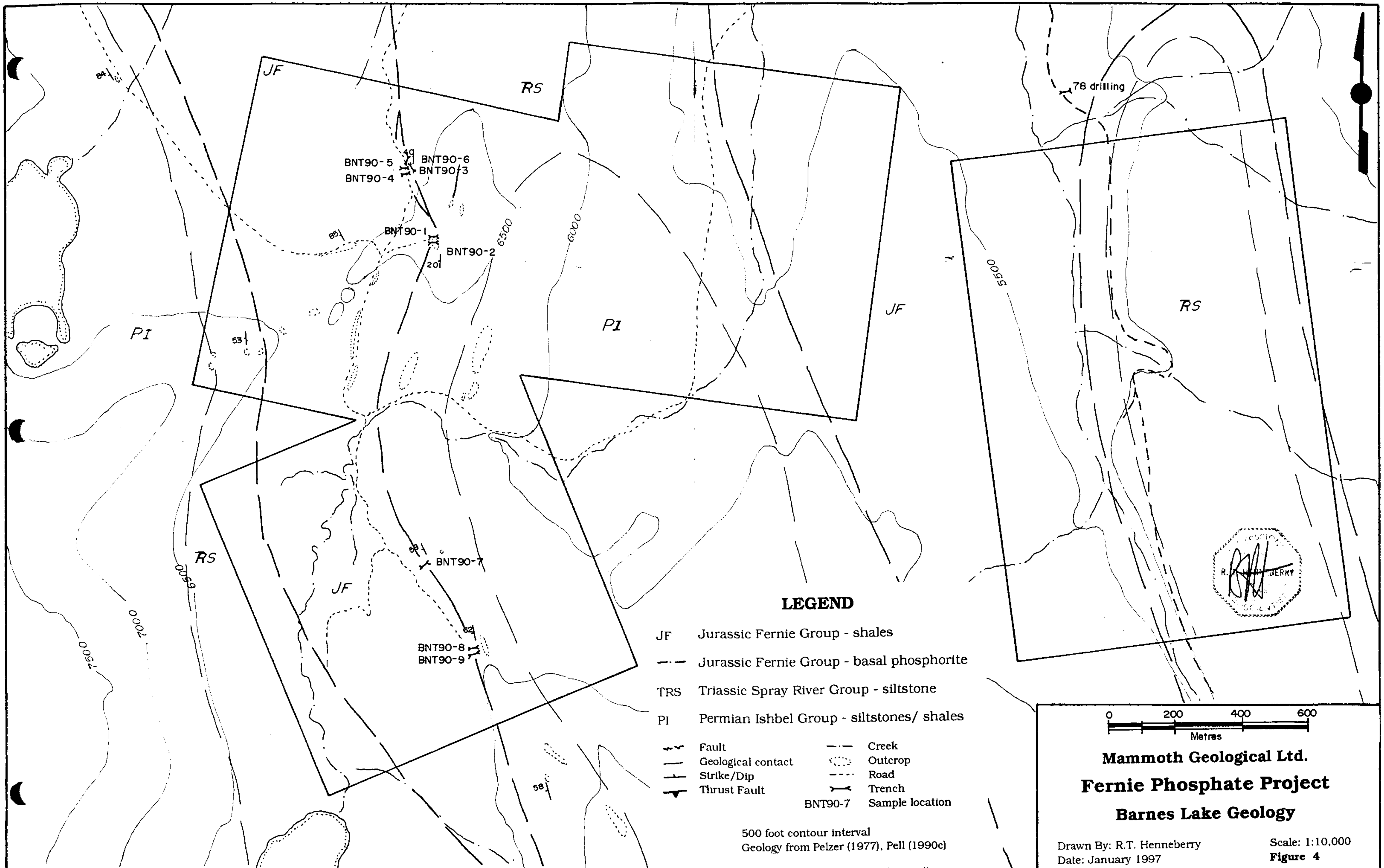
Reference	Claims	Program
1968 MMAR pp.324	WW (not specified)	5 miles access road
	WW (not specified)	642 feet (7 holes) drilling
1969 GEM pp.398-399	WW (not specified)	50 ft long bulldozer trench
	WW (not specified)	1 mile of road construction
	WW (not specified)	756 feet (6 holes) diamond drilling
	PH (not specified)	2 drill holes (no footage)
1970 GEM pp.504	WW (1-40)	8 by 1600 ft trench
	WW 48, 57, 101	217 feet (3 holes) drilling
1971 GEM pp.468-469	WW 46,48,50,102,104	1 mile of road
	WW 46,48,50,102,104	20,400 ft trenching
	WW 55,102	207 feet (2 holes) drilling
	PH 8,10	2000 ft trenching
1972 GEM pp.606-605	WW 102,104	280 feet (5 holes) drilling
	PH 10	120 feet (2 holes) drilling

A compilation report (Dales, 1978) described the 1978 drilling program and provided minimal details on the programs completed during the early 1970's. Dales (1978) reported an earlier reserve calculation of 288,000 tons of phosphate rock to a depth of 50 feet (18 m) assuming a thickness of 3 feet (1 m) based on bulk testing and diamond drilling.

Mineral Resource Tonnage Summary

Area Block	m width	% P_2O_5	ppm Y	to 18 m depth
From Dales (1978)	1.00	27.00	na	288,000

Formosa Resources Corporation (Pell, 1990c) explored the Barnes Lake phosphorites in 1990. They undertook a program mapping, sampling, hand trenching and backhoe trenching. Eight backhoe trenches and two hand trenches were established along strike on the west side of Michel Creek. The trenching results, summarized below, confirmed the continuity of the phosphorites and the continuity of grade along strike, substantiating the earlier work compiled by Dales (1978).


JF
RS
BNT90-5
BNT90-6
BNT90-3
BNT90-4
BNT90-1
BNT90-2
6500
6000
5500
78 drilling
PI
JF
RS
RS
JF
BNT90-7
BNT90-8
BNT90-9
7500
7000
LEGEND
JF Jurassic Fernie Group - shales
Jurassic Fernie Group - basal phosphorite
TRS Triassic Spray River Group - siltstone
PI Permian Ishbel Group - siltstones/ shales
Fault
Geological contact
Strike/Dip
Thrust Fault
Creek
Outcrop
Road
Trench
BNT90-7 Sample location
500 foot contour interval
Geology from Pelzer (1977), Pell (1990c)
0 200 400 600
Metres
Mammoth Geological Ltd.
Fernie Phosphate Project
Barnes Lake Geology
Drawn By: R.T. Henneberry
Date: January 1997
Scale: 1:10,000
Figure 4

Assay Results from Sections Through the Barnes Lake Phosphate Horizon

Showing	Source	% P2O5	ppm Y	m width	Showing	Source	% P2O5	ppm Y	m width
BN 90-23	Pell 1990c	30.50	777	0.98	BN 90-37	Pell, 1990c	27.29	658	0.65
BNT 90-01	Pell 1990c	25.00	722	0.68	BNT 90-05-1	Pell, 1990c	23.73	643	1.24
BNT 90-02	Pell 1990c	25.67	718	0.52	BNT 90-05-2	Pell, 1990c	25.14	758	0.75
BNT 90-03-1	Pell 1990c	23.16	629	1.11	BNT 90-06	Pell, 1990c	24.89	712	0.87
BNT 90-03-2	Pell 1990c	21.63	712	1.11	BNT 90-07	Pell, 1990c	23.58	595	1.45
BNT 90-04	Pell 1990c	21.24	582	0.78	BNT 90-08	Pell, 1990c	20.94	493	1.62
					BNT 90-09	Pell, 1990c	22.14	565	2.07

Geology (summarized from Pell (1990c))

The Barnes Lake occurrence is underlain by Permian through to Jurassic strata. The Permian Ranger Canyon Formation rocks are medium to thick-bedded, cream to buff to light-grey weathering, fine-grained sandstones, siltstones and dolomitic siltstones, with white to light grey fresh surfaces.

The Triassic Sulphur Mountain Formation rocks are predominantly buff, yellowish-brown and chocolate brown weathering, thin to medium bedded siltstones and shalely siltstones. Dark brown shale horizons with thin siltstone interlayers are common within the formation, occurring commonly at the top of the formation.

Fernie Group rocks are recessive weathering and poorly exposed. Where the base of the Fernie Group is exposed, it is marked by a phosphorite horizon that is commonly 1.1-2.1 metres thick. Brown and black shales commonly overlie the phosphorites. The shales are overlain by black, brown and dark grey shales with interbedded buff to orange weathering dolostones, buff, fine-grained sandstones and light-grey limestones.

The basal phosphorite horizon generally consists of poorly to well consolidated, gritty, pelletal phosphorite and shalely phosphorite capped by phosphorite shale.

In most trenches, the phosphorite horizon overlies orange to yellow clays, or interbedded buff to brown Triassic shales and siltstones. The phosphorites are generally shalely to pelletal in nature and exhibit an increase in grade upsection until a fairly pure phosphorite (28% to 32% P_2O_5) is developed. Commonly, the high-grade phosphorite is black, pelletal and overlain by increasingly shalely phosphorite and shale. Locally, phosphate nodules hosted in a pelletal phosphate matrix are developed in the high grade beds.

On the Barnes Lake claims, the stratigraphically complete measured sections average 22.53% P_2O_5 and 606 ppm yttrium across an average thickness of 1.43 metres. One incomplete section contained an average of 30.5% P_2O_5 and 777 ppm yttrium across 0.98 metres. The values ranged from 2.66% P_2O_5 and 98 ppm yttrium in shale layers within the phosphorite section to 32.18% P_2O_5 and 1065 ppm yttrium in the phosphorite itself.

The structure of the Barnes Lake area is dominated by a pair of north-northwest trending, upright to overturned anticlines and the intervening syncline which is cored, in the central and northern part of the property, by a thrust fault. Small backthrusts occur along the western limb of the easternmost anticline and locally disrupt phosphatic strata.

Pell (1990c) identified an area, on the west limb of the easternmost anticline, where the dip of the phosphate bed and the hillside are roughly parallel.

CABIN CREEK

The Cabin Creek phosphate occurrences lie within the basal Fernie Formation phosphorite bed. Three distinct bands or zones, represented by structural repeats have been identified. This area was first explored in the late 1970's. Three claim groups (totalling 16 units) were staked to cover the key areas of the occurrence. The claims lie on sheet 082G/02E.

Claim Name	Record Numbers	Record Date
CC #1-#9	348600-348608	July 13, 1996
CC #10-#15	348609-348614	July 14, 1996
DC #1	348615	July 14, 1996

Location and Access

The Cabin Creek phosphate occurrences are located in the Fort Steele Mining Division, about 45 kilometres southeast of the town of Fernie in southeastern British Columbia. The claims are accessible by maintained then secondary logging roads with the maintained logging road leaving Highway 3 at the Morrissey Road turnoff.

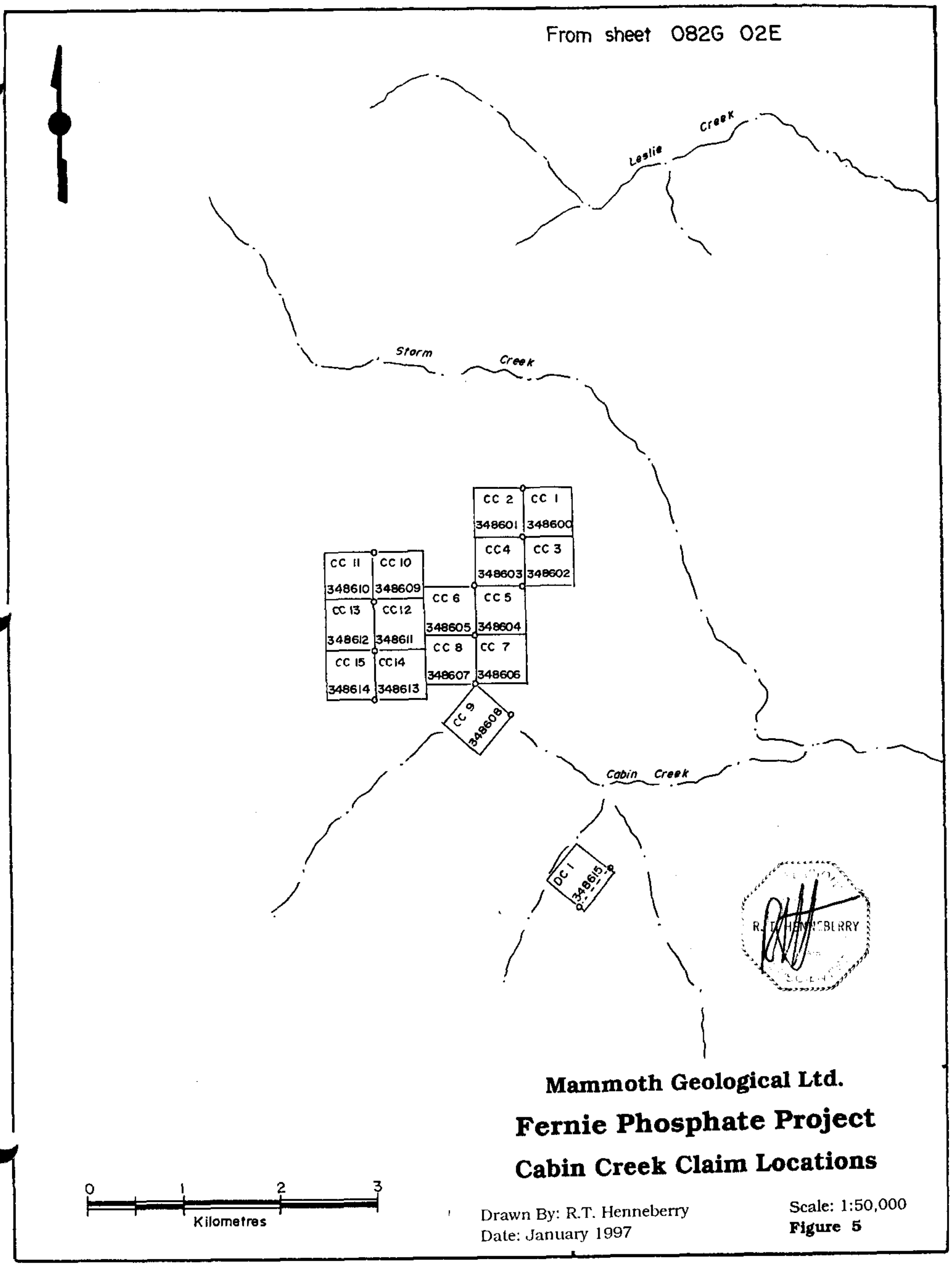
The actual claims lie on the north slope of Cabin Creek Valley, accessible via the Cabin Creek Forestry Road and its spurs, though the spurs are now cut by regularly spaced water bars or ditches, requiring a 4X4 vehicle for access.

Elevations range from 1675 metres to 2135 metres. Large areas have recently been clearcut; grasses, small plants, fireweed and stumps characterize these areas. Unlogged parts of the claims host stands of spruce and fir. The properties are snow-covered from mid- to late- October to late-May to early-June. Water for drilling is available from creeks in the lower elevations, but significant lengths of waterline may be required for drilling higher on the hills.

Previous Exploration

Imperial Oil Limited (Van Fraassen, 1978) explored the Cabin Creek phosphorites in 1977 and 1978. Imperial Oil undertook a program of mapping, sampling and percussion drilling. The sampling results are summarized below. The percussion drilling results, based on a total of 19 holes, were poor. Subsequent examination of the plots of the hole locations, strongly suggests several of the holes were collared in the footwall of the phosphorites. One intersection was obtained: Hole 23-7B, 21.8% P_2O_5 from 5.7 to 6.5 metres depth.

First Nuclear Corporation Limited (Hartley, 1982) explored the Cabin Creek phosphorites in 1981, undertaken a program of prospecting, mapping, hand-trenching and cat trenching. The prospecting program consisted of scintillometer survey to trace the surface projection of the phosphorites, utilizing the low-grade uranium content of the higher grade phosphorite. A total of 12 trenches were excavated either by hand or by D7 cat to sample the phosphorites at semi-regular intervals along strike. Further exploration, consisting of seismic surveys and drilling was recommended, but never followed through.



Mammoth Geological Ltd.

Fernie Phosphate Project

Cabin Creek Claim Locations

Drawn By: R.T. Henneberry
Date: January 1997

Scale: 1:50,000
Figure 5

Assay Results from Sections Through the Cabin Creek Phosphate Horizon

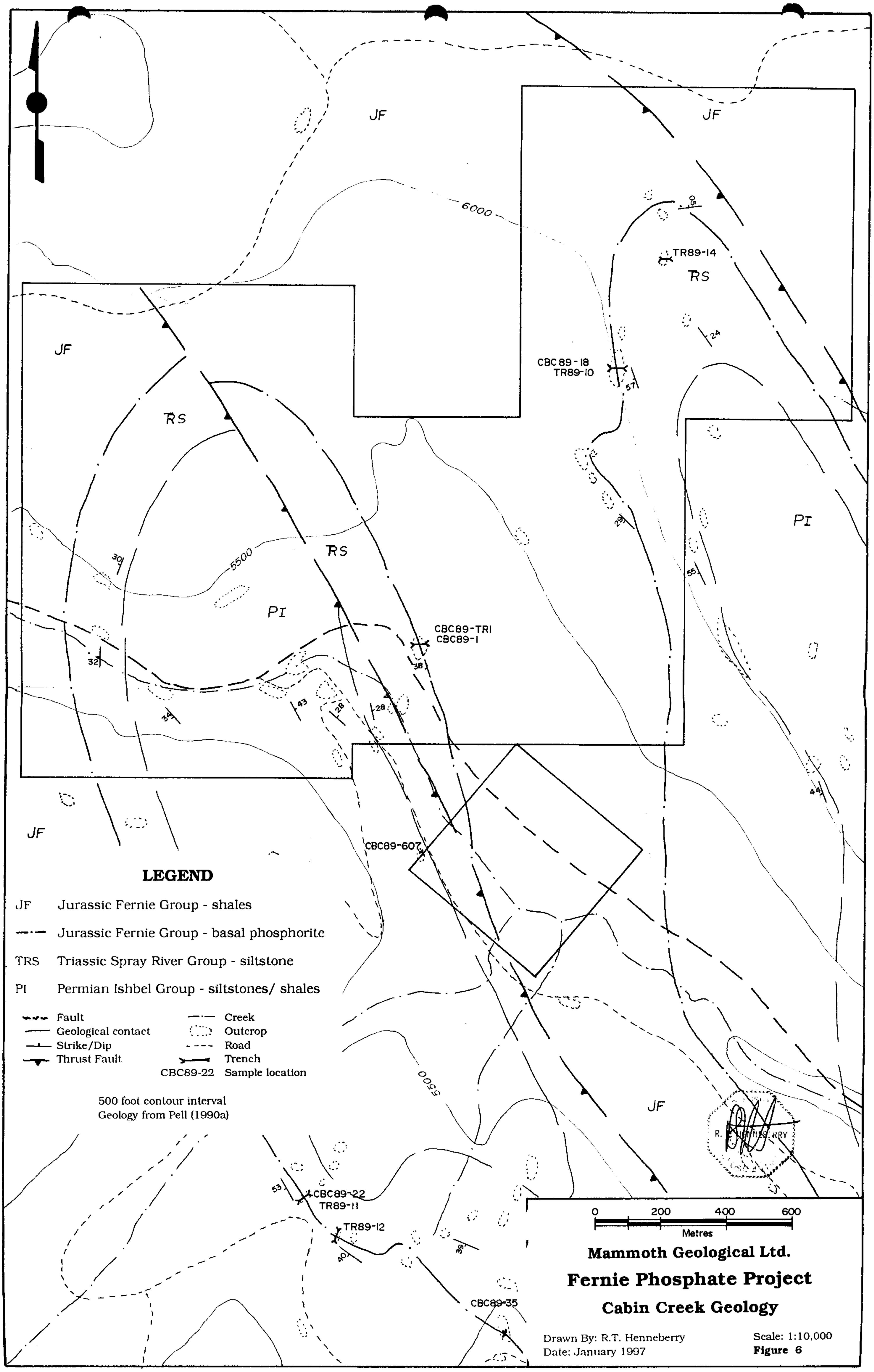
Showing	Source	% P2O5	ppm Y	m width	Showing	Source	% P2O5	ppm Y	m width
West Band									
Cabin 1	Van Fraassen, 1978	18.05	--	0.98	JA-33	Hartley, 1982	12.39	--	1.75
CBC 89-22	Pell, 1990a	15.38	479	1.60	TR 89-12	Pell, 1990a	18.93	546	1.15
TR 89-11	Pell, 1990a	17.08	537	1.21					
					Cabin 3	Van Fraassen, 1978	20.00	--	0.75
LT	Hartley, 1982	13.68	--	2.50	AB	Hartley, 1982	20.97	--	2.00
CBC 89-35	Pell, 1990a	20.47	573	1.28	BA	Hartley, 1982	21.46	--	1.00
					CBC 89-11	Pell, 1990a	21.81	579	0.95
SP	Hartley, 1982	26.04	--	1.00					
SQ	Hartley, 1982	16.50	--	1.25	JH-226	Hartley, 1982	25.80	--	1.34
CBC 89-66	Pell, 1990a								
OT	Hartley, 1982	21.00	--	0.50					
Centre Band									
Cabin 2	Van Fraassen, 1978	21.20	--	1.59	TR 89-14	Pell, 1990a	26.53	805	grab
CS	Hartley, 1982	19.29	--	1.50					
					WE	Hartley, 1982	21.00	--	1.00
CBC 89-18	Pell, 1990a	19.90	602	1.60	CBC 89-01	Pell, 1990a	21.91	498	1.20
TR 89-10	Pell, 1990a	20.16	573	1.28	CBC 89Tr-01	Pell, 1990a	22.21	675	0.62
STS	Hartley, 1982	18.29	--	1.50					
East Band									
TB	Hartley, 1982	19.75	--	1.90					
DLY 89-01	Pell, 1990a								
DLY 89-13	Pell, 1990a								

Formosa Resources Corporation (Pell, 1990a) explored the Cabin Creek phosphorites in 1989. They undertook a program of mapping, sampling, hand trenching and backhoe trenching. Six hand trenches and five backhoe trenches were established, essentially confirming the continuity of structure and grade from the earlier work completed by Imperial Oil Limited (Van Fraassen, 1978) and First Nuclear Corporation (Hartley, 1982).

Geology (summarized from Pell (1990a))

The Cabin Creek occurrences are underlain by Permian through to Jurassic strata. The Permian Ranger Canyon Formation rocks are medium to thick-bedded, cream to buff to light-grey, or locally pink weathering, fine-grained sandstones, siltstones and dolomitic siltstones, with white to light grey fresh surfaces.

The Triassic Sulphur Mountain Formation rocks are predominantly buff, yellowish-brown and chocolate brown weathering, thin to medium bedded siltstones and shalely siltstones. Dark brown shale horizons with thin siltstone interlayers are common within the formation, particularly to the south of Cabin Creek.


JF
JF
6000
TR89-14
RS
24
CBC89-18
TR89-10
57
JF
RS
RS
PI
5500
30
PI
CBC89-TR1
CBC89-1
38
32
34
43
28
28
29
55
PI
44
JF
CBC89-607
LEGEND
JF Jurassic Fernie Group - shales
Jurassic Fernie Group - basal phosphorite
TRS Triassic Spray River Group - siltstone
PI Permian Ishbel Group - siltstones/ shales
Fault
Geological contact
Strike/Dip
Thrust Fault
Creek
Outcrop
Road
Trench
CBC89-22 Sample location
500 foot contour interval
Geology from Pell (1990a)
5500
JF
53
CBC89-22
TR89-11
TR89-12
40
39
CBC89-35
0 200 400 600
Metres
Mammoth Geological Ltd.
Fernie Phosphate Project
Cabin Creek Geology
Drawn By: R.T. Henneberry
Date: January 1997
Scale: 1:10,000
Figure 6

Fernie Group rocks are recessive weathering and poorly exposed. Where the base of the Fernie Group is exposed, it is marked by a phosphorite horizon that is commonly 1.15-3.5 metres thick. Brown and black shales commonly overlie the phosphorites. The shales are overlain by black, brown and dark grey shales with interbedded buff to orange weathering dolostones, buff, fine-grained sandstones and light-grey limestones.

The basal phosphorite horizon generally consists of two poorly consolidated, gritty, pelletal phosphorite layers separated by 15cm to 60cm of brown shale containing a thin, intermediary phosphatic horizon.

In most trenches, the phosphorite horizon overlies buff to grey Triassic siltstone or sandstone. The base of the phosphorite horizon is a 25cm to 86cm silty to shalely phosphatic horizon, grading 6.5% to 13.25% P_2O_5. Immediately above is a ±60cm, poorly consolidated, pelletal phosphorite grading 23.5% to 26.2% P_2O_5. A thin chocolate shale horizon, 35cm to 60cm thick overlies the lower phosphorite. A second 15cm to 135cm phosphorite horizon, grading 20.7% to 27.7% P_2O_5, overlies the shale. The phosphatic sequence is capped by a 2cm to 15cm thick yellow bentonite bed.

On the Cabin Creek claims, the stratigraphically complete measured sections average 17% to 20.5% P_2O_5 and 540 ppm to 710 ppm yttrium across an average thickness of 1.15 to 3.51 metres.

The structure of the Cabin Creek area is dominated by a series of northwest-southeast trending folds and thrust faults. Two anticlines, cored by thrust faults, and the intervening syncline have been mapped. Surface mapping has detailed an outcrop pattern, indicative of a double plunging anticline.

Pell (1990a) identified an area, on the limb of an anticline, where the dip of the phosphate bed and the hillside are roughly parallel. A second area, a large flat bench where the phosphorite is horizontal under 1 to 3 metres of overburden was also identified.

Preliminary Mineral Resource

A preliminary mineral resource has been calculated for the Cabin Creek phosphate horizons. This resource is cursory in nature and is meant to only give a preliminary estimate of contained metal values. The resource has been calculated based on 1:20,000 cross sections spaced at 500 metre intervals. The P_2O_5 and Y values assigned to the blocks are calculated based on the aforedescribed sampling programs (Van Fraassen, 1978; Hartley, 1982; Pell, 1990a).

Values have been calculated to depths of 25, 50 and 100 metres. Earlier work has concentrated on locating a near surface, open-pittable or strippable deposit. The sections at this scale clearly show little material is available for open-pit mining. Sections of smaller areas at a more detailed scale (eg. 1:1000 to 1:2000) may locate such a zone.

Preliminary Mineral Resource Tonnage Summary for Cabin Creek Phosphorites

Area Block	m width	% P2O5	ppm Y	to 25 m depth	to 50 m depth	to 100 m depth
Cabin Creek West Band						
10000N to 8000N	1.20	na	na	16,800	33,600	67,200
8000N to 6000N	1.87	18.59	607	28,760	57,519	115,038
6000N to 4500N	1.41	19.68	598	36,390	72,779	145,558
10000N to 8500N	0.63	22.21	675	6,174	12,348	24,696
Cabin Creek Centre Band						
9500N to 8000N W	1.63	20.00	591	20,538	41,076	82,152
8000N to 6300N W	1.50	na	na	17,850	35,700	71,400
9500N to 8000N E	1.50	na	na	18,900	37,800	75,600
West Band Sub-Total	1.47	19.57	614	88,123	176,246	352,492
Centre Band Sub-Total	1.55	20.00	591	57,288	114,576	229,152
Cabin Creek Total	**1.50**	**19.74**	**605**	**145,411**	**290,822**	**581,644**

The grades are clearly within the range of operating phosphate mines in the western United States. The above average yttrium values may very well enhance the overall value of the deposit.

HUNGER LAKE

The Hunger Lake phosphate occurrence lies within the basal Fernie Formation phosphorite bed. This area was first explored in the late 1970's. One claim group (totaling 12 units) was staked to cover the strike projection of the phosphorite through the Leslie Creek Valley.

Claim Name	Record Numbers	Record Date
LC #1-#12	348616-348627	July 12, 1996

Location and Access

The Hunger Lake occurrence is located in the Fort Steele Mining Division, about 45 kilometres southeast of the town of Fernie in southeastern British Columbia. The occurrence is accessible by maintained then secondary logging roads with the maintained logging road leaving Highway 3 at the Morrissey Road turnoff.

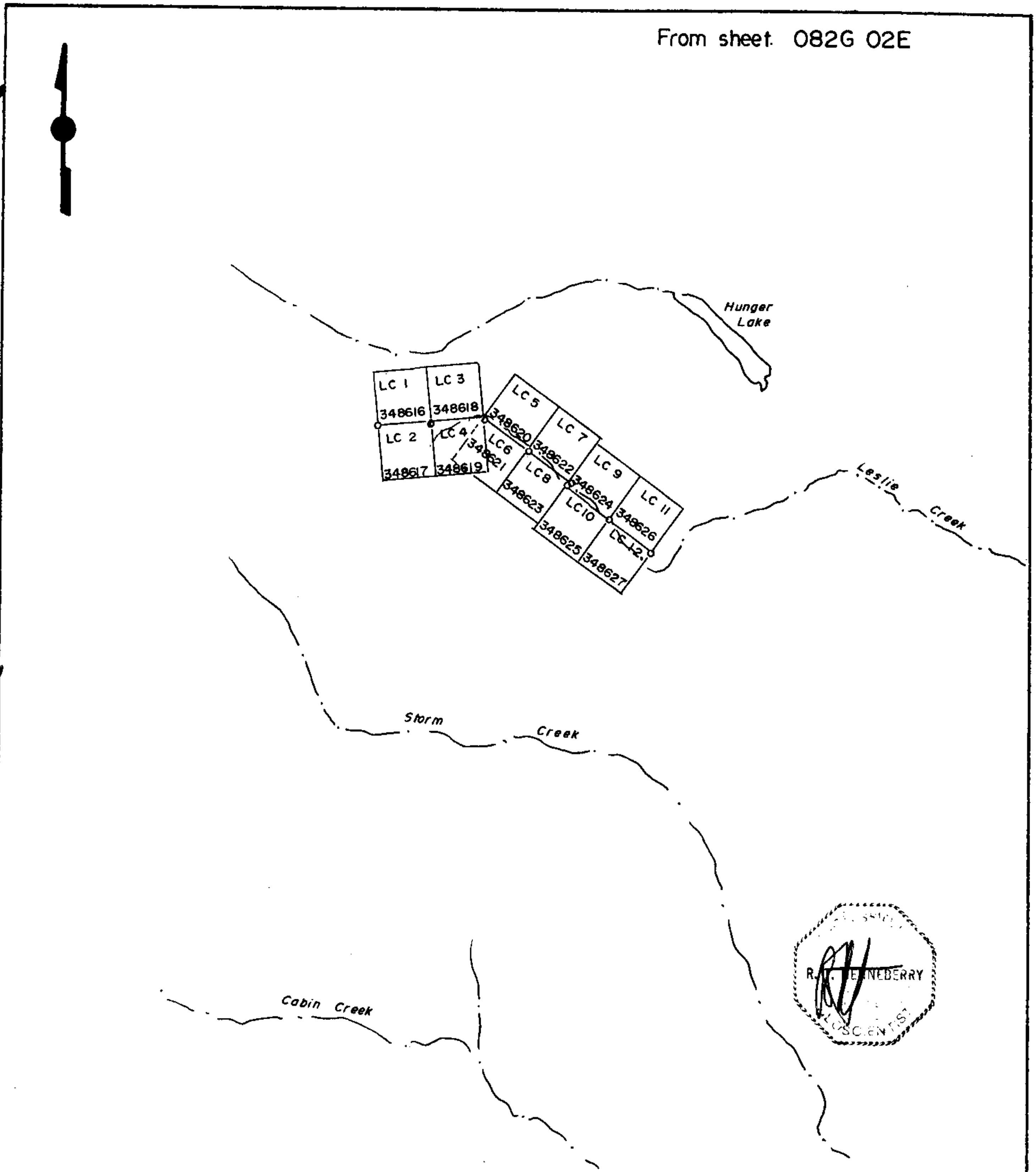
The actual claims lie in the valley of upper Leslie Creek, accessible via the Ram Creek Forestry Road and its spurs. This road has been washed out approximately 3 kilometres from the Cabin Creek Forestry Road and will require some excavator work to re-establish 4X4 road access. The claims are presently accessable by foot or by 4 wheel drive ATV's.

Elevations range from 1675 metres to 2135 metres . Large areas have recently been clear-cut: grasses, small plants, fireweed and stumps characterize these areas. Unlogged parts of the claims host stands of spruce and fir. The Leslie Creek valley is snow-bound from mid- to late-October to early-June. Water for drilling is readily accessible from Leslie Creek.

Previous Exploration

Imperial Oil Limited (Van Fraassen, 1978) explored the Hunger Lake phosphorites in 1977 and 1978. Imperial Oil undertook a program of mapping, sampling and percussion drilling. The sampling results are summarized below. The percussion drilling results, based on a total of 13 holes, were poor. Subsequent examination of the plots of the hole locations, strongly suggests several of the holes were collared in the footwall of the phosphorites. One intersection was obtained: Hole 23-12, 13.5% P_2O_5 from 45.3 to 46.0 metres depth.

First Nuclear Corporation Limited (Hartley, 1982) explored the Hunger Lake phosphorites in 1981, undertaken a program of prospecting, mapping, hand-trenching and cat trenching. The prospecting program consisted of scintillometer survey to trace the surface projection of the phosphorites, utilizing the low-grade uranium content of the higher grade phosphorite. A total of 6 trenches were excavated either by hand or by D7 cat to sample the phosphorites at semi-regular intervals along strike. Further exploration, consisting of seismic surveys and drilling was recommended, but never followed through.



Mammoth Geological Ltd.

Fernie Phosphate Project

Hunger Lake Claim Locations

0 1 2 3
Kilometres

Drawn By: R.T. Henneberry
Date: January 1997

Scale: 1:50,000
Figure 7

Assay Results from Sections Through the Hunger Lake Phosphate Horizon

Showing	Source	% P2O5	ppm Y	m width	Showing	Source	% P2O5	ppm Y	m width
Hunger Band									
STN	Hartley, 1982	21.30	na	1.50	HGR 89-01	Pell, 1990b	14.25	399	1.32
					TR 89-08	Pell, 1990b	22.36	665	0.46
HGR 89-28	Pell, 1990b	14.13	327	0.59	TR 89-09	Pell, 1990b	17.25	559	1.08
TR 89-06	Pell, 1990b	20.18	529	0.98					
					TR 89-07	Pell, 1990b	16.25	508	1.20
RAM A	Hartley, 1982	18.32	na	1.50					
HGR 89-24	Pell, 1990b	27.07	751	0.82	HGR 89-21	Pell, 1990b	21.64	575	1.08
TR 89-05	Pell, 1990b	22.67	660	1.07	TR 89-03	Pell, 1990b	21.74	635	1.66
HGR 89-23	Pell, 1990b	na	na	na					
TR 89-04	Pell, 1990b	22.56	653	0.78	RAM B	Hartley, 1982	22.96	na	1.50
					HGR 89-19	Pell, 1990b	25.16	722	1.13
SCI	Hartley, 1982	32.30	na	0.25	TR 89-01	Pell, 1990b	18.95	591	1.26
					TR 89-02	Pell, 1990b	18.03	535	0.84
Hunger West									
DS	Hartley, 1982	17.83	na	1.00	Ram N	Van Fraassen, 1978	24.50	na	0.56
INV 89-01	Pell, 1990b	17.87	na	0.60	Ram S	Van Fraassen, 1978	22.00	na	0.28
INV 89-02	Pell, 1990b	23.74	690	0.51					

Formosa Resources Corporation (Pell, 1990b) explored the Hunger Lake phosphorites in 1989, undertaking a program of mapping, sampling, hand trenching and backhoe trenching. Eight hand trenches and nine backhoe trenches were established, essentially confirming the continuity of structure and grade from the earlier work completed by Imperial Oil Limited (Van Fraassen, 1978) and First Nuclear Corporation (Hartley, 1982).

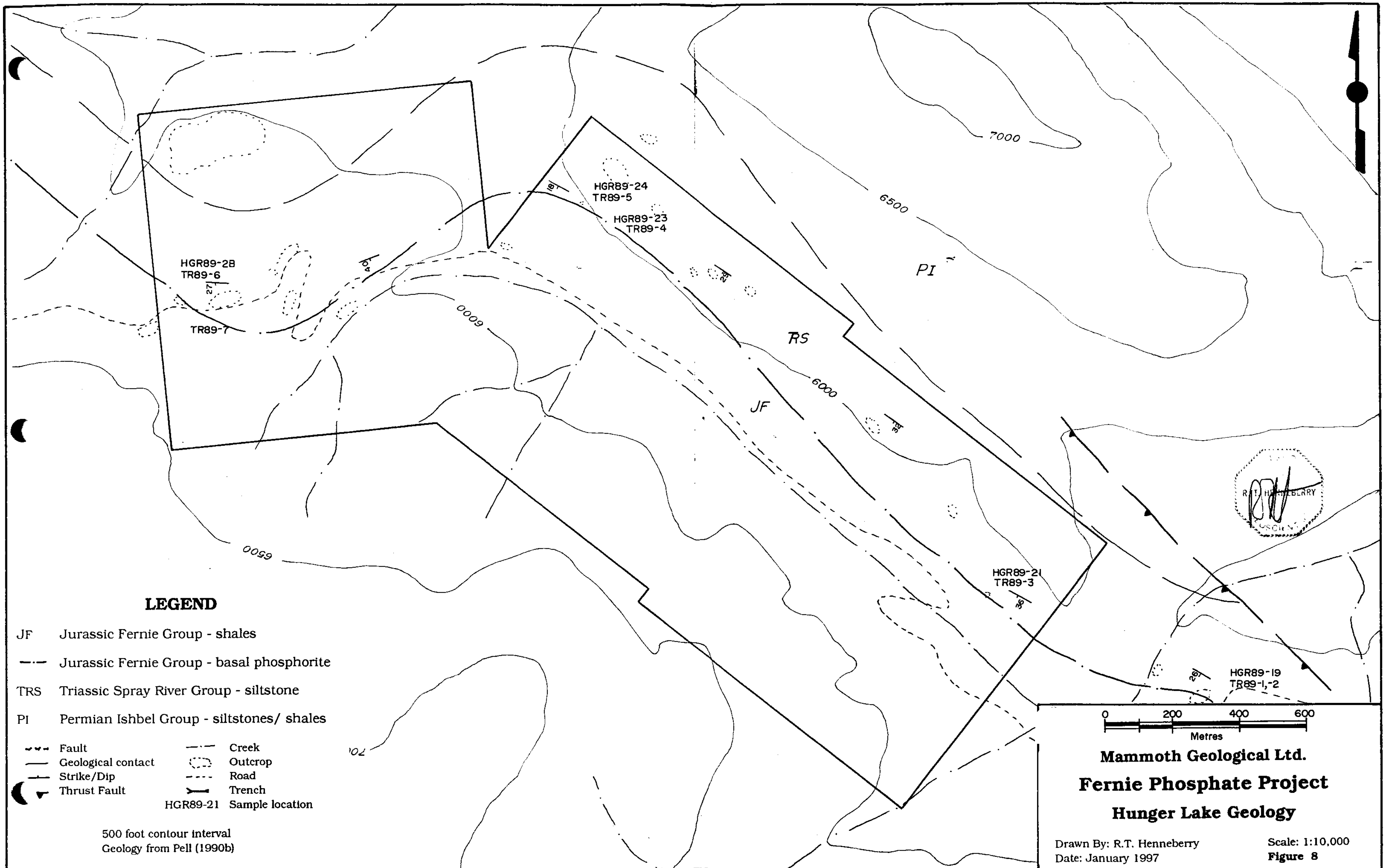
Geology (summarized from Pell (1990b))

The Hunger Lake occurrence is underlain by Permian through to Jurassic strata. The Permian Ranger Canyon Formation rocks are massive, medium-bedded, white, grey or cream weathering, very fine-grained quartzose sandstones, siltstones and dolomitic siltstones.

The Triassic Sulphur Mountain Formation rocks are predominantly light yellowish-brown to medium brown weathering, medium- to thin-bedded siltstones, and calcareous or dolomitic light grey siltstones. In some areas, fine sandy beds are present within the siltstones, in others, dark brown shales and silty shales occur.

Fernie Group rocks are recessive weathering and poorly exposed. Where the base of the Fernie Group is exposed, it is marked by a phosphorite horizon that is commonly 1 metre thick. Overlying the phosphorites are monotonous fissile black shales. Much further up in the sequence, cream to light grey weathering siltstones and silty limestones, as well as shales and silty shales are present.

The basal phosphorite horizon generally consists of two poorly consolidated, gritty, pelletal phosphorite layers separated by 5cm to 25cm of chocolate brown shale.


7000
6500
6000
6500
HGR89-24
TR89-5
HGR89-23
TR89-4
HGR89-28
TR89-6
TR89-7
HGR89-21
TR89-3
HGR89-19
TR89-1,-2
PI
TRS
JF
18
40
27
28
34
36
26
LEGEND
JF Jurassic Fernie Group - shales
Jurassic Fernie Group - basal phosphorite
TRS Triassic Spray River Group - siltstone
PI Permian Ishbel Group - siltstones/ shales
Fault
Geological contact
Strike/Dip
Thrust Fault
Creek
Outcrop
Road
Trench
HGR89-21 Sample location
500 foot contour interval
Geology from Pell (1990b)
0 200 400 600
Metres
Mammoth Geological Ltd.
Fernie Phosphate Project
Hunger Lake Geology
Drawn By: R.T. Henneberry
Date: January 1997
Scale: 1:10,000
Figure 8

In most trenches, the phosphorite horizon overlies buff to grey Triassic siltstone or sandstone. The base of the phosphorite horizon is a 25cm to 86cm pelletal phosphorite to phosphatic shale horizon. Immediately above is a 5cm to 23cm chocolate to black shale. A second 18cm to 77cm pelletal, or in some cases nodular phosphorite horizon, overlies the shale. The phosphatic sequence is overlain by slightly phosphatic black or brown shales, that grade upwards into non-phosphatic rocks.

On the Hunger Lake claims, the stratigraphically complete measured sections averages 21% P_2O_5 and 620 yttrium across an average thickness of 1.00 metres.

The structure of the Hunger Lake area is dominated by a series of northwest-southeast trending folds and thrust faults. The actual claims cover the northeast limb of a syncline, that is part of a series of northwest - southeast series of anticlinal and synclinal folds.

The phosphate horizon at the Hunger Lake occurrence outlines broad, open folds and throughout most of the area, is present as a shallow, southwest dipping layer. On the eastern half of the property Pell (1990b) mapped the phosphate horizon in a near dip-slope situation, dipping into the valley at an angle which is slightly steeper than the hillside.

Preliminary Mineral Resource

A preliminary mineral resource has been calculated for the Hunger phosphate horizon. This resource is cursory in nature and is meant to only give a preliminary estimate of contained metal values. The resource has been calculated based on 1:20,000 cross sections spaced at 500 metre intervals. The P_2O_5 and Y values assigned to the blocks are calculated based on the aforedescribed sampling programs (Van Fraassen, 1978, Hartley, 1982; Pell, 1990b).

Preliminary Mineral Resource Tonnage Summary for Hunger Lake Phosphorites

Area Block	m width	% P2O5	ppm Y	to 25 m depth	to 50 m depth	to 100 m depth
Hunger Lake Band						
20500N to 19000N	0.84	19.32	567	8,820	17,640	35,280
19000N to 17000N	1.03	19.80	565	17,276	34,552	69,104
17000N to 15300N	1.19	21.26	617	15,044	30,089	60,178
Hunger Lake Total	**1.05**	**20.24**	**586**	**41,140**	**82,281**	**164,562**

Values have been calculated to depths of 25, 50 and 100 metres. Earlier work has concentrated on locating a near surface, open-pittable or strippable deposit. The sections at this scale clearly show little material is available for open-pit mining. Sections of smaller areas at a more detailed scale (eg. 1:1000 to 1:2000) may locate such a zone.

The grades are clearly within the range of operating phosphate mines in the western United States. The above average yttrium values may very well enhance the overall value of the deposit.

1996 EXPLORATION PROGRAM

The aim of the 1996 exploration program was two-fold. First, to acquire by staking the key sections of the Barnes Lake, Cabin Creek and Hunger Lake phosphate occurrences. Secondly, the existing mapping was checked, as were previous trench locations. The claims were also prospected to scout out locations for the planned 1997 trenching program to provide the material for metallurgical testing.

The property acquisition phase was completed in mid-July, acquiring the 6 claim groups as follows:

Occurrence	NTS Sheet	Claims	Record Numbers	Expiry Date
Barnes Lake	082G/07E	BL #1-#12	348582-348593	July 16, 1997
		MC #1-#6	348594-348599	July 15, 1997
Cabin Creek	082G/02E	CC #1-#9	348600-348608	July 13, 1997
		CC #10-#15	348609-348614	July 14, 1997
		DC #1	348615	July 14, 1997
Hunger Lake	082G/02E	LC #1-#12	348616-348627	July 12, 1997

The properties were walked and examined as part of the staking process, verifying the trench locations and verifying the competent geological mapping completed by Jennifer Pell for Formosa Resources Corporation (Pell, 1990a; 1990b; 1990c).

Very little of the basal phosphorites actually outcrop on the properties. No samples were taken during the staking phase. The sampling program was planned during the backhoe sampling program when the basal phosphorites would be opened in the trenches. Therefore, little new information was added to the present knowledge base at the completion of the staking phase.

The existing data was compiled into a series of plans and sections, with initial mineral resource estimates calculated for the properties.

Barnes Lake

Three days were spent on the Barnes Lake properties, one day on the MC claims and two days on the BL claims. The previous trench locations were examined and found to be backfilled. Sampling was not possible, as the phosphate horizons do not outcrop on the property.

The location and description of outcrops from the 1990 mapping (Pell, 1990c) were periodically checked. Based on these checks, the mapping was found to be sound, requiring little if any follow-up.

Cabin Creek

Two days were spent on the Cabin Creek property. The previous trench locations were examined, but found to be backfilled. As at Barnes Lake, no sampling was undertaken due to lack of phosphorite outcrop.

Again, the location and description of outcrops from the 1990 mapping (Pell, 1990a) were periodically checked. The mapping was also found to be sound, requiring little if any follow-up.

Hunger Lake

One day was spent on the Hunger Lake property. The previous trench locations were examined, but found to be backfilled. As at Barnes Lake and Cabin Creek, no sampling was undertaken due to lack of phosphorite outcrop.

Again, the location and description of outcrops from the 1990 mapping (Pell, 1990b) were checked and found to be competently done.

DISCUSSION

The results obtained to date on each of the phosphate properties warrants further work. Little additional geological mapping should be required, as the Formosa Resources Corporation 1989-1990 mapping program was competently done. The hand and backhoe trenching completed by Formosa Resources Corporation both confirmed the results of earlier exploration, and identified target areas within the phosphorite beds on each of the properties.

The exploration programs completed to date have generally been concentrated on the readily accessible, near surface sections of the phosphorites. This is reflected in the mineral resource estimates, including only the first 25 metres of depth.

Preliminary Shallow Mineral Resource Tonnage Estimate Summary

Property	Source	width	%P2O5	ppmY	to 25 m
Barnes Lake	Dales (1978)	1.00	27.00	na	288,000 *
Cabin Creek	this report	1.50	19.74	605	145,411
Hunger Lake	this report	1.05	20.24	586	41,140

* Barnes Lake resource estimate is to 18 metres depth

Butrenchuk (1996) expanded on this work in a general way, estimating the total mineral resource potential of the phosphorite horizons for each of the areas based on total exposed strike length and average width. The calculations were based on a specific gravity of 2.8. He combined the Cabin Creek and Hunger Lake occurrences to obtain one estimate for the entire Cabin Creek area.

Cabin / Hunger resource potential	34 million tons to 300 metres depth
Barnes resource potential	11 million tons to 100 metres depth

Working backwards from the resource total, a figure for potential tonnage per claim unit can be obtained utilizing Butrenchuk's data in combination with some simple assumptions. The first assumption is the phosphorite horizon strikes continuously across the entire claim unit roughly parallel to one of the boundaries, yielding a length of 500 metres. The second assumption is the sequence is not repeated (meaning two or more horizons per claim).

Based on these assumptions, one 500 metre claim unit could contain 420,000 tonnes of phosphorite resources to a depth of 300 metres, or 140,000 tonnes of phosphorite resources to a depth of 100 metres.

Three aspects need to be addressed in bringing these deposits along to the production stage: a program of further property acquisition, an increase in the confidence level of the preliminary resource estimates through a combination of percussion or rotary drilling and bulk testing, and benefication testing of the phosphate rock to produce saleable products.

A mining situation on any of the three properties will more than likely be, at least initially, a strip mining / open cut operation. The phosphorite will be mined along strike to a shallow depth (±25 metres or 75 feet). This will likely result in one or more long, narrow trenches, following the phosphorite bed across topography.

A mining plan could easily be realized where the overburden and waste ahead is used to backfill the open cut behind, in much the same manner as placer mining follows the pay streak up the creek valley. This type of mining plan will have minimal environmental impact. This plan will, however, require long claim blocks along the surface strike projections of the phosphorite beds.

An aggressive program of property acquisition should be undertaken to acquire and hold long, continuous sections of the phosphorite horizons along strike. There is little need to hold more than one or two claim lengths of width across the phosphorite beds. Therefore, the acquisition should concentrate on two-post claims centred on the phosphorite beds, following them along strike. Utilizing the phosphorite tonnage per claim unit figures, a minimum of eighty claim units will be required to acquire Butrenchuk's (1996) Cabin Creek area resource. A minimum of eighty units will also be required to encompass Butrenchuk's (1996) Barnes Lake resource, though 50 units in each area would be sufficient at this stage.

The second aspect (confirmation of resource estimate) and third aspect (beneficiation) are essentially interchangeable,though at this stage the beneficiation should be addressed first. Addressing it will also complete much of the resource estimate confirmation.

The recent research and development in leaching of phosphate ores (Judd et al, 1986; Wilemon and Scheiner, 1987; Habashi, 1994) should be vigorously investigated.

Sufficient phosphorite material from each of the properties will be required to carry out the testing required to ascertain the merits of leaching the Fernie phosphorites. It is imperative to obtain representative samples from each of the properties. The best way to supply an adequate supply of representative phosphorite material is to open a number of trenches at regular intervals along strike, across the phosphorite horizon. A similar amount of phosphorite, for example 1 or 2 five gallon pails, would be collected from each trench. This material can then be mixed and a number of cuts from the mixed pile can be taken for testing.

Each of the trenches will be mapped, photographed, sampled, and assayed to complete part of the reserve confirmation program.

Positive results from the metallurgical testing and trenching should result in a pilot scale test, where larger volumes of phosphorite material will be required.

After completion of the trenching, only the continuation of the phosphorite down dip (to depth) will need to be evaluated. The longer term mining plan will envision either deepening the open cuts or going underground. A program of percussion or rotary drilling should be undertaken to test the phosphorites to depth. Previous exploration programs in the Fernie Basin have had mixed results with diamond drilling, so rotary drilling (where all the cutting are brought to the surface) should be the method of choice.

There is some debate at present with respect to decreases in P_2O_5 grade with depth. In his 1996 compilation, Butrenchuk (1996) reports that there are large discrepancies between surface samples and drill intersections at both Line Creek and Barnes Lake, suggesting a phenomenon where P_2O_5 content is enhanced in the zone of weathering when soluble gangue minerals are dissolved and carried away. A review of all properties described in Butrenchuk (1996) show there are as many or more properties where the surface grade and drill hole intersection grade (or underground grade) is similar (for example, Crow, Fording River, Cabin Creek). Further investigation is required, as the possibility exists these discrepancies are due to the method of drilling (diamond drilling versus rotary drilling versus percussion drilling).

CONCLUSIONS AND RECOMMENDATIONS

Three industrial mineral properties have been acquired in the Jurassic Fernie Basin of southeastern British Columbia. The Barnes Lake, Cabin Creek and Hunger Lake sedimentary phosphorite horizons contain a combined potential mineral resource in excess of 45 million tonnes, according to the recent government publication of British Columbia phosphorites (Butrenchuk, 1996).

Earlier exploration programs on the Barnes Lake, Cabin Creek and Hunger Lake claim groups concentrated on the near surface strippable or open-cuttable potential of the phosphorites. Mapping, sampling, hand trenching and backhoe trenching proved the 1.0m to 1.5m phosphorite horizon at the base of the Jurassic Fernie Formation to be continuous along strike. Average grades in the range of 20% P_2O_5 and 600 ppm yttrium were obtained. Preliminary mineral resource estimates in the range of 50,000 to 300,000 tonnes were calculated to 25 metres depth.

Metallurgical testing to date has not yet produced satisfactory concentrates. Most of the testing has concentrated on grinding and flotation. Recent research and development has focussed on leaching the raw phosphorites to recover both the phosphate and the contained rare earth elements, predominantly yttrium, with reasonable success.

A staged, three phase exploration program is recommended for the Fernie Phosphorite Project. The first stage is additional property acquisition. The present property base of 48 units should be expanded to at least 110 units to cover most of the Butrenchuk (1996) phosphorite resource. The cost of acquiring the additional claim units is estimated at $10,097.

The second phase involves metallurgical testing. A series of backhoe trenches will be opened at regular intervals along the strike of the phosphorite horizon. Two 5 gallon pails of phosphorite material will be gathered for each trench. All trenches will be mapped, photographed and sampled. The series of pails from each property will be mixed to supply the material required for two bench scale metallurgical tests for each of the three properties. Phase II is estimated to cost $45,678.

The third phase involves proving up the near surface resources and expanding them to a depth of at least 50 metres by rotary drilling. A total of 4,000 feet (1220 metres) is budgeted for each of the three properties. Total cost of the drilling is estimated at $281,785.

Phase I - Property acquisition	$10,097
Phase II - Trenching and metallurgical testing	$45,678
Phase III - Rotary drilling	$281,785
	========
Total Budget	$337,560

At the conclusion of phase III, a decision can be made on conducting a pilot scale test of the beneficiation process and subsequently a decision on initiating a preliminary feasibility study can be made.

The cost of the 1996 exploration program was $8,395.

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COST ESTIMATES

Phase I - property acquisition

Travel	$3.025
Geological	$3.600
Support	$1.200
Filing Fees	$650
Documentation	$700
Contingency	$923

Phase I Total	$10.097

Phase II - trenching and metallurgical testing

Travel	$3.025
Equipment contractor	$9.000
Geological	$3.600
Support	$1.500
Analysis	$1.890
Documentation	$2.100
Contingency	$2.714
Initial test set-up	$4.000
Metallurgical testing	$17.850

Phase II Total	$45.678

Phase III - rotary drilling

Travel	$3.025
Drill contractor	$182.700
Equipment contractor	$13.950
Geological	$27.000
Support	$9.000
Analysis	$4.500
Documentation	$5.250
Contingency	$36.360

Phase III Total	$281.785

TOTAL BUDGET	**$337.560**

Note : the rotary drilling cost for only one of the three properties would be $95.945

STATEMENT OF COST FOR 1996 EXPLORATION PROGRAM

Staking and Prospecting				
Cabin Creek (July 13, 14)				
Tim Henneberry	2 days	@	$300 /day	$600
Mike McInnis	2 days	@	$200 /day	$400
Room and Board	4 days	@	$60 /day	$240
Vehicle	2 days	@	$50 /day	$100
Hunger Lake (July 12)				
Tim Henneberry	1 days	@	$300 /day	$300
Mike McInnis	1 days	@	$200 /day	$200
Room and Board	2 days	@	$60 /day	$120
Vehicle	1 days	@	$50 /day	$50
Michel Creek (July 15)				
Tim Henneberry	1 days	@	$300 /day	$300
Mike McInnis	1 days	@	$200 /day	$200
Room and Board	2 days	@	$60 /day	$120
Vehicle	1 days	@	$50 /day	$50
Barnes Lake (July 16, 17)				
Tim Henneberry	2 days	@	$300 /day	$600
Mike McInnis	2 days	@	$200 /day	$400
Room and Board	4 days	@	$60 /day	$240
Vehicle	2 days	@	$50 /day	$100
Travel (Fernie to Port Hardy)				
Tim Henneberry	2 days	@	$300 /day	$600
Mike McInnis	2 days	@	$200 /day	$400
Room and Board				$195
Ferries	1 trip	@	$35 /trip	$35
Vehicle				$145
Documentation				
Tim Henneberry	10 days	@	$300 /day	$3,000

Total 1996 Costs for Assessment Credits				$8,395

Breakdown for Assessment Credits

	Total	Cabin	Hunger	Michel	Barnes
Property	$4,020	$1,340	$670	$670	$1,340
Travel	$1,375	$344	$344	$343	$344
Documentation	$3,000	$1,000	$1,000	$300	$700
	-------	-------	-------	-------	-------
	$8,395	$2,684	$2,014	$1,313	$2,384

STATEMENT OF QUALIFICATIONS

I, R.Tim Henneberry, am the principle of Mammoth Geological Ltd., a geological consulting firm with offices at 9250 Carnarvon Road, Port Hardy, B.C. The mailing address is Box 5250, Port Hardy, B.C. V0N 2P0

I earned a Bachelor of Science Degree majoring in geology from Dalhousie University, graduating in May 1980.

I have practiced my profession continuously since graduation.

I am registered with the Association of Professional Engineers and Geoscientists in the Province of British Columbia as a Professional Geoscientist. I am also a Fellow of the Geological Association of Canada.

I am the registered owner of the following claim groups: BL #1-#12 (record numbers 348582-348593), MC #1-#6 (record numbers 348594-348599), CC #1-#15 (record numbers 348600-348614), DC #1 (record number 348615) and LC #1-#12 (record numbers 348616-348627)

I staked and examined the aforementioned claim groups between July 11 and July 17, 1996.

This report may be used for any purpose normal to the business of Mammoth Geological Ltd., provided no part is used in such a manner to convey a meaning different than that set out in the whole.

Dated this 21st day of May in the Town of Port Hardy, British Columbia.

PROFESSIONAL PROVINCE R. T. HENNEBERRY BRITISH COLUMBIA SCIENTIST

R. Tim Henneberry, P.Geo

APPENDIX

Cabin Creek Resource Calculations
Hunger Lake Resource Calculations
Cabin Creek Plan and Sections
Hunger Lake Plan and Sections

CABIN CREEK MINERAL RESOURCE

Area Block	m width	% P2O5	ppm Y	25 m depth	50 m depth	100 m depth
West Band						
10000N to 8000N	1.20	--.--	---	16,800	33,600	67,200
8000N to 6000N	1.87	18.59	607	28,760	57,519	115,038
6000N to 4500N	1.41	19.68	598	36,390	72,779	145,558
10000N to 8500N	0.63	22.21	675	6,174	12,348	24,696
Sub-Total		19.57	614	88,123	176,246	352,492
Centre Band						
9500N to 8000N W	1.63	20.00	591	20,538	41,076	82,152
8000N to 6300N W	1.50	--.--	---	17,850	35,700	71,400
9500N to 8000N E	1.50	--.--	---	18,900	37,800	75,600
Sub-Total		20.00	591	57,288	114,576	229,152
CABIN CREEK TOTAL		19.74	605	145,411	290,822	581,644

CABIN CREEK MINERAL RESOURCE

West Band Calculations							
10000N to 8000N							
m length	200	1.20			16,800	33,600	67,200
8000N to 6000N							
m length	220	1.87	18.59	607	28,760	57,519	115,038
		1.21	17.08	537			
		1.15	18.93	546			
		1.60	15.38	479			
		3.51	20.47	709			
6000N to 4500N							
m length	370	1.41	19.68	598	36,390	72,779	145,558
		1.86	18.59	607			
		0.95	21.81	579			
10000N to 8500N							
m length	140	0.63	22.21	675	6,174	12,348	24,696
		0.63	22.21	675			
Centre Band Calaculations							
9500N to 8000N W							
m length	180	1.63	20.00	591	20,538	41,076	82,152
		1.98	19.90	602			
		1.28	20.16	573			
8000N to 6300N W							
m length	170	1.50			17,850	35,700	71,400
9500N to 8000N E							
m length	180	1.50			18,900	37,800	75,600

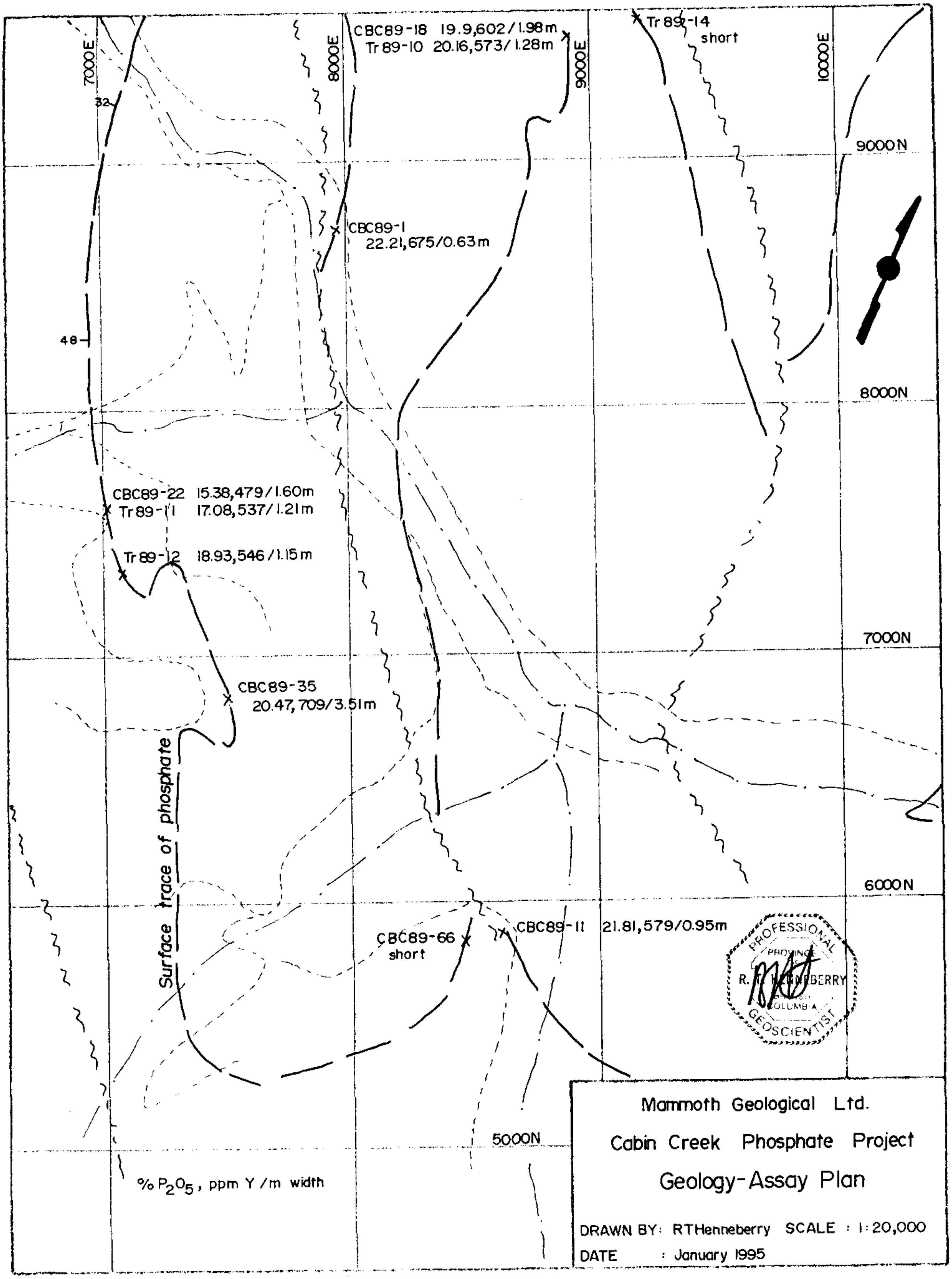
HUNGER LAKE MINERAL RESOURCE

Area Block	m width	% P2O5	ppm Y	25 m depth	50 m depth	100 m depth
20500N to 19000N	0.84	19.32	567	8,820	17,640	35,280
19000N to 17000N	1.03	19.80	565	17,276	34,552	69,104
17000N to 15300N	1.19	21.26	617	15,044	30,089	60,178
HUNGER LAKE TOTAL		20.24	586	41,140	82,281	164,562

HUNGER LAKE MINERAL RESOURCE

Hunger Lake Calculations

20500N to 19000N							
m length	150	0.84	19.32	567	8,820	17,640	35,280
		0.46	22.36	665			
		1.08	17.25	559			
		0.98	20.18	529			
19000N to 17000N							
m length	240	1.03	19.80	565	17,276	34,552	69,104
		0.98	20.18	529			
		1.20	16.25	508			
		1.32	14.25	399			
		1.07	22.67	660			
		0.78	22.56	653			
		0.82	27.07	751			
17000N to 15300N							
m length	180	1.19	21.26	617	15,044	30,089	60,178
		1.66	21.74	635			
		1.08	21.64	575			
		1.26	18.95	591			
		1.13	25.16	722			
		0.84	18.03	535			



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48
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Tr 89-10 20.16,573/1.28m
Tr 89-14
short
CBC89-1
22.21,675/0.63m
CBC89-22 15.38,479/1.60m
Tr 89-11 17.08,537/1.21m
Tr 89-12 18.93,546/1.15m
CBC89-35
20.47,709/3.51m
Surface trace of phosphate
CBC89-66
short
CBC89-11 21.81,579/0.95m
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R. T. HENNEBERRY
COLUMBIA
GEOSCIENTIST
% P2O5, ppm Y /m width
Mammoth Geological Ltd.
Cabin Creek Phosphate Project
Geology-Assay Plan
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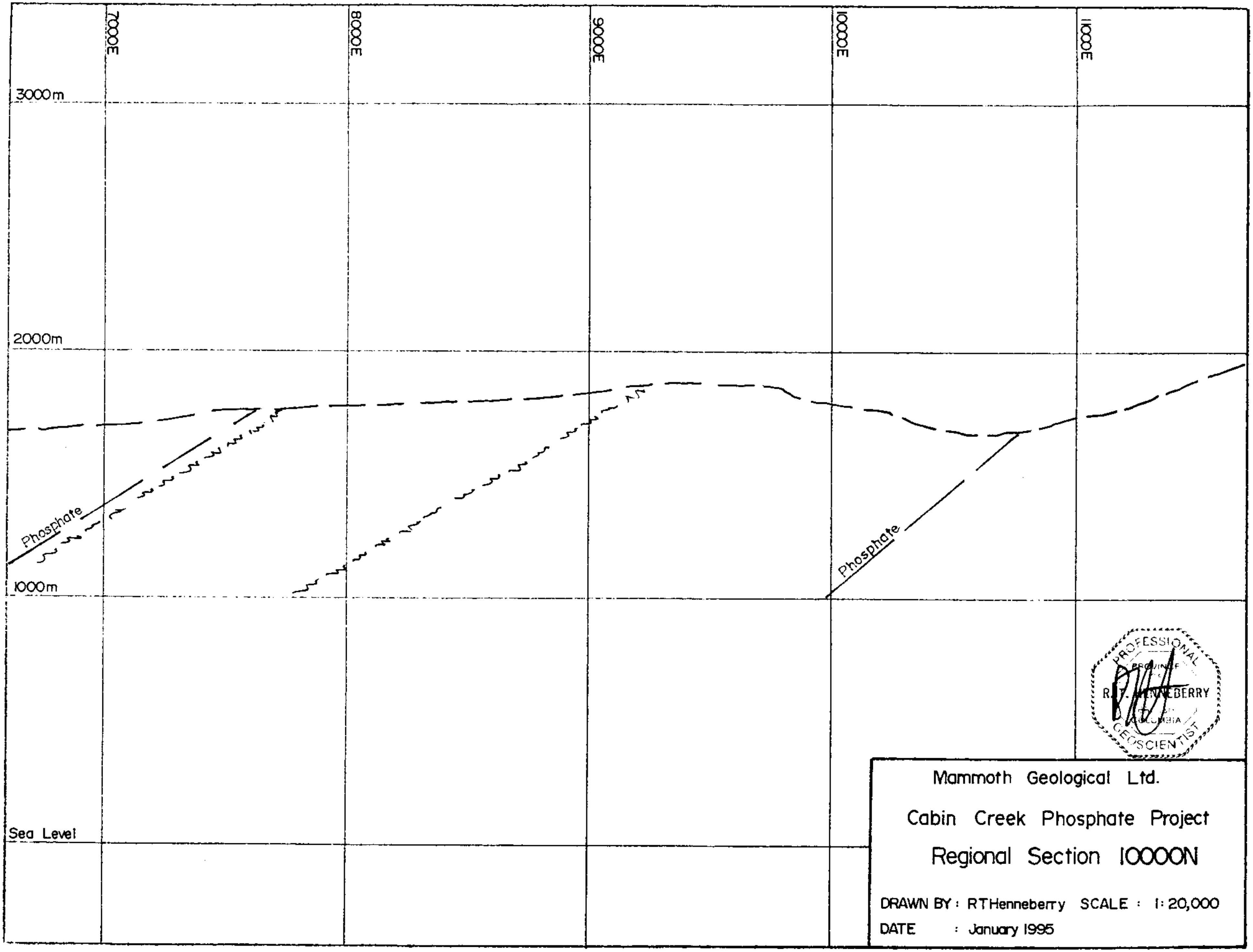
DATE : January 1995



Mammoth Geological Ltd.

Cabin Creek Phosphate Project

Regional Section 10000N

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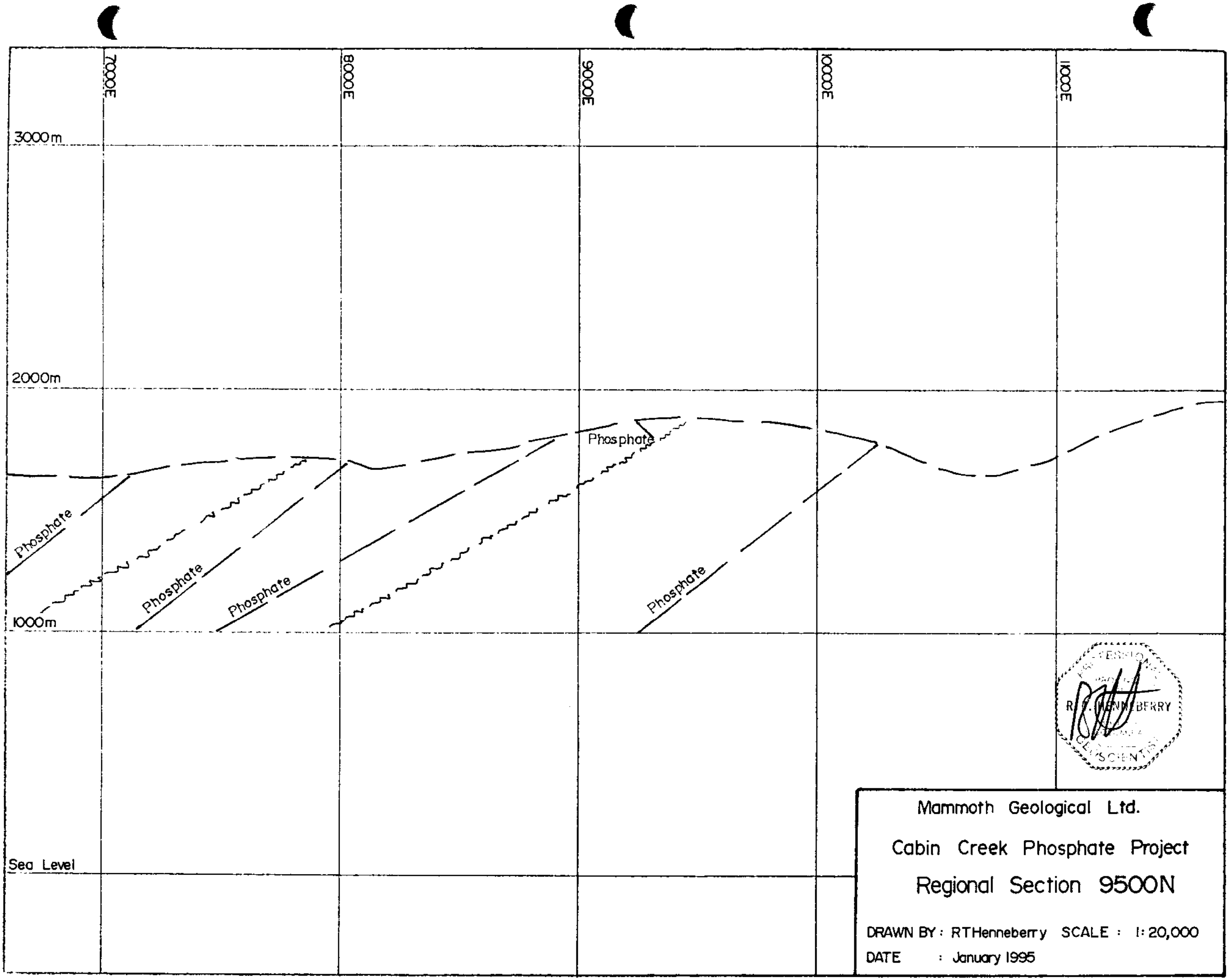

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Cabin Creek Phosphate Project

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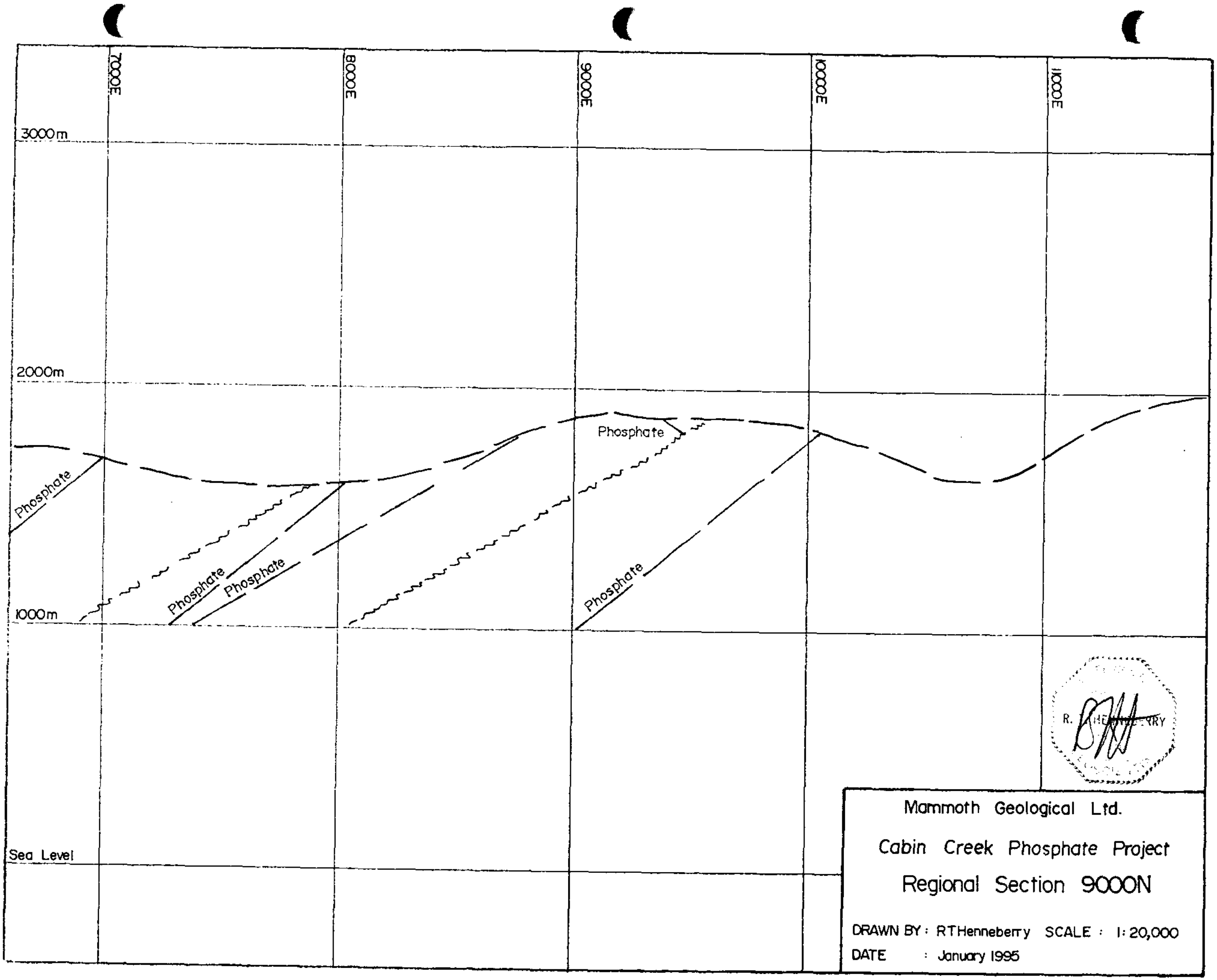
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Mammoth Geological Ltd.
Cabin Creek Phosphate Project
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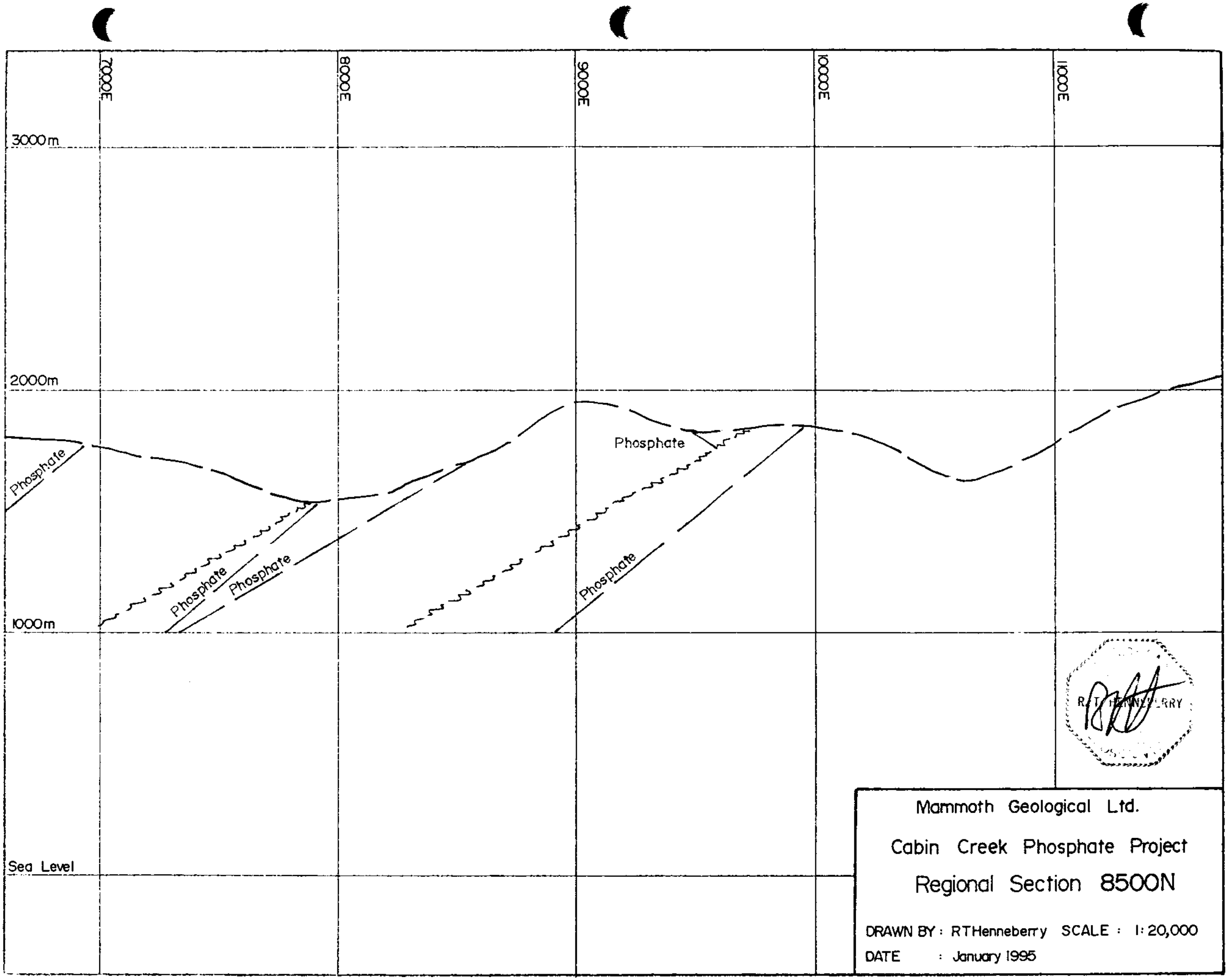
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Mammoth Geological Ltd.
Cabin Creek Phosphate Project
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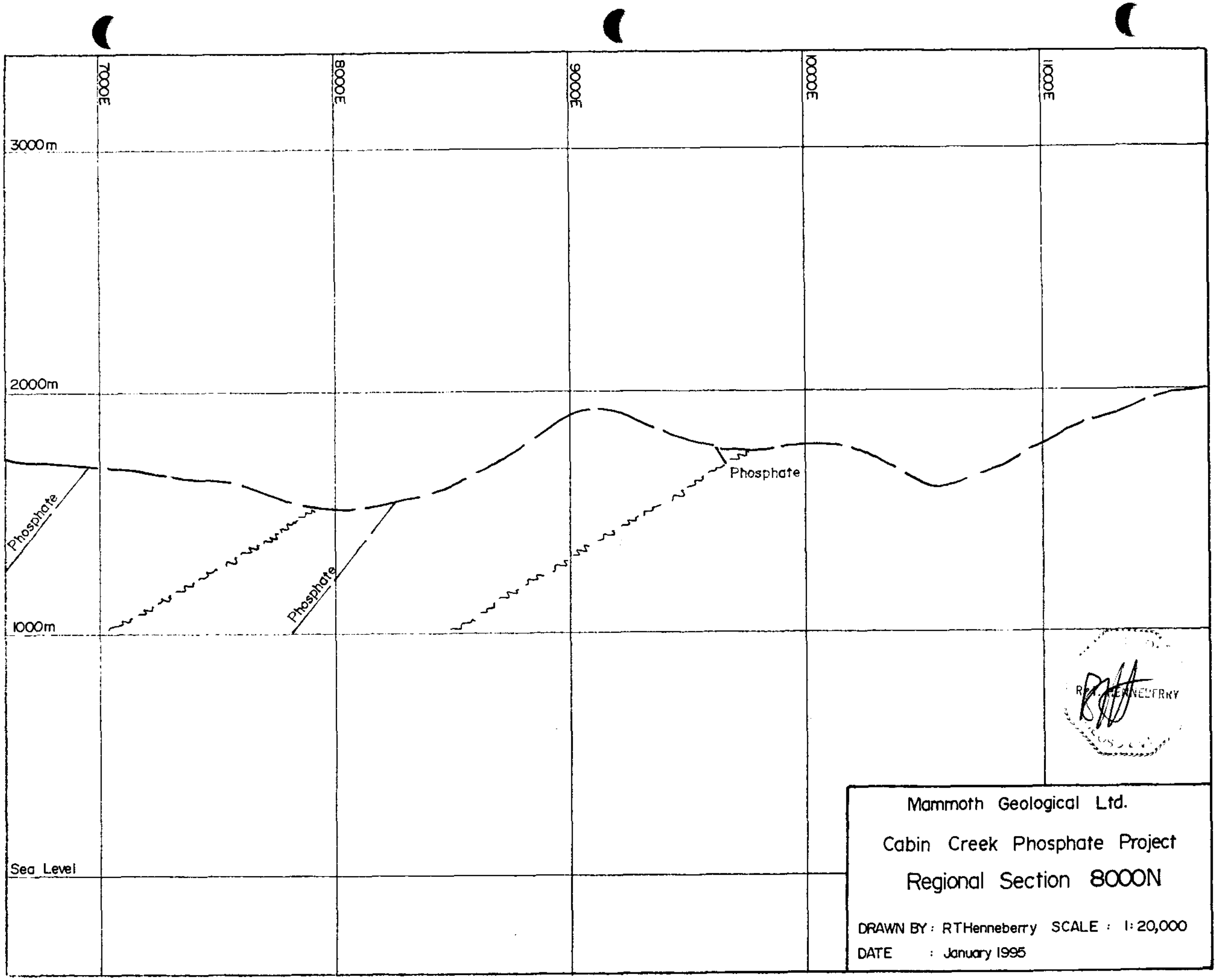

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Mammoth Geological Ltd.
Cabin Creek Phosphate Project
Regional Section 8000N
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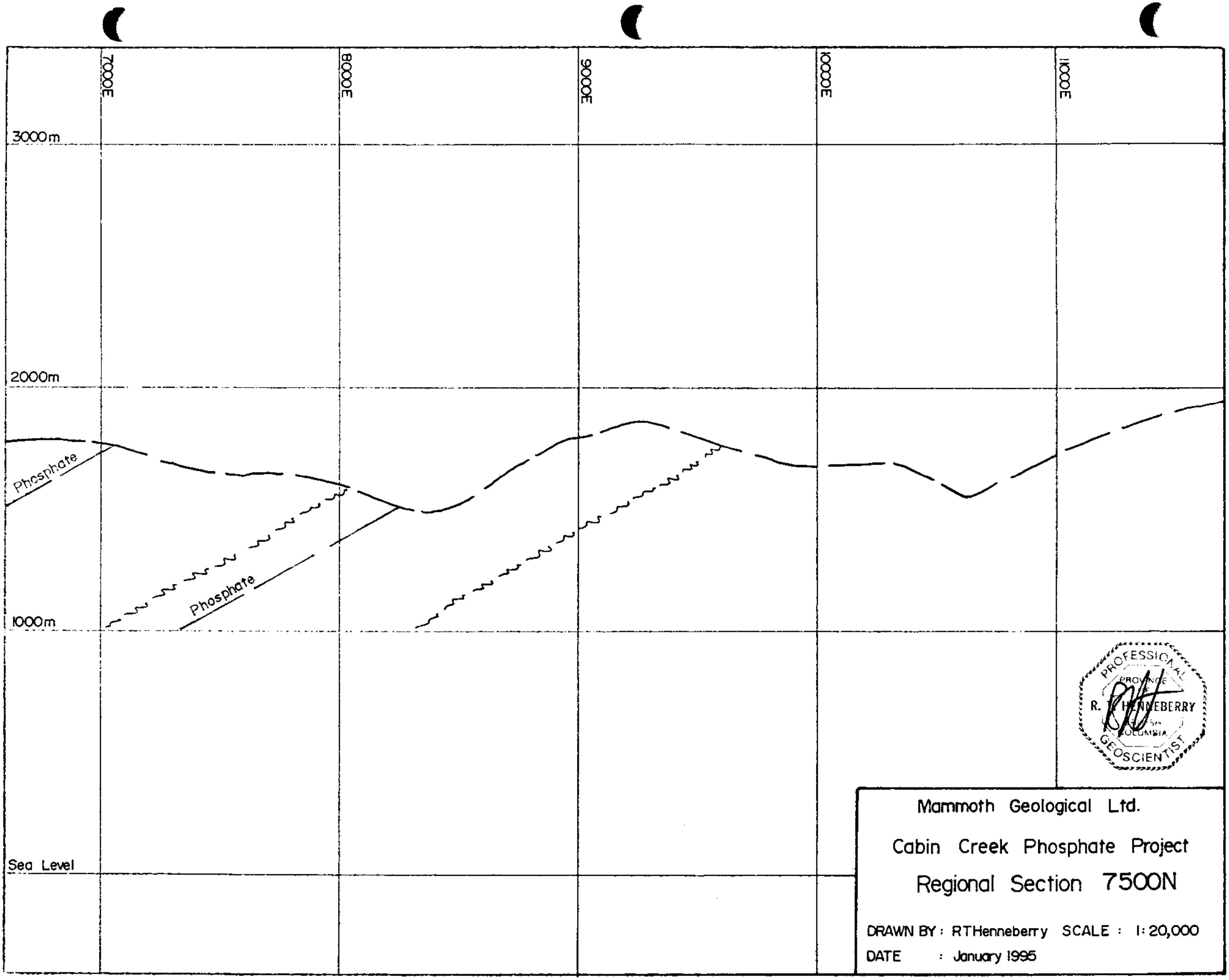
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Mammoth Geological Ltd.
Cabin Creek Phosphate Project
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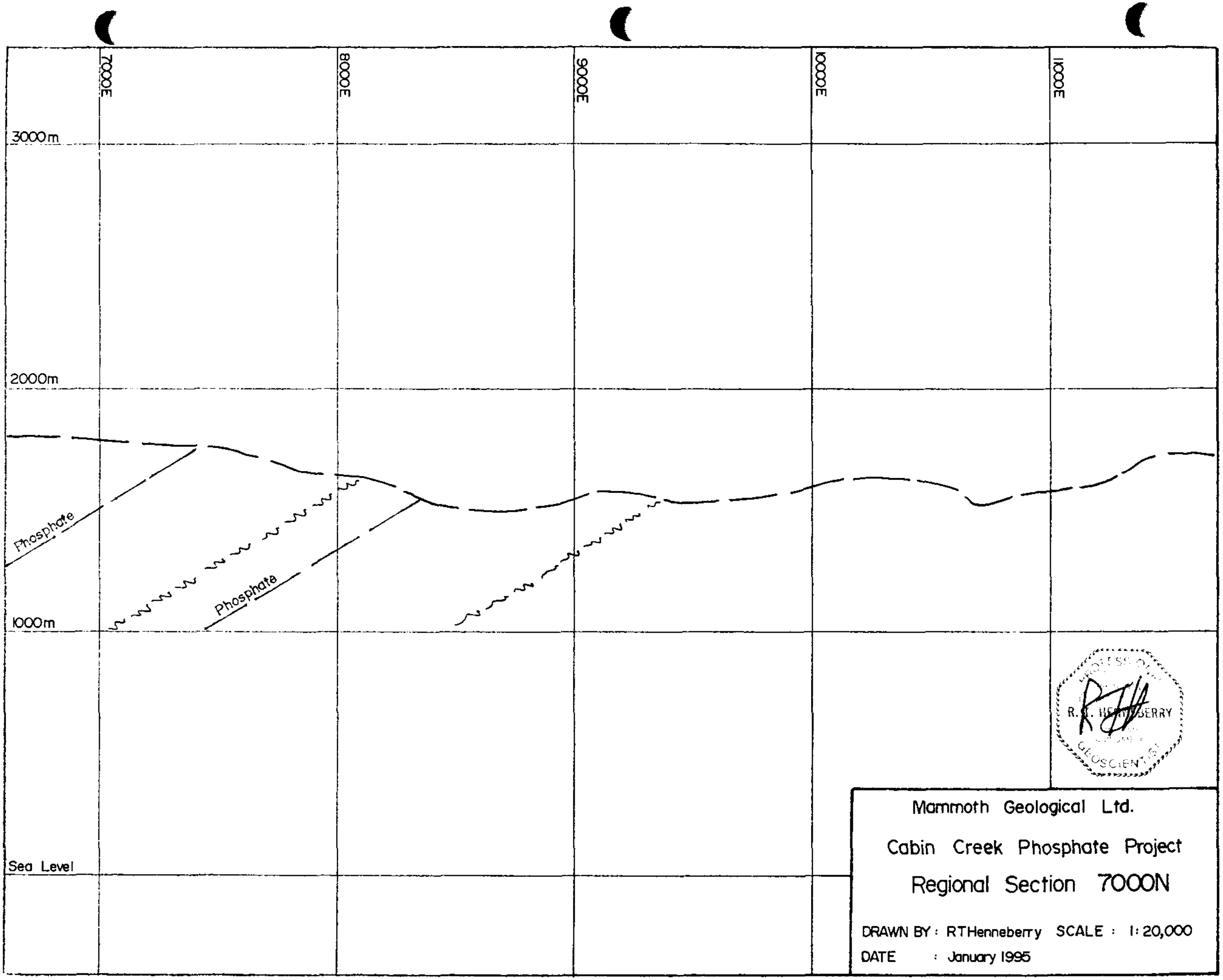

Mammoth Geological Ltd.

Cabin Creek Phosphate Project

Regional Section 7000N

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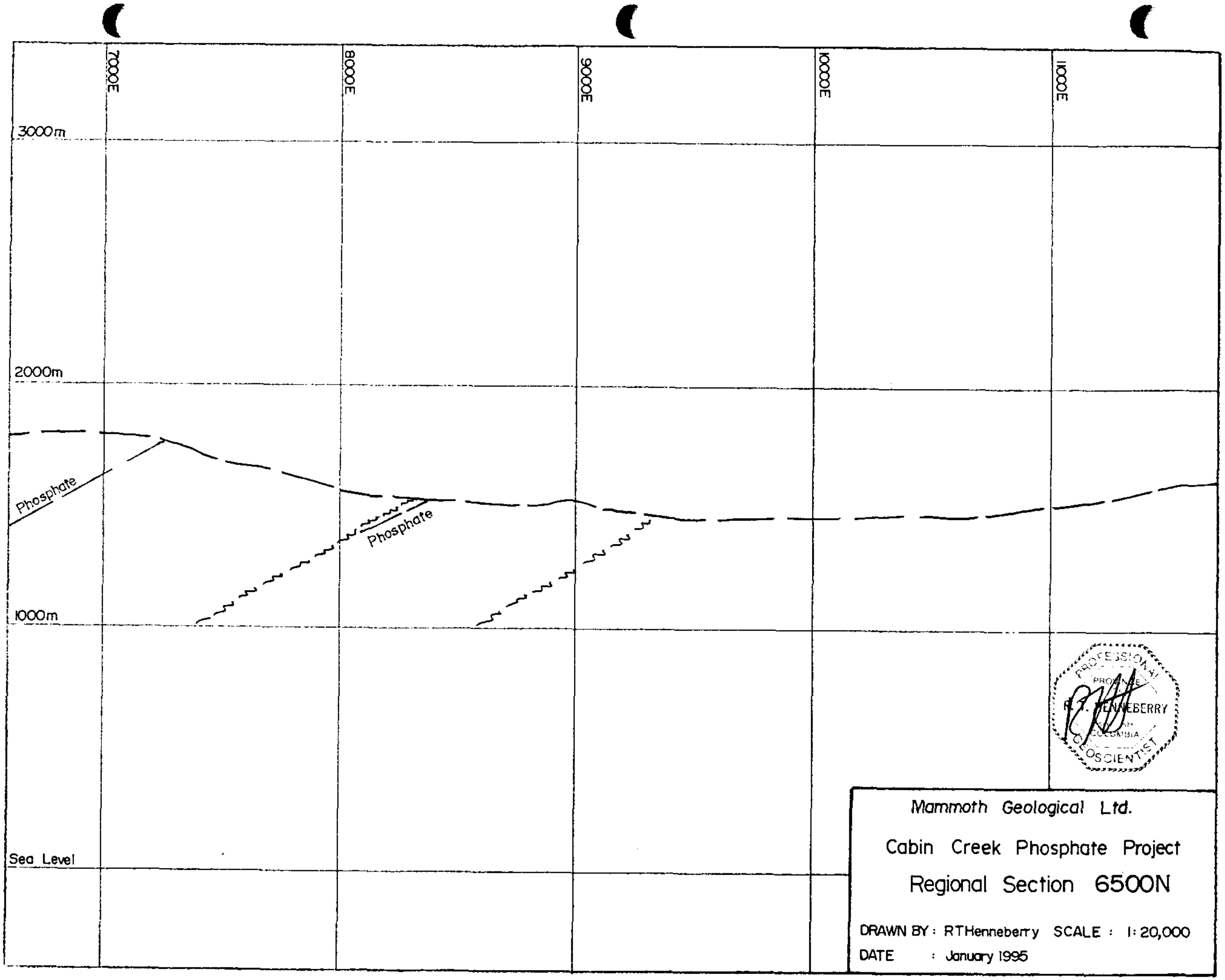
7000E
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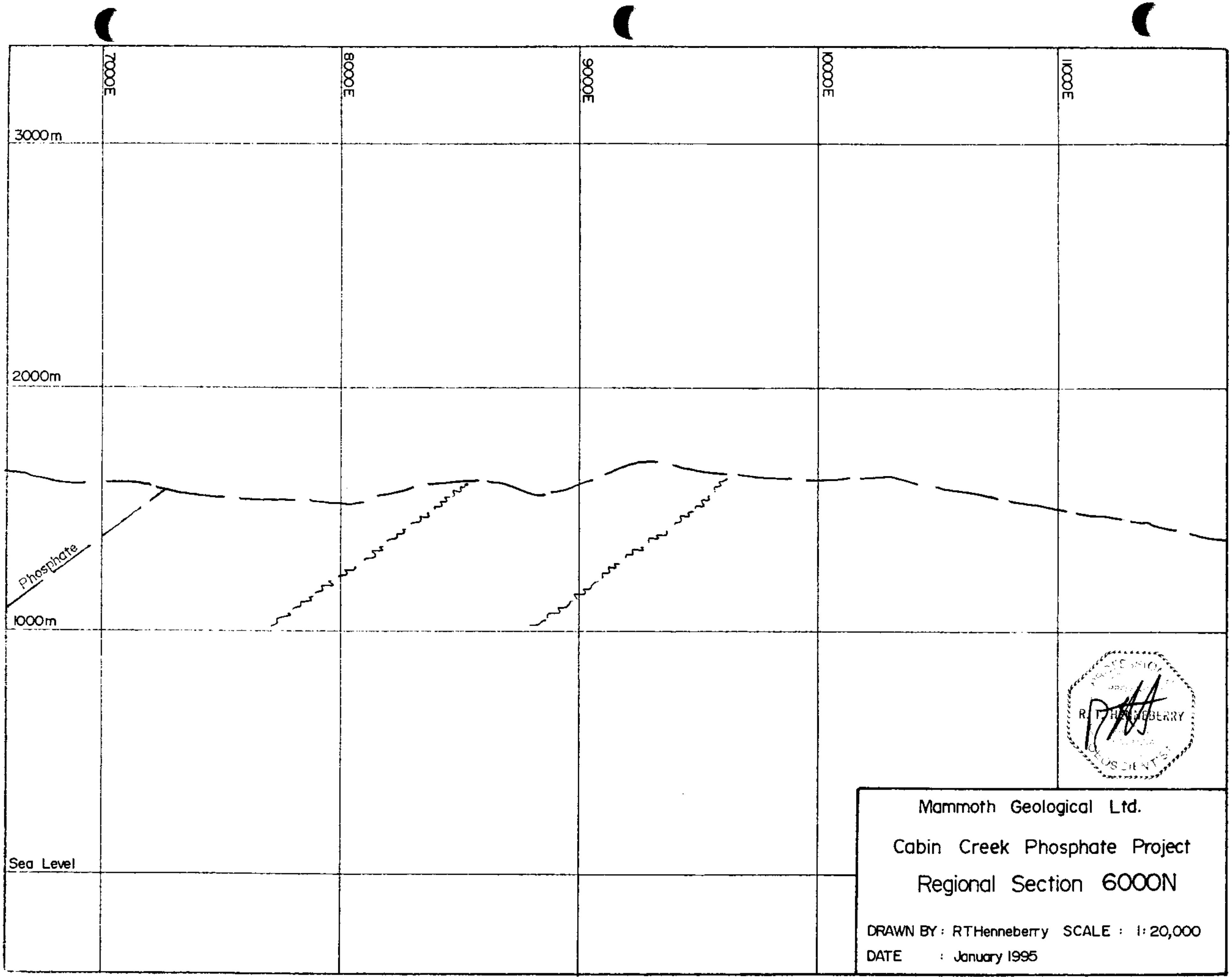
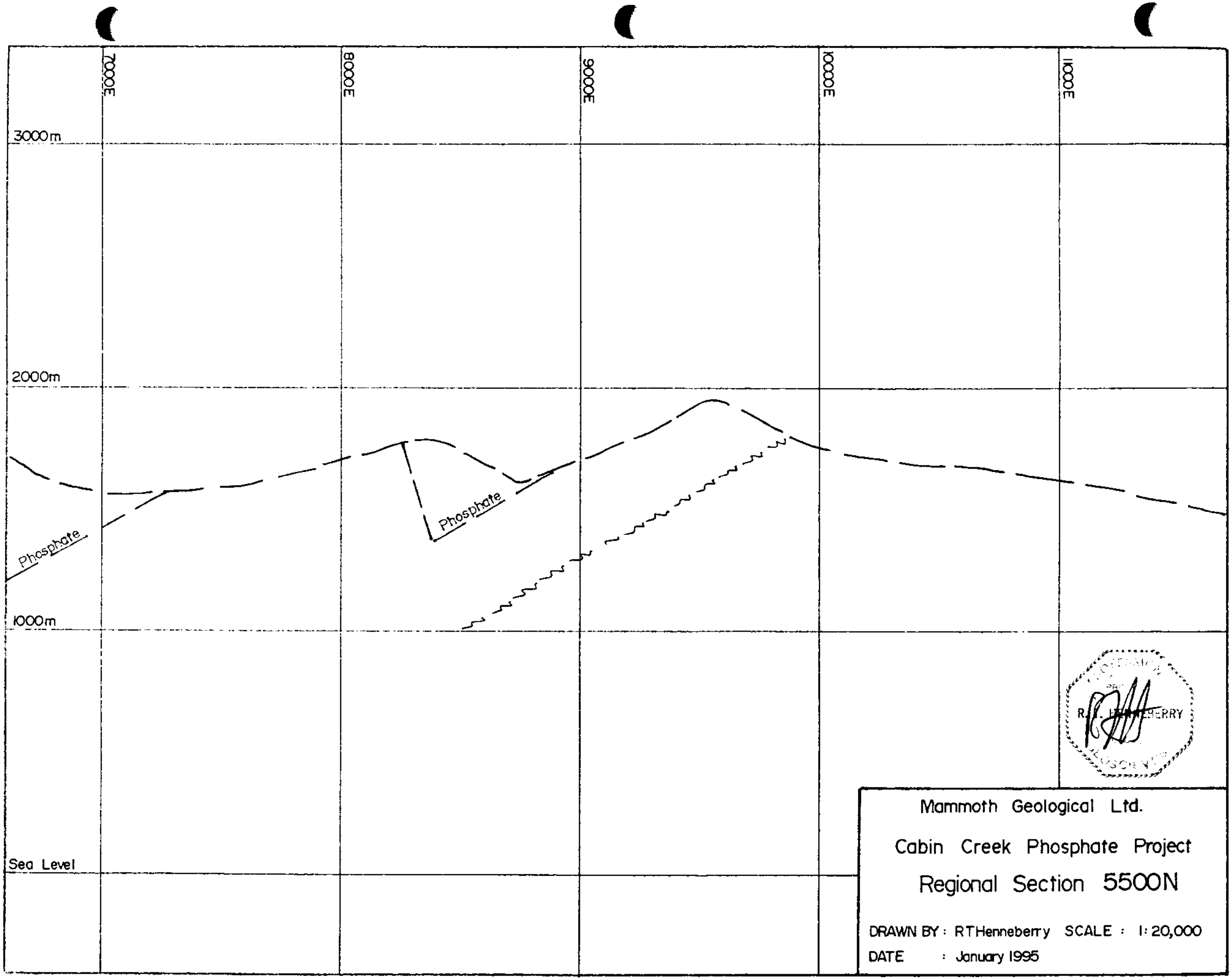
Mammoth Geological Ltd.
Cabin Creek Phosphate Project
Regional Section 6500N
DRAWN BY : RTHenneberry SCALE : 1:20,000
DATE : January 1995



7000E
8000E
9000E
10000E
11000E
3000m
2000m
1000m
Sea Level
Phosphate
Mammoth Geological Ltd.
Cabin Creek Phosphate Project
Regional Section 6000N
DRAWN BY : RTHenneberry SCALE : 1:20,000
DATE : January 1995



Mammoth Geological Ltd.

Cabin Creek Phosphate Project

Regional Section 5500N

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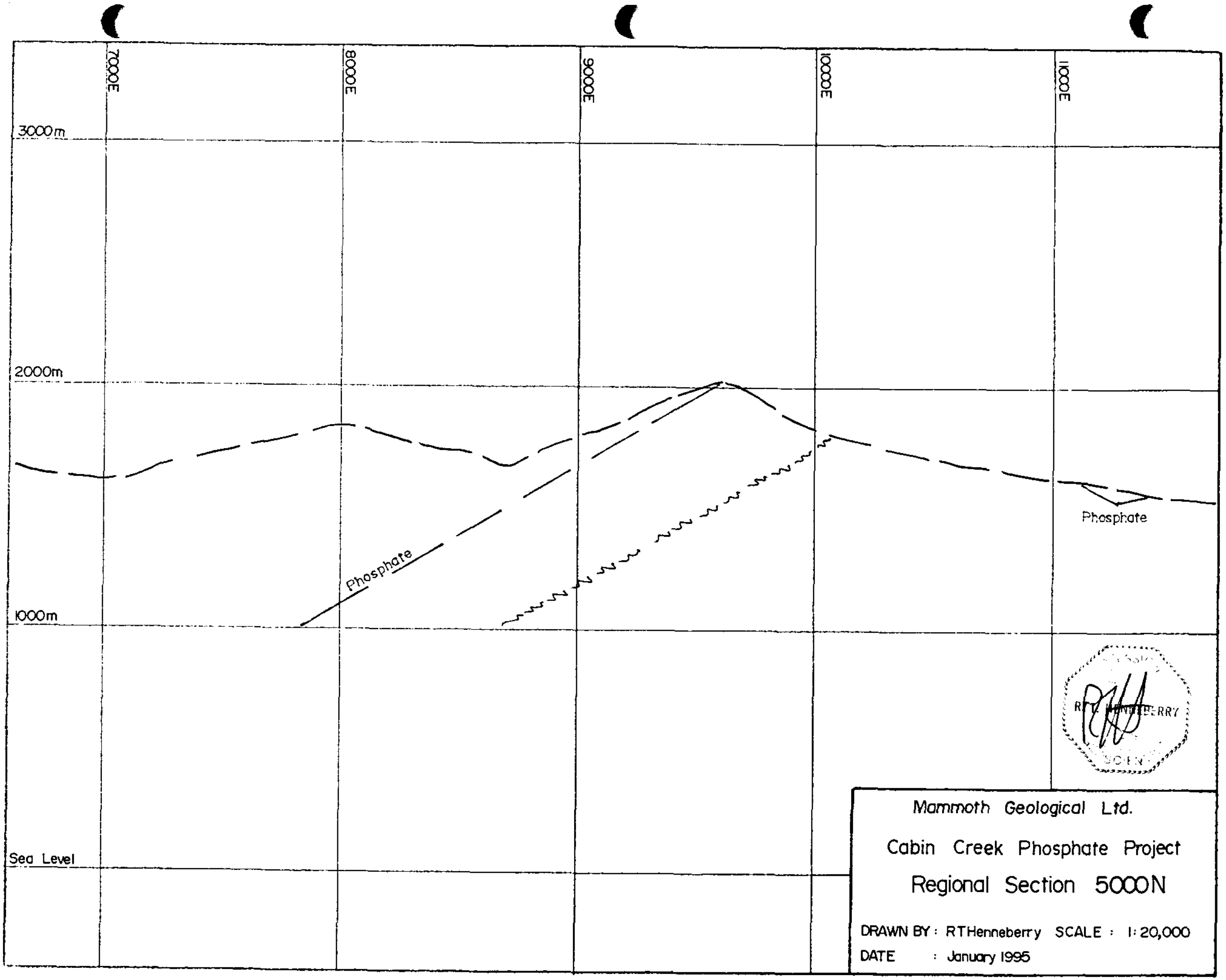
DATE : January 1995



Mammoth Geological Ltd.

Cabin Creek Phosphate Project

Regional Section 5000N

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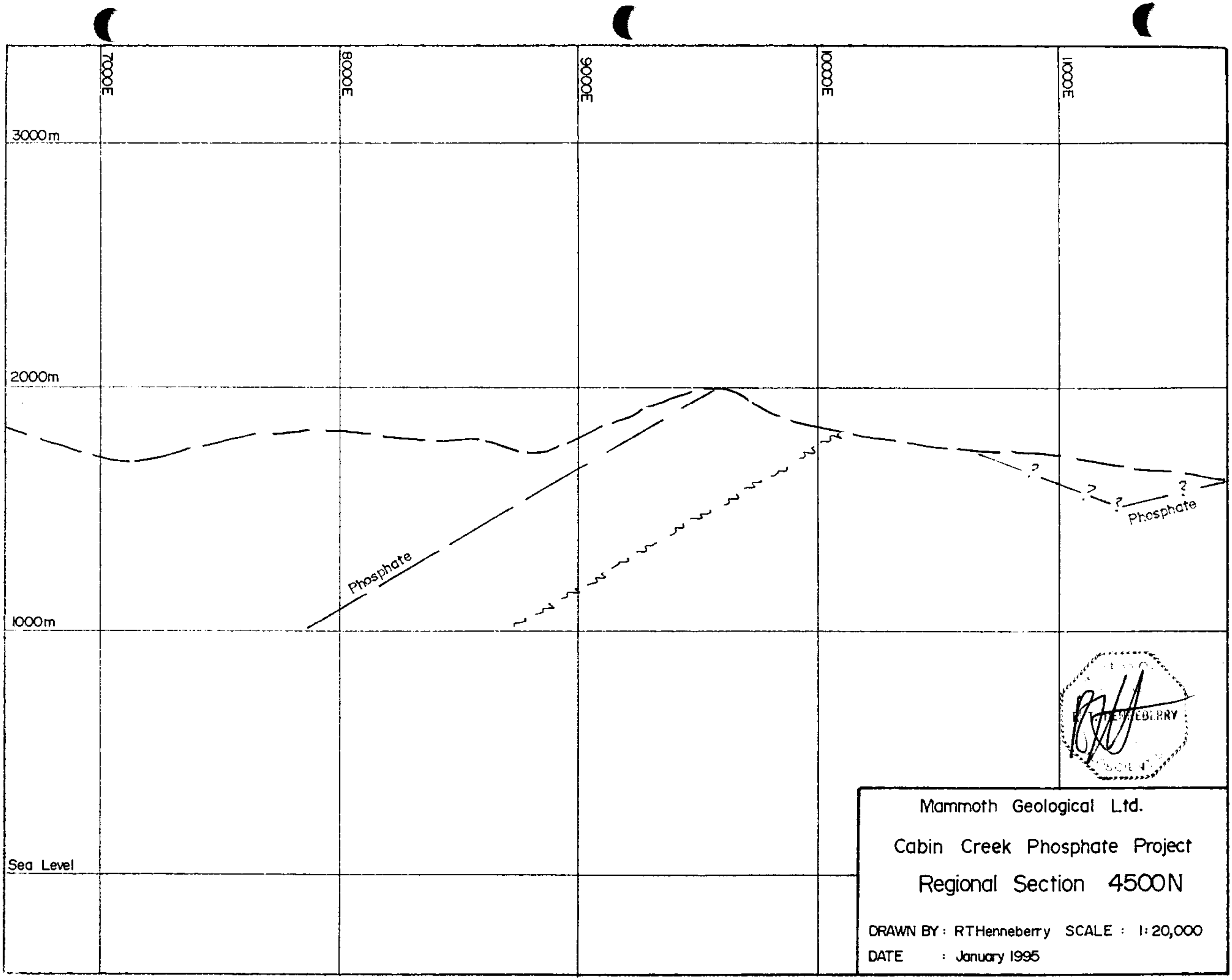
DATE : January 1995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11000E
3000m
2000m
1000m
Sea Level
Phosphate
Phosphate
?
?
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?
Mammoth Geological Ltd.
Cabin Creek Phosphate Project
Regional Section 4500N
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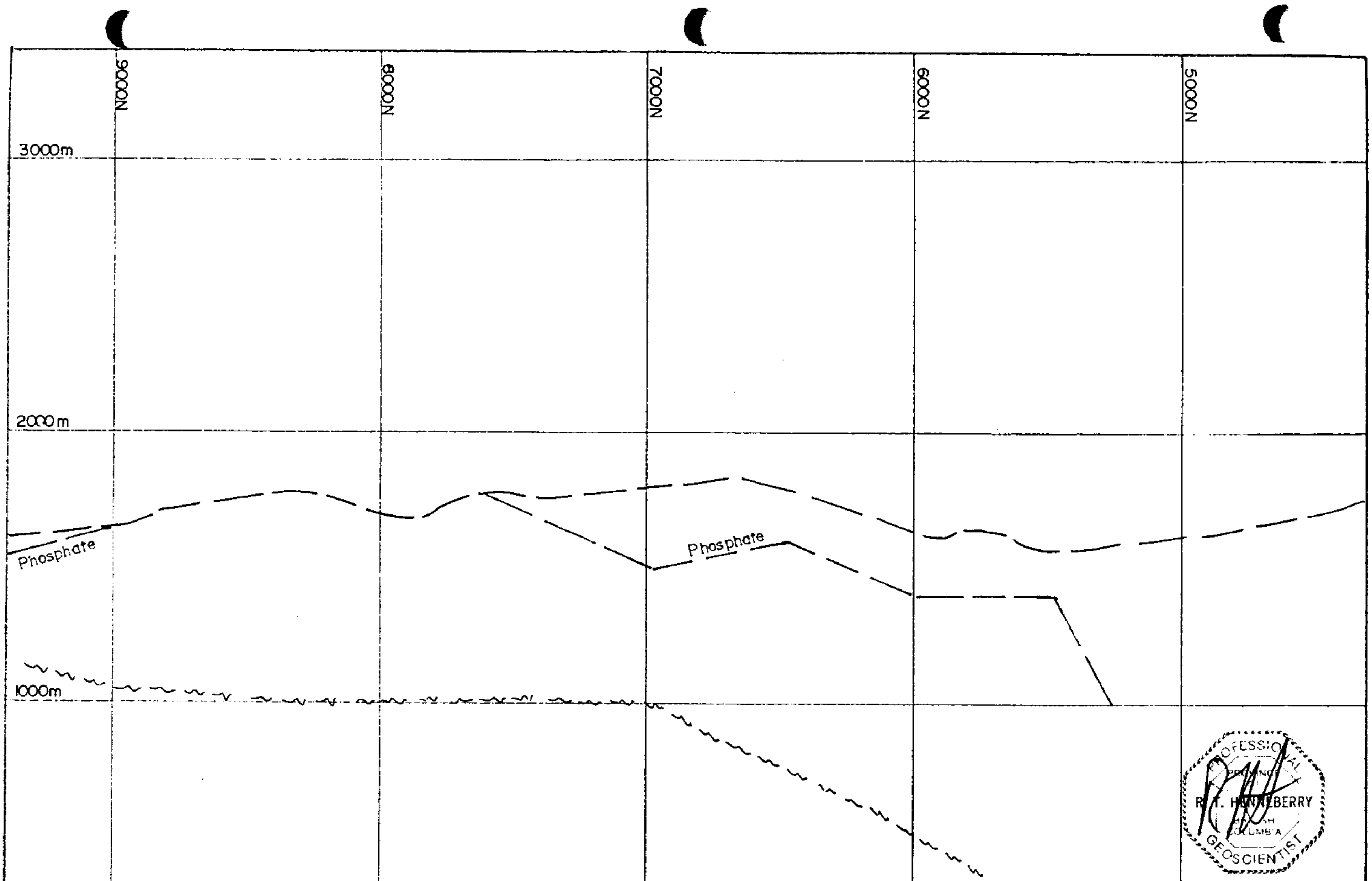
DATE : January 1995



Mammoth Geological Ltd.

Cabin Creek Phosphate Project

Regional Section 7000E

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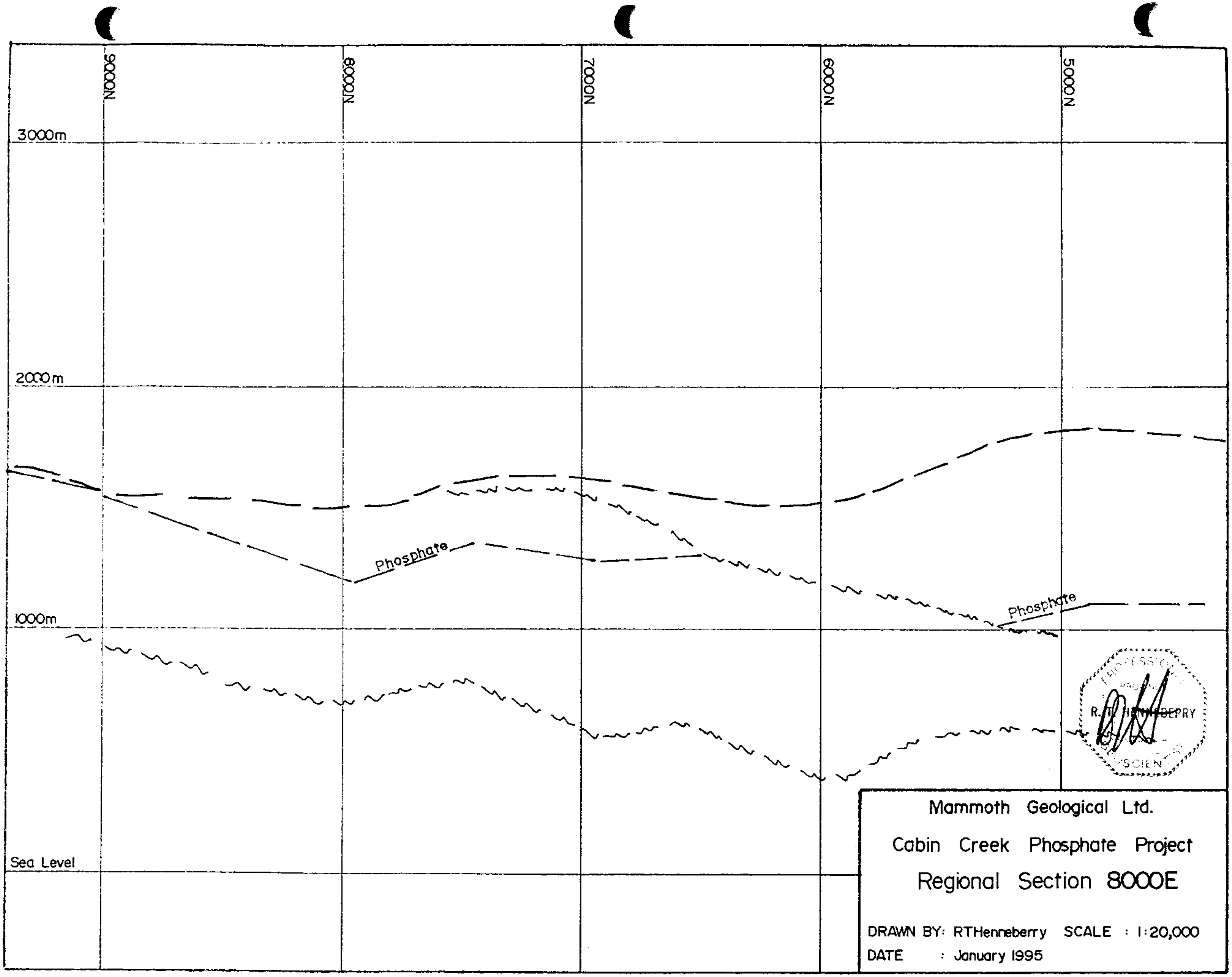
DATE : January 1995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2000m
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Sea Level
Phosphate
Phosphate
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Cabin Creek Phosphate Project
Regional Section 8000E
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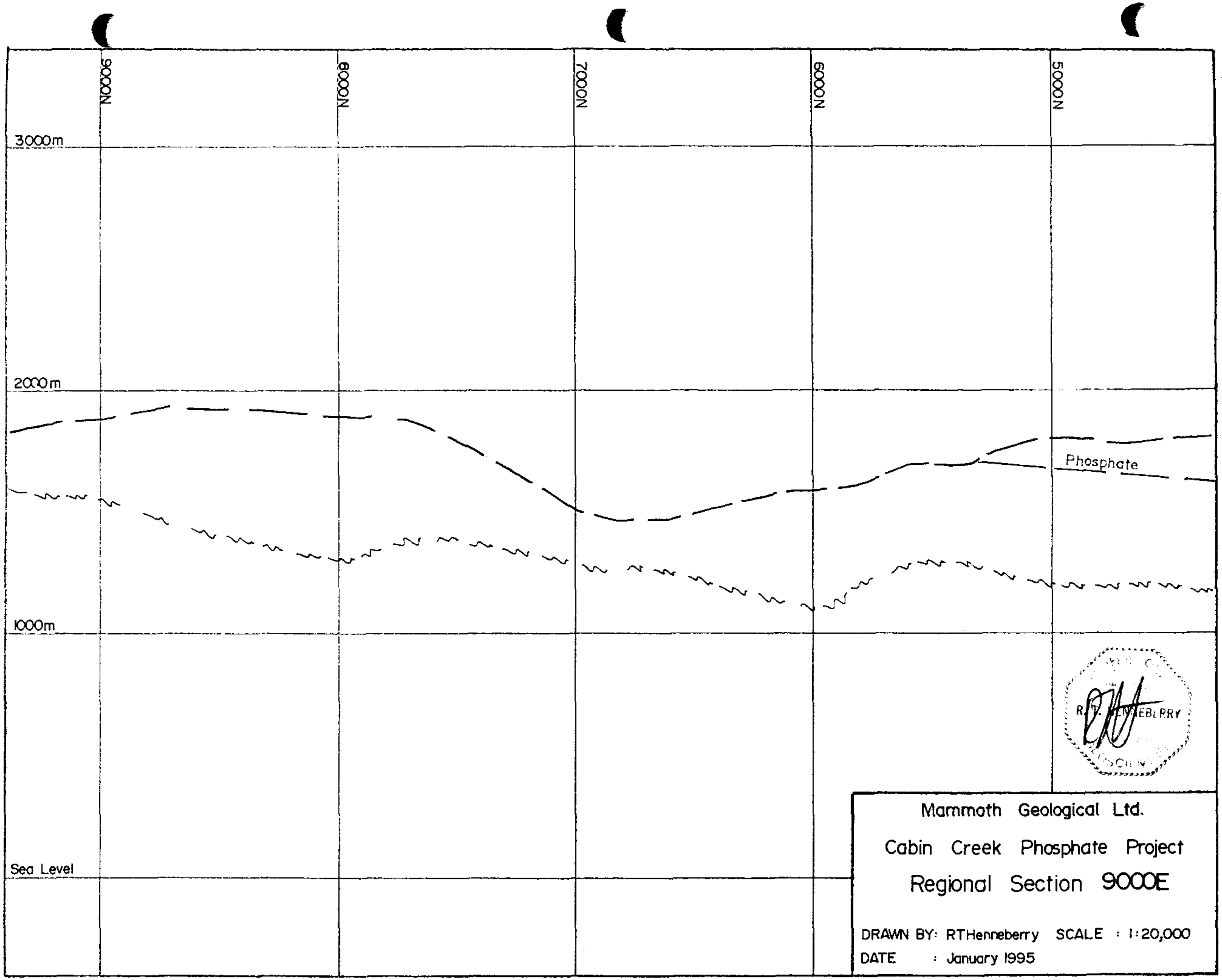
DATE : January 1995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Sea Level
Phosphate
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Cabin Creek Phosphate Project
Regional Section 9000E
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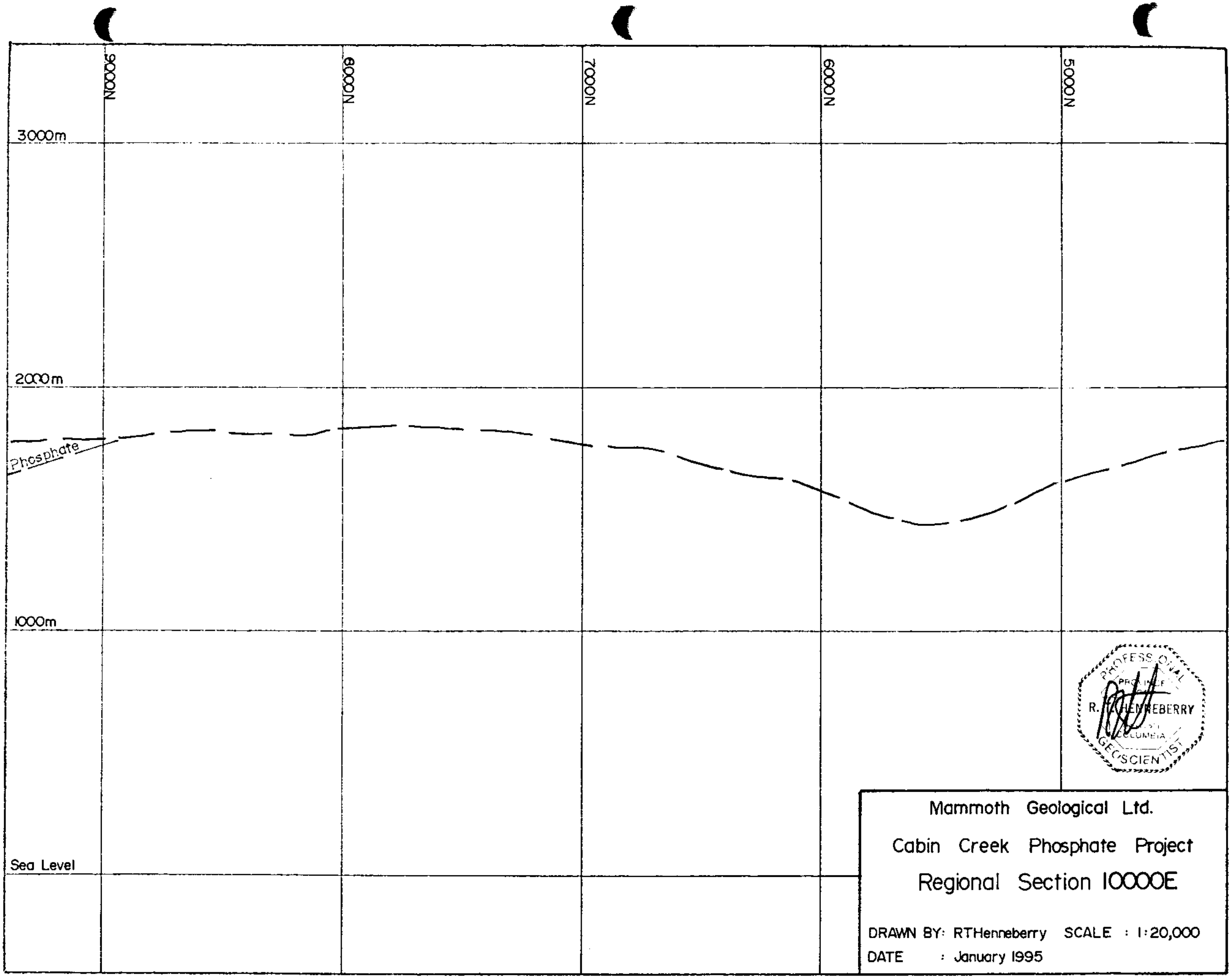
SCALE : 1:20,000
DATE : January 1995



Mammoth Geological Ltd.

Cabin Creek Phosphate Project

Regional Section 10000E

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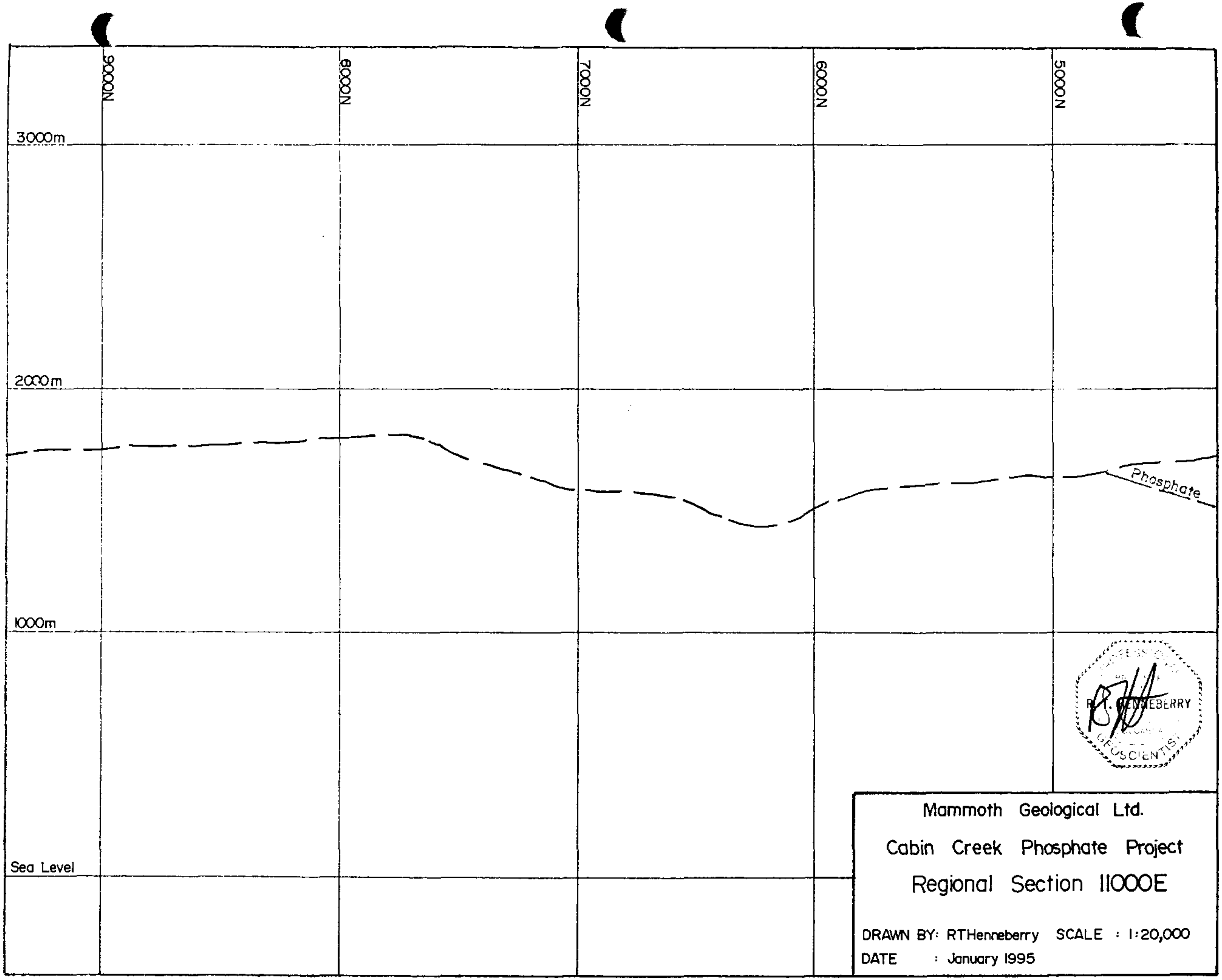

Mammoth Geological Ltd.

Cabin Creek Phosphate Project

Regional Section 11000E

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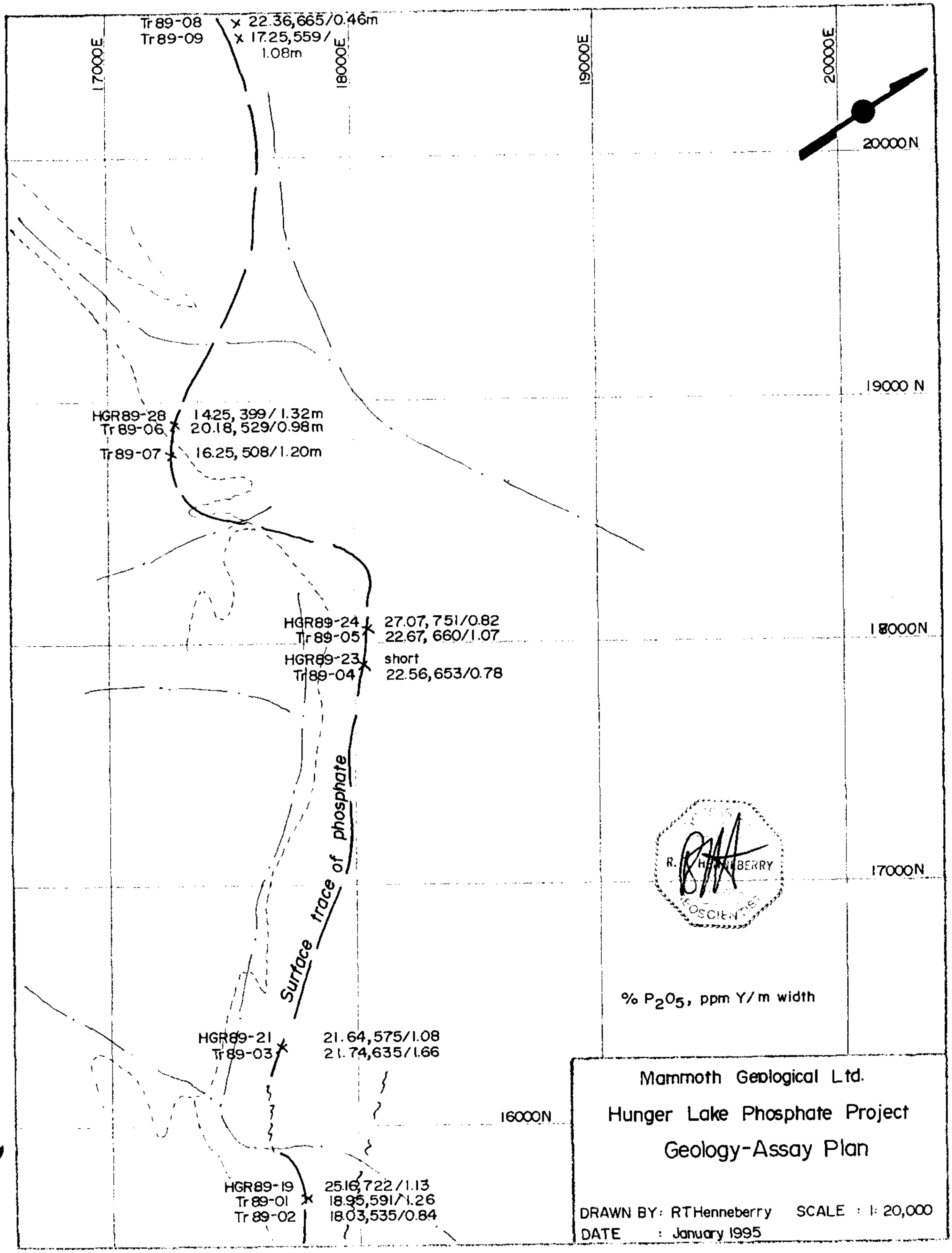

Mammoth Geological Ltd.

Hunger Lake Phosphate Project

Geology-Assay Plan

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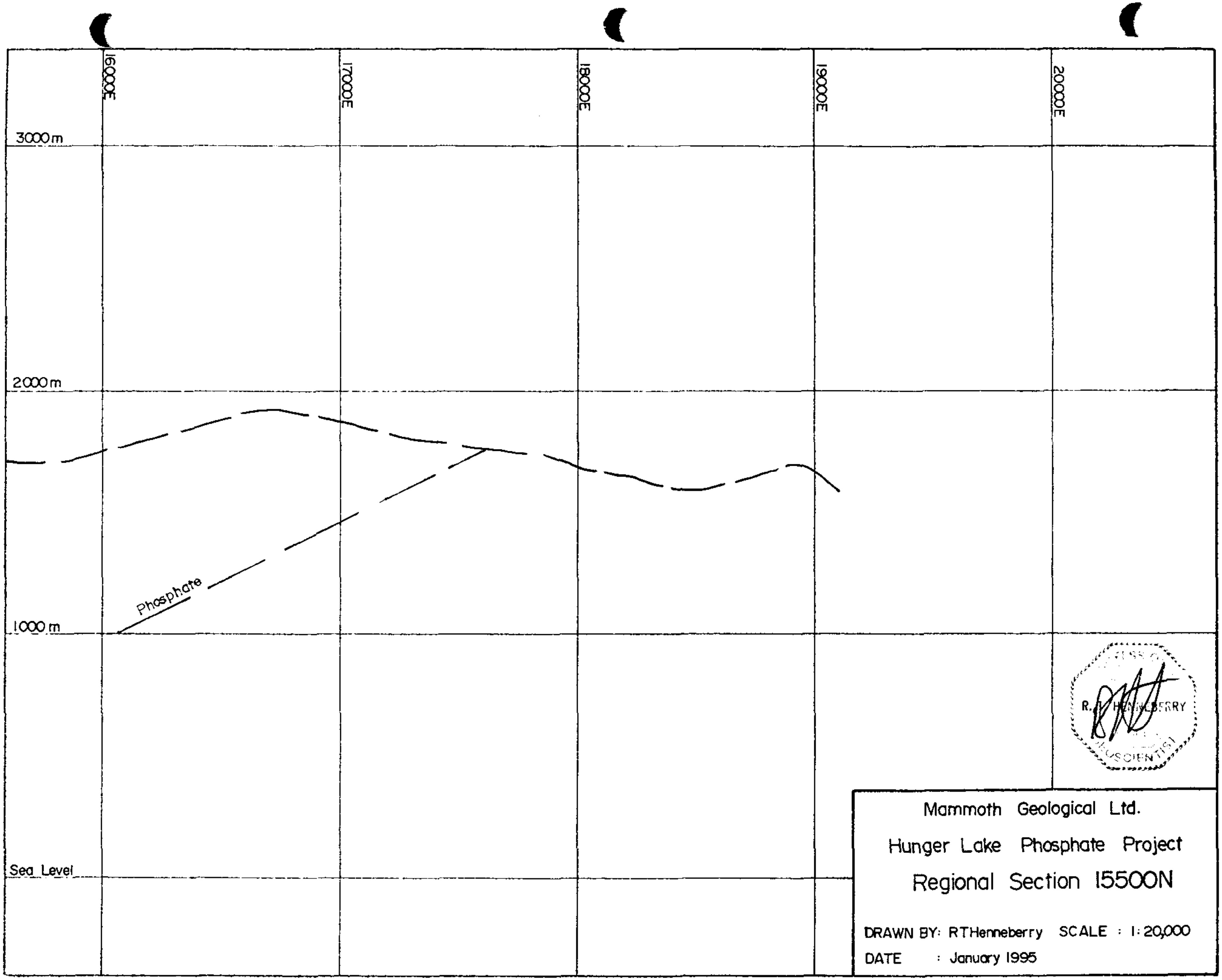
DATE : January 1995



Mammoth Geological Ltd.

Hunger Lake Phosphate Project

Regional Section 15500N

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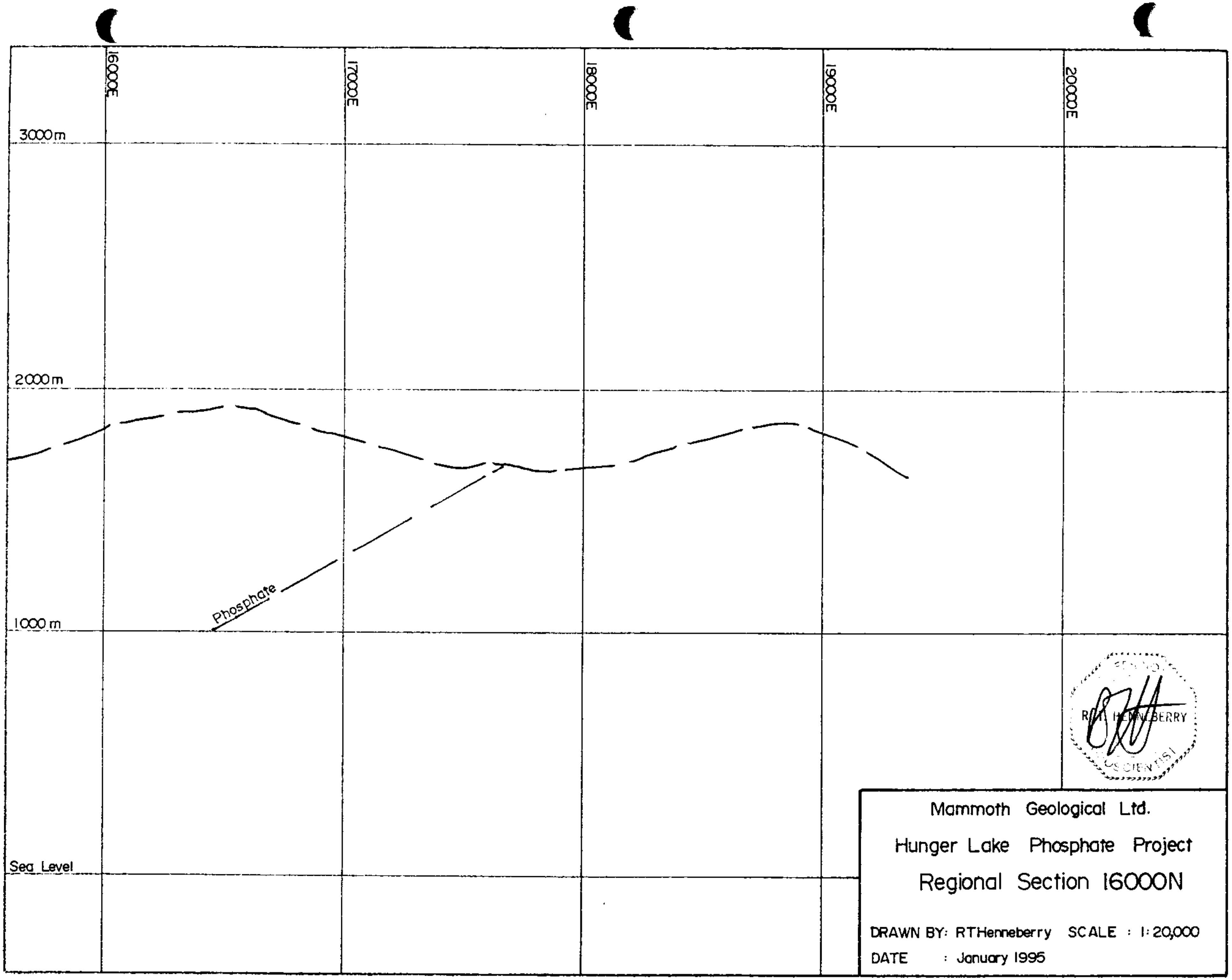
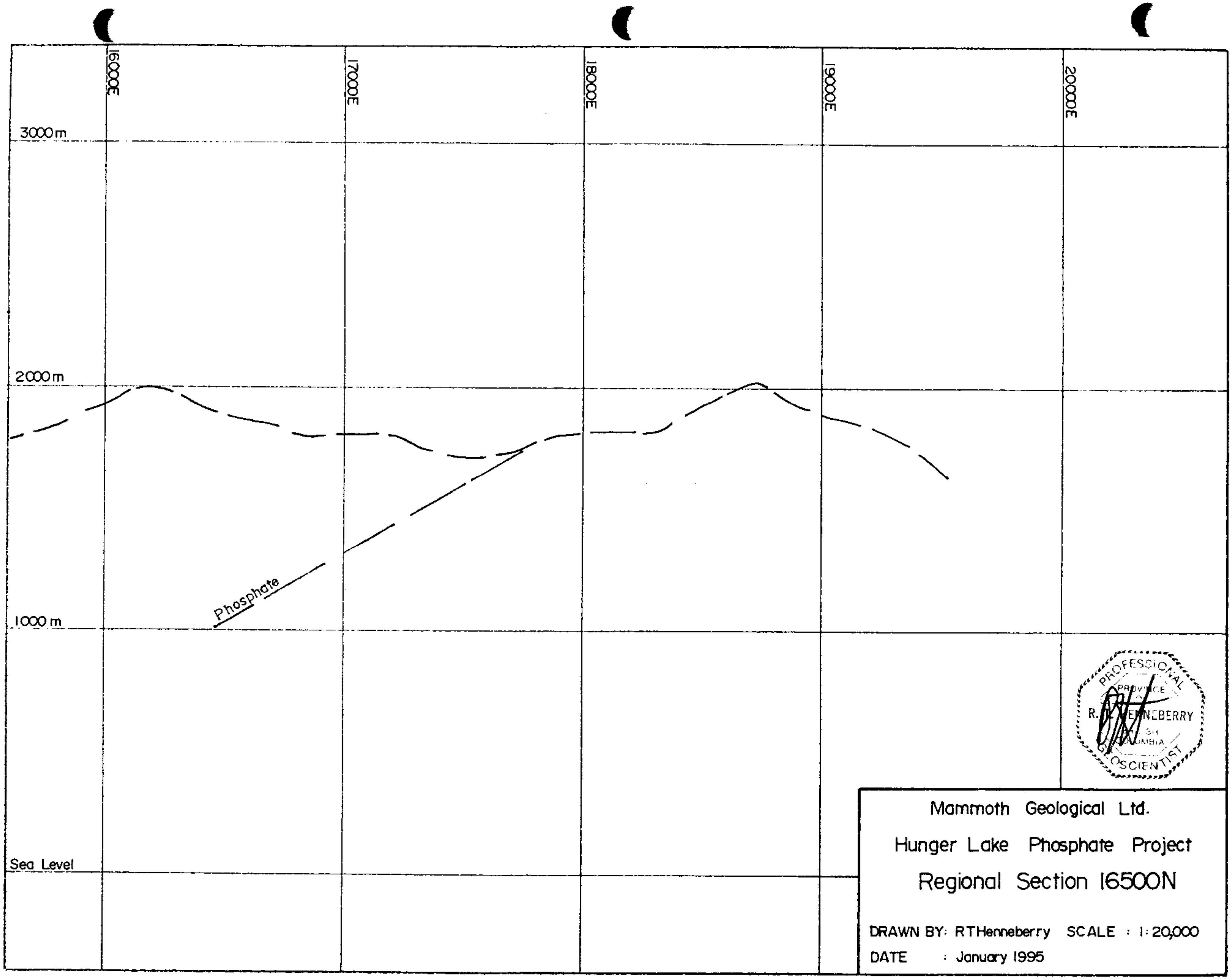
DATE : January 1995


16000E
17000E
18000E
19000E
20000E
3000 m
2000 m
1000 m
Sea Level
Phosphate
Mammoth Geological Ltd.
Hunger Lake Phosphate Project
Regional Section 16000N
DRAWN BY: RTHenneberry SCALE : 1:20,000
DATE : January 1995


16000E
17000E
18000E
19000E
20000E
3000 m
2000 m
1000 m
Sea Level
Phosphate
PROFESSIONAL
PROVINCE
R. T. HENNEBERRY
GEOSCIENTIST
Mammoth Geological Ltd.
Hunger Lake Phosphate Project
Regional Section 16500N
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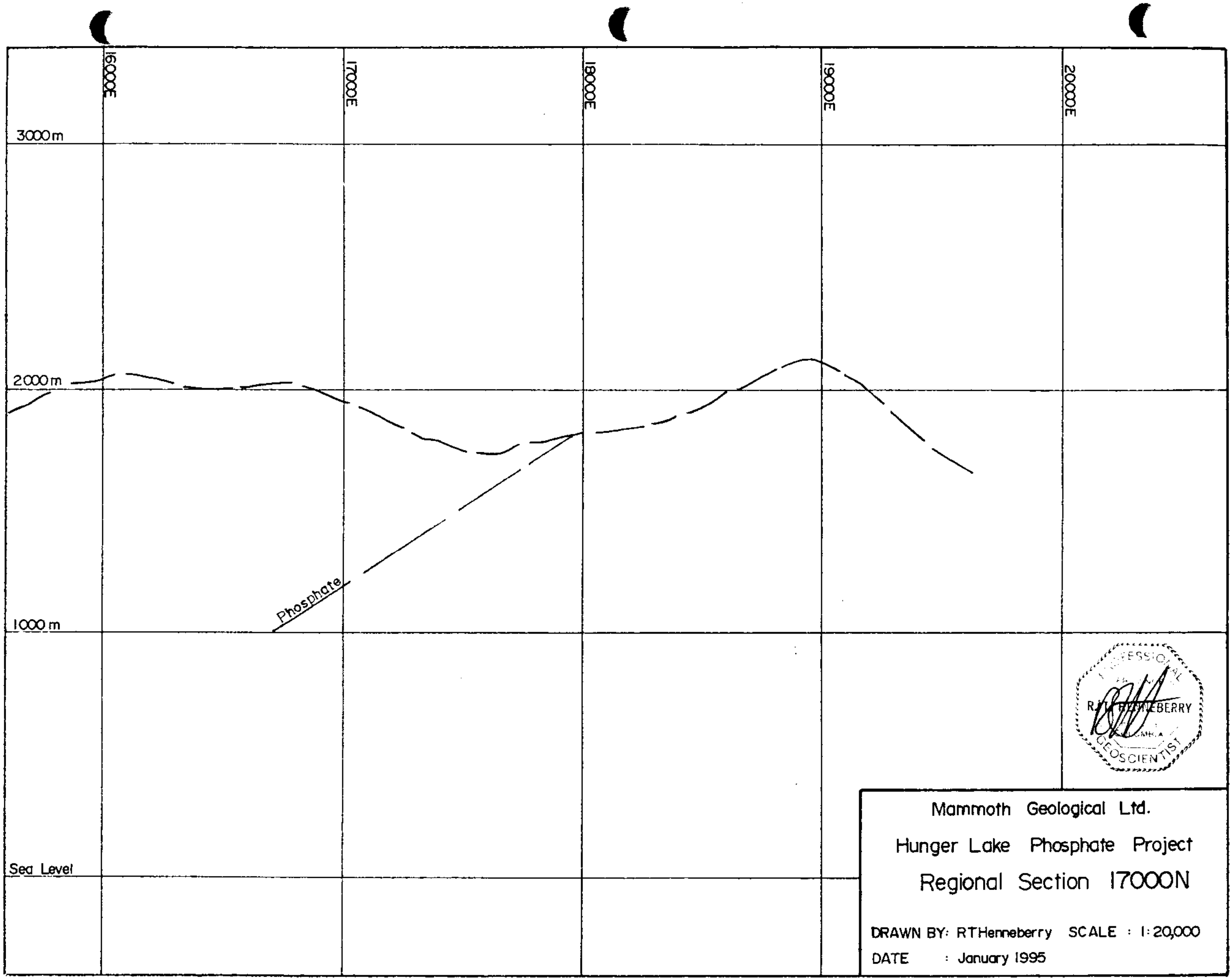
DATE : January 1995



Mammoth Geological Ltd.

Hunger Lake Phosphate Project

Regional Section 17000N

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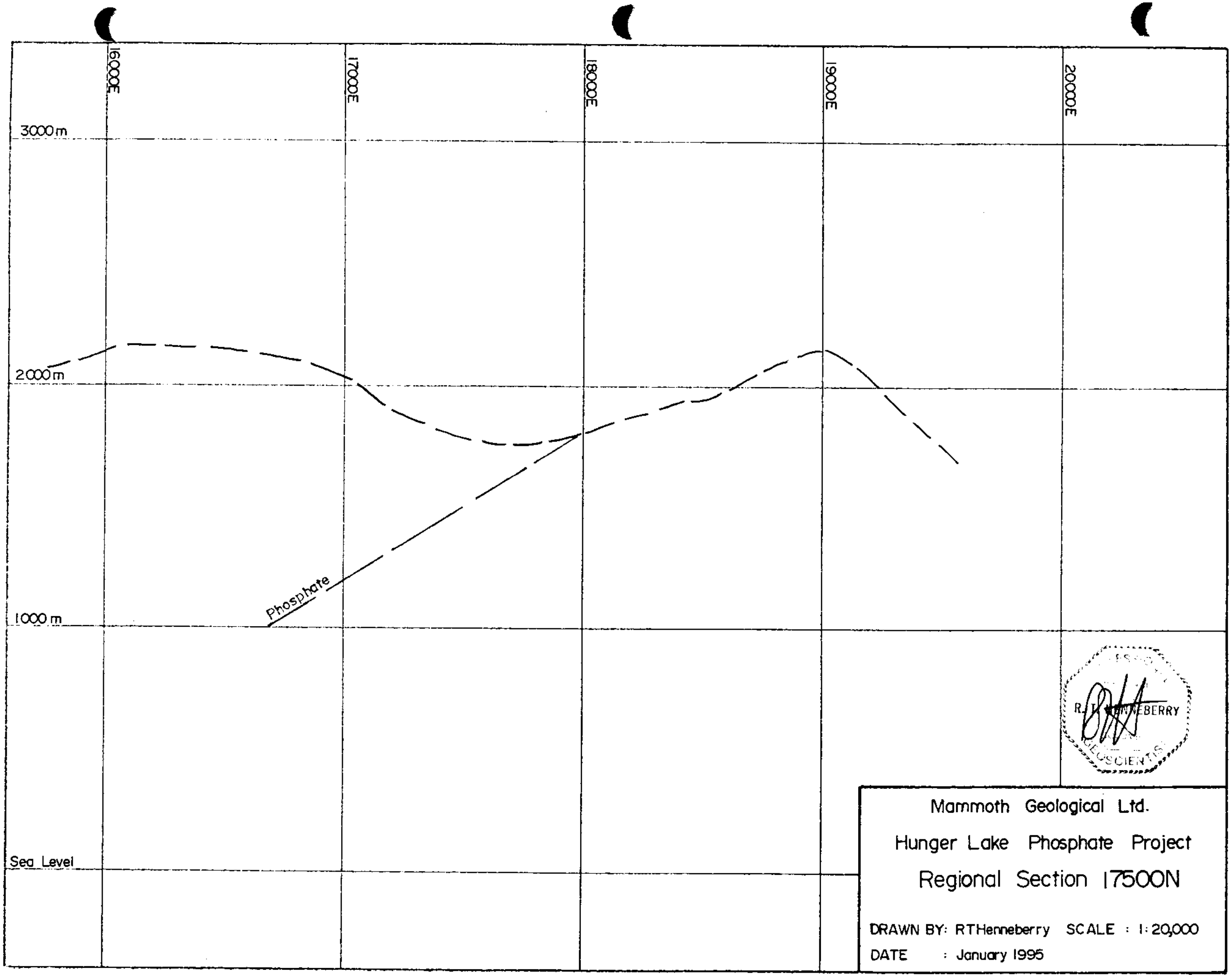
DATE : January 1995


16000E
17000E
18000E
19000E
20000E
3000 m
2000 m
1000 m
Sea Level
Phosphate
R. T. HENNEBERRY
GEOSCIENTIST
Mammoth Geological Ltd.
Hunger Lake Phosphate Project
Regional Section 17500N
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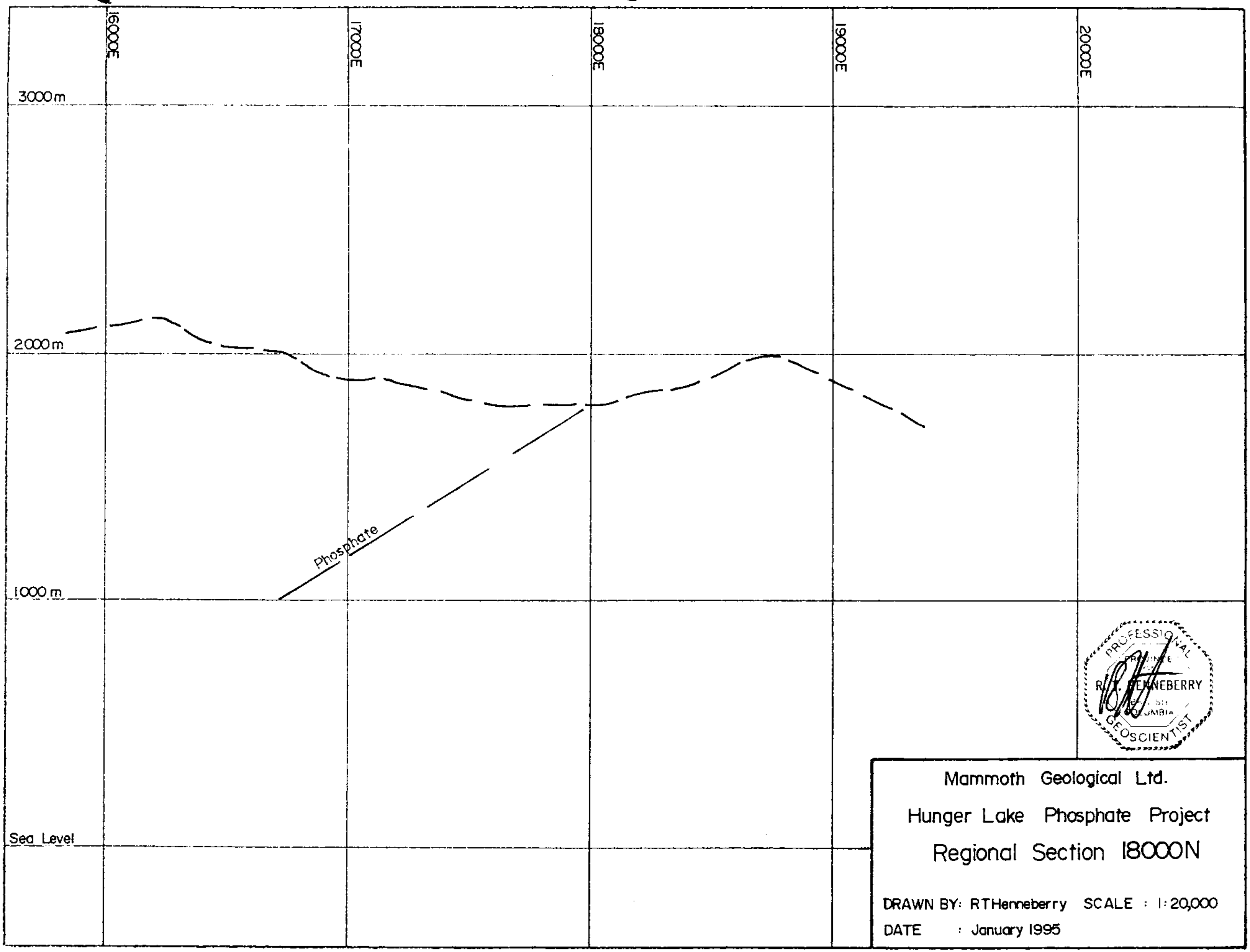
DATE : January 1995



Mammoth Geological Ltd.

Hunger Lake Phosphate Project

Regional Section 18000N

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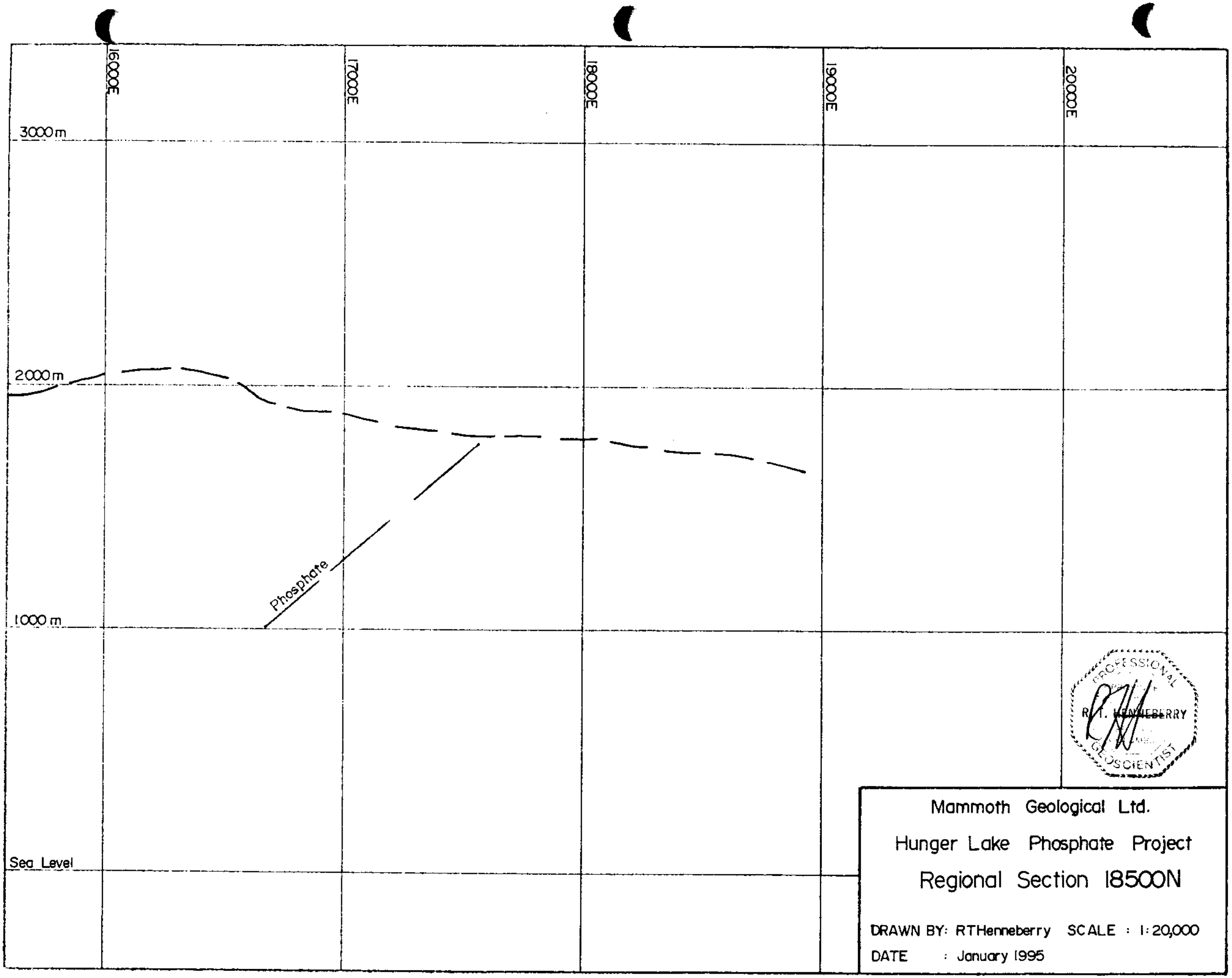
DATE : January 1995


16000E
17000E
18000E
19000E
20000E
3000 m
2000 m
1000 m
Sea Level
Phosphate
PROFESSIONAL
R. T. HENNEBERRY
GEOSCIENTIST
Mammoth Geological Ltd.
Hunger Lake Phosphate Project
Regional Section 18500N
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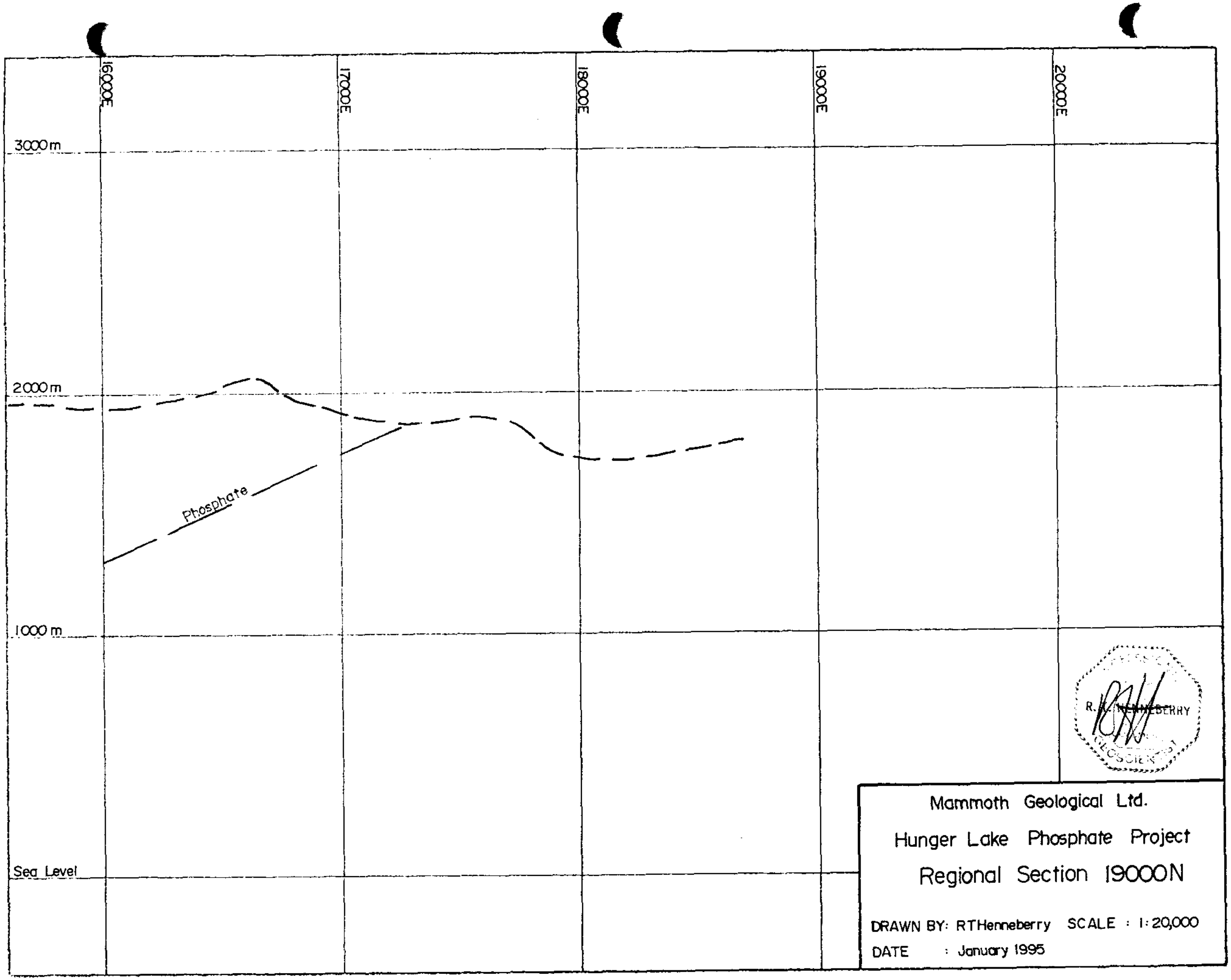
DATE : January 1995



Mammoth Geological Ltd.

Hunger Lake Phosphate Project

Regional Section 19000N

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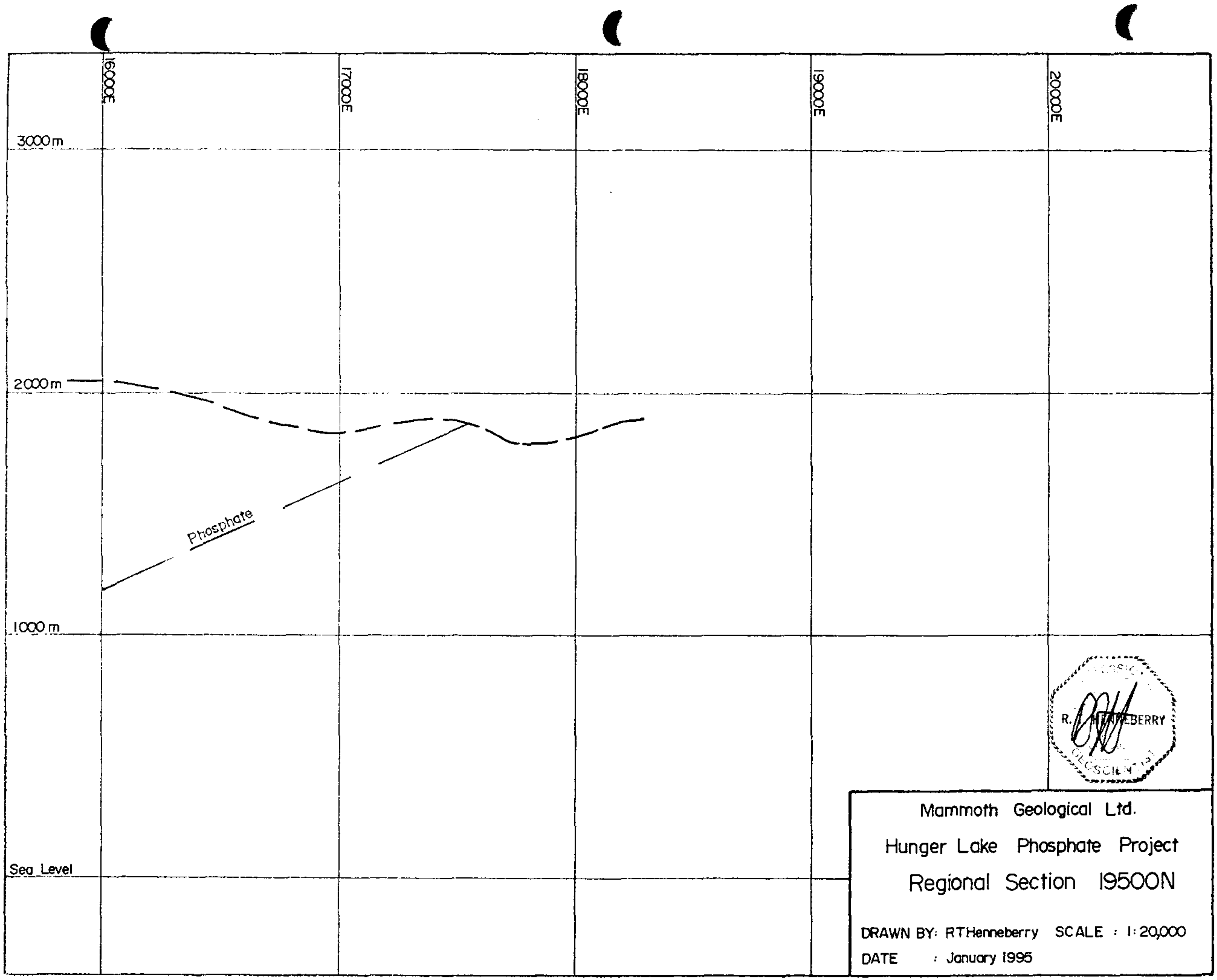
DATE : January 1995



Mammoth Geological Ltd.

Hunger Lake Phosphate Project

Regional Section 19500N

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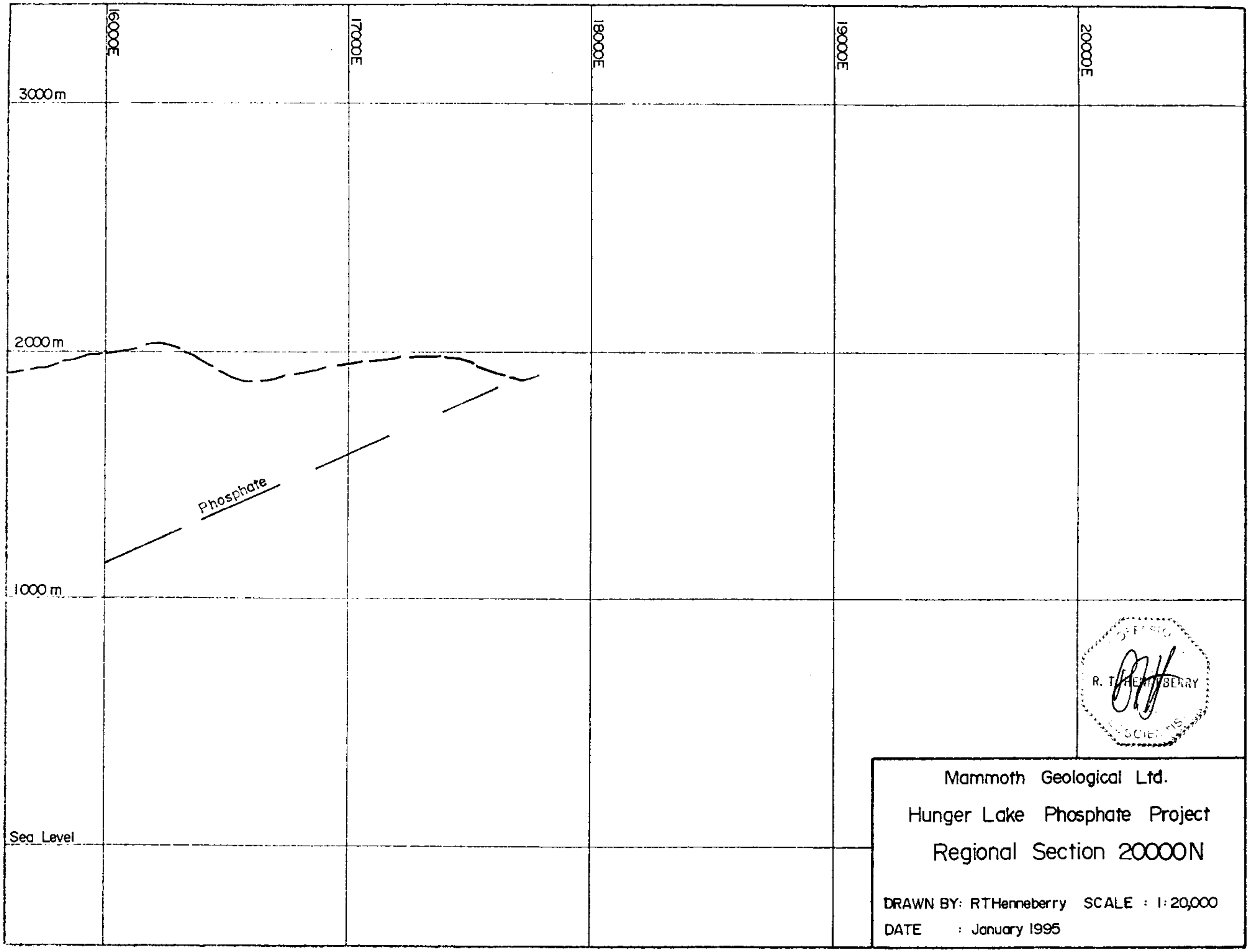
DATE : January 1995


16000E
17000E
18000E
19000E
20000E
3000 m
2000 m
1000 m
Sea Level
Phosphate
R. T. HENNEBERRY
Mammoth Geological Ltd.
Hunger Lake Phosphate Project
Regional Section 20000N
DRAWN BY: RTHenneberry SCALE : 1:20,000
DATE : January 1995