GEOPEKO LIMITED
KING ISLAND GROUP

GEOLOGICAL PROGRESS REPORT
EXPLORATION LICENCE NO. 15/66

by
J. J. GRESHAM

KING ISLAND

MAY, 1970.

001

011002

CONTENTS

INTRODUCTION

Exploration Licence No. 15/66, held by King Island Scheelite (1947) Limited, covers an area of 93 square miles of the southern and eastern portion of King Island.

The purpose of this report is to consolidate all mapping done within the Exploration Licence by many workers.

Although mapping has been quite intensive in the southern half of the Exploration Licence much work on a regional scale remains to be done before a full understanding of the geology within the Exploration Licence can be obtained. Proposals and recommendations for further work are made.

Geological plans of the Exploration Licence are presented on a scale of 1000 feet to the inch and the report also includes the survey data used in the compilation of the King Island regional maps.

RECOMMENDATIONS

1. Regional mapping be continued within the Exploration Licence until a clear understanding of all rock types and the overall structure and economic potential within the Exploration Licence is obtained.

2. Detailed traverses of all creek beds within the Exploration Licence be carried out in order to elucidate the structure of the rocks within the Exploration Licence.

3. Where outcrop and float occurrence is sparse the Gemco drill be employed to obtain rock chips from beneath the sand cover.

4. Detailed geological, geophysical and geochemical study of the gabbroic rocks in the northern portion of the Exploration Licence be carried out.

5. Further reconnaissance geophysical and geochemical work be continued within the Exploration Licence.

6. Sand distribution studies be carried out within the Exploration Licence.

These recommendations should be carried out with the following points borne in mind -

a) Regional mapping must be concurrent with the development of already known prospects.

b) Regional mapping should be continued only to that stage where it is felt that a clear knowledge of the regional geology and overall economic potential of the Exploration Licence has been obtained.

c) That the search for minerals within the Exploration Licence is not restricted to scheelite. Potential exists within the Exploration Licence for nickel, chrome, cobalt, platenoid, base metal and beach sand deposits.

TENURE

Exploration Licence No. 15/66 was originally granted to King Island Scheelite (1947) Limited on the 24th October, 1966, in respect of 2700 acres of land comprising lots 9, 10, 11, Section F, Pegarah Estate of the Closer Settlement Board in the Parish of Kittawa, King Island.

Since that time various blocks were added to the Exploration Licence over a period of years until October, 1969.

The Exploration Licence in its present form, covering an area of 93 square miles was originally granted on 24th October, 1969, It has recently been re[illegible]ved for a further six month period and currently expires on the 24th October, 1970.

The land is predominantly soldier settlement with some freehold and Crown Land.

Within the Exploration Licence is the current Consolidated Mine Lease, Mineral Leases 469P/M, 470 P/M, 471 P/M and 472 P/M located in the south-western corner of the Exploration Licence and Mineral Leases 726 P/M, 727 P/M, 728 P/M, 730 P/M, 731 P/M and 732 P/M located at Bold Head.

Of the latter six Leases, Leases 731 P/M and 732 P/M have been granted by the Mines Department.

BASE PLAN COMPILATION

During February, 1970, a base plan of King Island using controlled photo laydown technique was compiled by Mr J. Love and the author.

The survey data used in this laydown is recorded in this report. We should like to acknowledge the kind and generous assistance afforded to us by the Department of Lands and Surveys in Hobart and also thank them for supplying us with details of the trigonometrical stations.

Four trigonometrical stations have been established on King Island by National Mapping. These have been called Gentle Annie (461), Mary (462), Sea Elephant (463) and Wickham (464), and were used in the control of the photo laydown.

From this base plan twenty regional sheets of the Island are being compiled.

The layout of the regional sheets and the survey data used in the base plan compilation are appended.

GEOLOGY

The major rock types within the Exploration Licence are slates, siltstones, quartzites, basic volcanics and granite with lesser amounts of sandstone, ironstone, quartz, basic intrusive masses (gabbros), dolomites, tillites and the contact metamorphosed sediments intimately associated with the granitic masses. For the purpose of discussion the rocks within the Exploration Licence are considered under six categories.

1. East Coast Volcanic, Shale-Dolomite-Tillite Sequence
2. Eastern Shale, Spotted Shale-Siltstone-Sandstone Sequence
3. Western Siltstone, Spotted Siltstone-quartzite Sequence
4. Mine Series or Contact Metamorphosed Rocks.
5. Granitic Rocks
6. Other Rock Types.

1. East Coast Volcanic, Shale-Dolomite-Tillite Sequence

Exposure and outcrop is very good along the east coast of the Island and between the Mine and Robbins Road a well defined sequence of basic volcanics-shales-dolomites and tillites have been mapped.

The volcanics have been described in some detail in a paper by Scott (1950). On the coast the volcanics are surprisingly fresh and the forms of flow taken by the lavas are massive, block, ropy and pillow. Occasional fine grained basic dykes cut the sequence and there are horizons of fragmental brecciated rock. The general stratigraphic sequence within the volcanics appears to be breccia and massive lava followed by block, ropy and pillow with showers of tuff being ejected throughout the period of volcanicity. Often there is evidence of sediment-volcanic intermixing indicating the lavas were occasionally ejected into soft mobile sediments. Scott discussed several forms of hydrothermal alteration the most common being albite to tremolite, augite to tremolite and/or diopside and olivine to chlorite magnetite, and rarely hydrogrossular. The volcanics closely associated with the Bold Head and Grassy Granites have suffered a much greater degree of alteration.

Directly beneath the volcanics is a thin sequence of interbedded purple and green siltstones and slates. In part these are micaceous and show a definite fissility.

Beneath the siltstone slate sequence is about 150 feet of laminated dolomite ($CaCO_3$ - 41.01%, $MgCO_3$ - 31.13%, acid insoluble - 27.96%, Ca/Mg moleculor ratio 1.09:1 (Carey, 1946)) In the area of City of Melbourne Bay pyrite cubes were found in some laminae of this sequence.

Directly beneath the dolomites is a sequence of tilloidal rocks approximately 100 feet thick. This rock consists of angular to subrounded fragments of bedded limestone, chert, and clastic sediment. In places the limestones fragments are the dominant fragmental rock while in others it is subordinate. The matrix consists of a carbonate minerals and iron-stained clay minerals, together with some fine grained quartz. What lies directly beneath the tillite is unknown at present. Near Cumberland Creek a sill like gabbroic body was observed close to the base of the tillite sequence but it was not observed to be in contact with it.

2. Eastern Shale, Spotted Shale-Siltstone-Sandstone Sequence

This sequence is roughly defined as occurring east of the Grassy River and outcrops on the coast north of Robbins Creek. However, there is no sharp distinction between the siltstones of this sequence and the siltstones of the western sequence and there is an area in the centre of the Exploration Licence where both types occur.

With the many workers who have mapped within the Exploration Licence there has arisen a great deal of confusion in terminology and rock classification. This is no where better demonstrated than in the distinction between shales and siltstones. It should always be remembered that shales are distinguished by being fissile in nature or displaying prominant bedding cleavage.

On the East Coast north of Robbins Creek thinly bedded light-grey shale is the dominant rock type. This type of shale together with some darker varieties is located inland from the coastal volcanic sequences. These rocks generally exhibit excellent fissility. Close to the Bold Head Granite and the Grassy Granite spotted shales are developed. Spots or embryonic porphyoblasts of contact minerals have developed due to incipient contact metamoprhism.

In the Grassy River massive fine grained siltstones outcrop with little development of cleavage. These are generally blue-grey in colour but vary from brown through to black. Occasional fine bedding is discerned. In the actual river-bed outcrop is quite good and the rocks have a dominant east-west strike trend with dips to the south although there are variations within this trend. It should be pointed out that this dip and strike trend is opposed to the north-south strike and easterly dips recorded on the east coast and the general north-south regional trend observed over the whole Island. These dips could possibly be indicative of large scale folding within the sedimentary rocks on the Island.

Towards the mouth of the Grassy River the massive blue-grey siltstones grade to spotted argillaceous hornfels. This lithologic change is associated with the contact metamorphic effects of the Grassy Granite and the hornfels are felt to be contact metamorphosed equivalents of the massive siltstones upstream.

Also within this eastern sequence are found medium grained friable sandstones which often grade into fine grained grey quartzites. Minor development of breccia is also recorded with the constituent rock fragments largely depending on the surrounding country rock. Small occurrences of basic coarse grained amphibole rich dykes have been recorded. Quartz and ironstone are found throughout the sequence and are discussed in a later section.

3. Western Quartzite-Siltstone-Spotted Siltstone Sequence

Although outcrop is scarce in the western portion of the Exploration Licence, from float indications it is apparent that a sequence of siltstones and quartzites occur, at least in the south-west corner of the Exploration Licence.

The quartzites are generally grey-green, medium grained in character and rarely bedded. A variety of siltstones have been mapped, generally quite distinct from the massive blue-grey siltstones of the Grassy River.

Finely bedded pale cream types are common with massive cream and grey siltstones predominant. Often the siltstones are spotted in nature and biotite is often developed in these spots.

It has been established that there is a general diminishing in regional metamorphic grade from west to east across the Island. Muscovite-quartz schists, andalusite-muscovite schists, andalusite-muscovite-garnet schists are developed on the west of the Island and detailed work carried out along a traverse of the Ettrich River showed a distinct gradation from muscovite-andalusite-straurolite-andradite schists to low grade muscovite-quartz schists, muscovite schists to relatively unmetamorphosed interbedded mudstones, siltstones and quartzites. The spotted siltstones found in the western portion of the Exploration Licence are thought to be slightly affected by regional metamorphism and quite distinct from the spotted shales of the eastern sequence which derive their character from localised contact metamorphic phenomena. East of this spotted siltstone horizon regional metamorphic effects are virtually negligible.

4. Mine Series

Many workers have documented the nature, occurrence and habit of the "Mine Series" of rocks that are found in the Open Cut, at Bold Head and around the contact of the Grassy Granite. Various workers have attempted to correlate the contact metamorphosed and metasomatised sediments that make up the "Mine Series" with the coastal sequence of volcanics-shales-dolomites and tillite. However, many inconsistancies are apparent when this correlation is attempted and a great deal of further structural, petrological and field study will have to be carried out before the correlation is proved valid or otherwise.

Although there are quite marked variations from place to place a generalised stratigraphic sequence has been established for the "Mine Series" -

Upper Most Volcanics
Hanging Wall Hornfels
Stylotlitic Limestone with Skarn (A Lens)
Biotite-Pyroxene Hornfels
Limestone, Pyroxene Garnet Hornfels (B Lens)
Biotite Pyroxene Hornfels
Pyroxene Garnet Hornfels
Garnet Hornfels (C Lens)
Banded Footwall Beds
Quartzites, Clastic Sediments

5. Granitic Rocks

Two bodies of granitic rocks occur within the Exploration Licence. These have been designated the Grassy Granite and the Bold Head Granite. Both are stock like in habit, display intrusive relationships to the surrounding sediments and are definitely younger than the sediments. The granitic rocks have been assigned Devonian age by previous workers. Both bodies are similar texturally and mineralogically, are responsible for the observed contact metamoprhic effects, and are thought to be the source of the tungsten mineralisation and hence of prime importance in the search for further scheelite bodies.

The nature of the Grassy Granite (termed granodiorite by Edwards, Baker and Callow) is well documented. It is a porphyritic medium grained rock with large (2 - 3 cm) subrounded phenocrysts of pink orthoclase and microperthite. The groundmass consists of grey quartz, white plagioclase and white orthoclase. Biotite is the chief ferro-magnesium mineral with a smaller proportion of green hornblende. The accessory minerals are sphene, apatite, zircon, orthite and opaque iron oxides.

Numerous xenoliths occur in the granite and are biotite rich types of sedimentary origin.

Although little petrological work has been carried out on the Bold Head Granite it is very similar in hand specimen to the Grassy Granite and there is little doubt that it would display similar petrological and chemical characteristics. Both granites have associated aplitic and granodiorite dykes.

6. Other Rock Types

Ironstone and quartz occur throughout the Exploration Licence and basic gabbroic bodies are known to exist in the northern portion of the Exploration Licence.

Ironstone occurs in varying quantities throughout the Exploration Licence but concentrations are noticed in the western edge of the Exploration Licence and associated with the gabbroic bodies (not shown on present map).

The ironstone is a limonite-goethite pisolitic laterite type and appears to be developed over the older sedimentary rocks and the basic gabbroic bodies. It appears to occur as a thin veneer covering the surface but in places quite considerable thicknesses obviously exist. No boxwork structures have been found in these ironstones and it is thought that they are laterites of Tertiary age.

Massive, milky white quartz is quite abundant throughout the Exploration Licence occurring as float. This quartz is probably derived from fracture and joint infillings in the sedimentary rocks and from pegmatites associated with the granitic bodies. Being more resistant to erosion than the host rocks a greater abundance of quartz occurs in the field than would actually occur in outcrop.

Large gabbroic bodies have been previously mapped in the northern portion of the Exploration Licence. These are not shown on the present regional plans but will be accurately remapped at a later date. These bodies have been mapped as massive bodies but it is thought they they are more likely to be sill or dyke like in nature. The rock is a very dark green coarsely crystalline rock with large crystals of pyroxene and olivine (?). Costigan Mining Australia Pty Ltd carried out a geophysical and geochemical programme in the vicinity of one of these bodies on a property known as "Irelands" in the Pegarah district. Strong I.P. anomalies together with associated geochemical highs occurred along a gabbro-sediment contact. However, two diamond drill holes put down in the area intersected thick sequences of pyritic mudstone and black pyritic carbonaceous shale. The sedimentary pyrite was assumed to be the source of the I.P. anomaly.

Age

In 1910 Debenham noted the occurrence of basalt south of Fraser River and basic tuff at the City of Melbourne Bay but ascribed a Tertiary age to them and correlated them with the Tertiary eruptions of western Victoria.

Because of the associated tillites and dolomites at City of Melbourne Bay Carey (1946) correlated the coastal sequence with the Zeehan Glacials and Montana melaphyre volcanics of Tasmania and assigned them to the Pieman Group of rocks of Upper Proterozoic to Cambrian (?) Age. At Dundas, Trilobites determined by Opik to be Upper Middle Cambrian in age have been found in rocks interbedded with the Curtin Davis Lavas reputed to be similar to those at Zeehan. If the King Island volcanics are equivalent to those at Zeehan then their age may be stated as Upper Middle Cambrian and the rest of the sedimentary sequence within the Exploration Licence as Middle Cambrian, Lower Cambrian and possibly Upper Proterozoic in the west of the Exploration Licence.

The Grassy Granite and Bold Head Granite have been correlated with the Devonian tin bearing granites of north and north-east Tasmania, intruded during the Tabberabberon Orogeny. Radiometric dating by McDougall and Leggo (1965) has borne out this correlation. Potassium-Argon methods have dated the Grassy pluton at 345 million years.

Although the later correlation appears quite valid many problems and doubts exist with the former. Many workers in the field, feel that the "tillite" is in fact an autochthonous breccia derived from the disruption of predominately limey horizon by gravatational processes. Furthermore samples of the dolomite sequence directly above the tillite have revealed the presence of what is thought to be Silurian microfossils. No microfossils have been found within the Exploration Licence. Further microfossil studies and detailed mapping is required before the answer to this important question as to the age of these rocks is known.

Structure

It is felt that at this stage insufficient mapping has been completed within the Exploration Licence to warrant an attempt to be made on a serious geological interpretive map of the Exploration Licence. The maps at present only show a definite rock outcrop, float occurrences and mappable faults.

It is apparent from the good exposures on the east coast and other occasional dip and strike readings obtained within the Exploration Licence and a general knowledge of the overall structure of the Island that the rocks within the Exploration Licence have a general north-south strike trend and dip and strike to the east. However, from the detailed work in the Grassy River it is apparent that large amplitude folds do exist within the sequence and the whole area may in fact be quite complexly folded. Only detailed mapping in all accessible river and creek beds will help resolve the overall structure of the rocks within the Exploration Licence.

Again lack of outcrop makes faulting difficult to discern in the field. A series of east-west trending small dip faults have been mapped along the east coast and are generally downthrown to the south. Detailed study by many workers (Szabo, Kinnane, Arendt) in areas close to the granite contacts have revealed a high degree of faulting in these areas. Generally these faults strike at approximately right angles to the granite - sediment contact and are thought to be generated in response to the intrusion of the granite mass.

Various workers have postulated the existence of a large fracture, the Grassy River Fault, that is thought to separate the Grassy Granite from the Bold Head Granite.

ECONOMIC ASPECTS AND CONCLUSIONS

The Exploration Licence consists largely of a rather monotonous sequence of siltstone, sandstones, shales and quartzites which have little potential as source rocks for mineralisation. However, a full understanding of these rocks is necessary for an overall economic appraisal of the Exploration Licence to be made.

The Exploration Licence contains the only economic scheelite mineralisation as yet located on the Island. Three orebodies of scheelite ore have been proved and a series of prospects located around the contacts of the Grassy and Bold Head Granites have good potential as prospective orebodies. Further detailed study of these prospects must be maintained.

A certain rather rigid set of geological conditions are apparent for the production of scheelite mineralisation: a suitable source rock, presumably the granitic rocks, a suitable host rock (limey sedimentary rocks) and a suitable host rock-source rock relationship. These conditions are met with over a very limited areal extent of the Exploration Licence. However, additional criteria can be employed in field mapping in order to localise likely areas for potential scheelite mineralisation.

a) Volcanic rocks appear to be always intimately associated with the scheelite bearing mine series of rocks.

b) Spotted shales and hornfelsic rocks develop due to granitic masses and these may occur in the field without the surface expression of associated granite.

c) All occurrences of granitic and aplitic rocks located in the field warrant close investigation even if they do not have associated occurrences of hornfelsic rocks or volcanics.

Of course the search for economic mineralisation within the Exploration Licence must not be restricted to scheelite.

The coarsely crystalline basic gabbroic rocks have undergone slow crystallisation and possess potential as source rocks for nickel, chrome and platenoid mineralisation.

Large areas of the Exploration Licence are covered by a thick veneer of sand deposits and potential exists for economic concentrations of heavy minerals.

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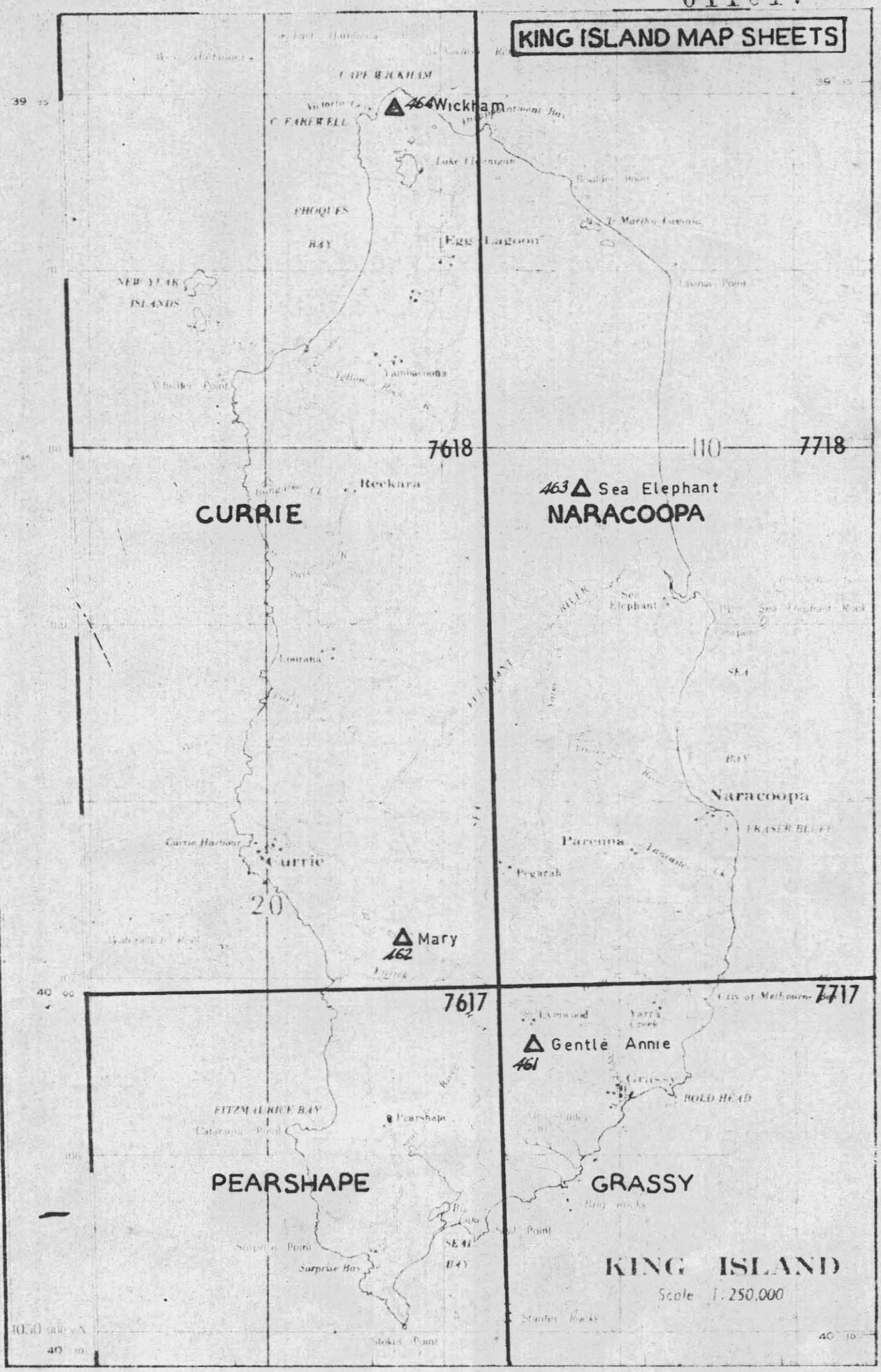
KING ISLAND MAP SHEETS



KING ISLAND TRIGONOMETRICAL STATIONS

5 cm

012

011018

Trig. No. 461	STATION GENTLE ANNIE	Order 2
Established by: NATIONAL MAPPING	*Mark:* 2" Copper tube in Concrete Block	
Authority: " "	*Beacon Type:* Pole & Vanes in Cairn over mark	
Observations by: " "	*Beacon Height:* Top of Pole 11.17'	

Convergence ° ' "	T.M. Co-ordinates [redacted]	HEIGHT
	Origin [redacted]	529.0'

GENTLE ANNIE — *In Metres on A.G.D.* — SECTION 101 128 — SERIAL 9

SOUTH LATITUDE	EAST LONGITUDE	ZONE	EASTING	NORTHING	CONVERGENCE	HEIGHT
40 2 9.7594	144 1 0.3583	55	245465.021	5563962.074	-1 55 12.19	161.2
		54	757396.481	5563865.605	+1 56 29.97	

TO	SERIAL	ADJ AZIMUTH	ADJ LENGTH
RICKHAM	6	353 12 59.86	49286.986
SOUTH HUMMOCK	10	123 11 5.07	89140.897
MARY	8	310 21 12.50	10458.587

FIELD BOOKS	No.												
	Page												

NOTES: For station Access & RM's See NM Summary - *over Page*

Top: Timbered.

COMPUTATIONS	
File	Figure

Parish	County	Chart	No.	Map Sheet	Run	Photo
			7717	GRASSY		

Date	REPORT ON CONDITION OF STATION

018

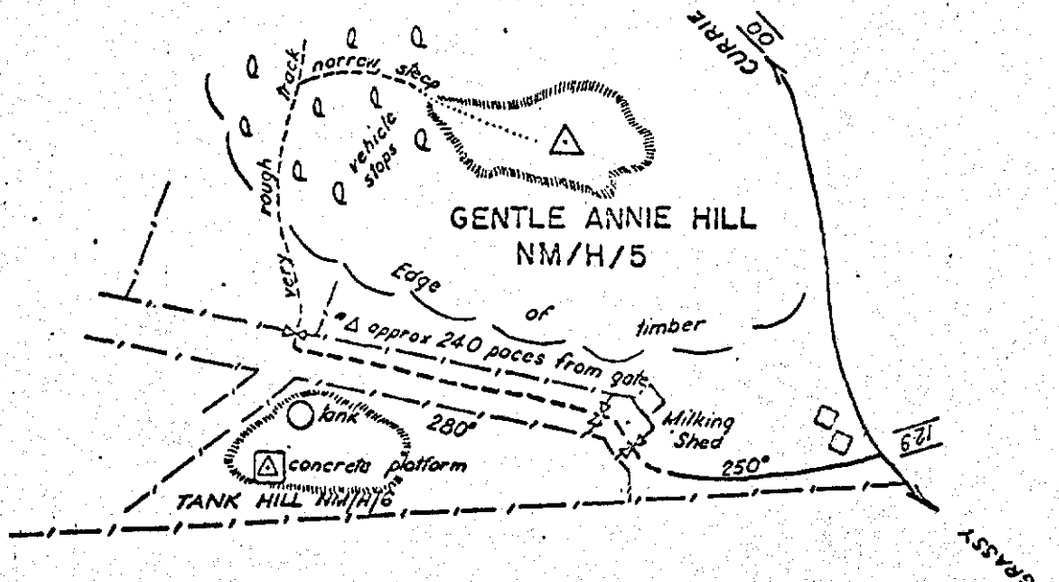
TRIGONOMETRICAL

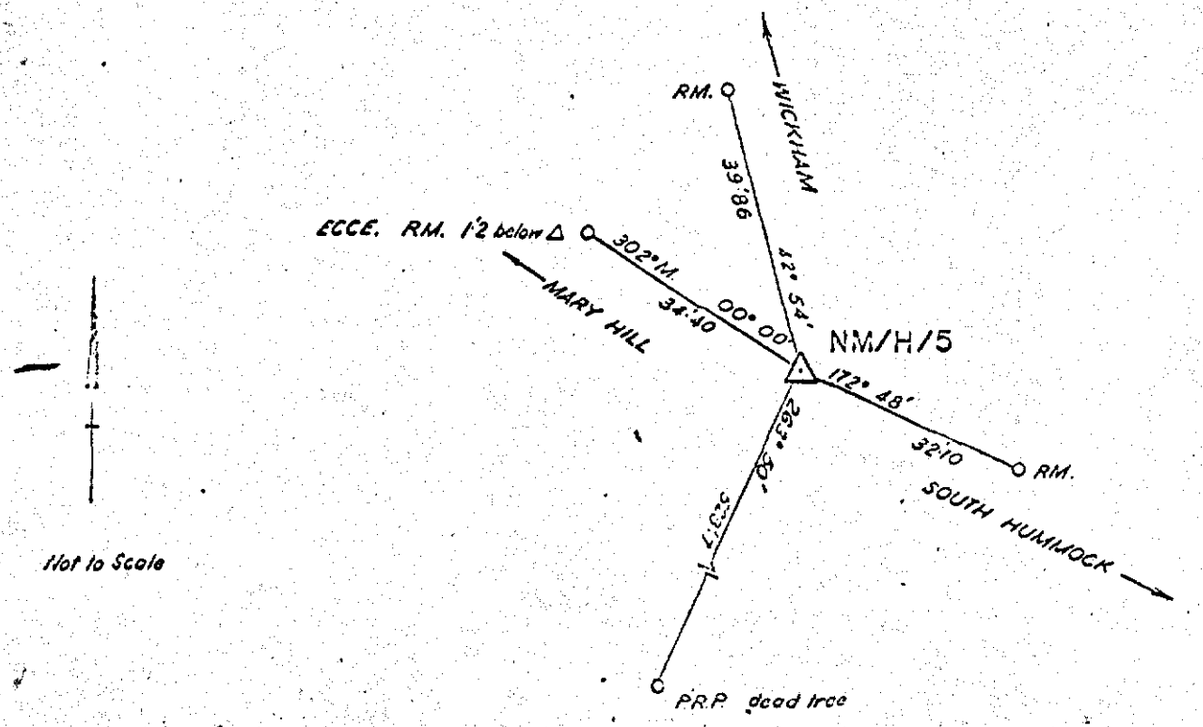
011019

Department: National Development

Station established by: Division of National Mapping	Date: 1963
Re-occupied by:	
Renovations:	
Reference Books: Trig : 2395. 2396 Tell: 2043. 2044. 2051.	
Particulars of station marking and beacon: BEACON : 11' x 2" x 2" G.I. pole supported by 9' diam. by 7'6" high rock cairn. Vanes are 3' x 1'9" G.I., painted black, attached 0:42 below top of pin, which is 11:17 above station mark. STATION MARK : ½" copper tube in concrete block. TYPE OF SURVEY : Traverse.	
Cadastral connections: State	County / District
Parish / Hundred	Allotment / Section / Portion

Access and Locality Sketch: A heavily timbered fairly rocky hill. Approach from Currie along main road to Grassy. Turn off into gateway on top of a rise at 12.9 miles. Rough drive on for four wheel drive vehicle.





019

Trig. No. 464

STATION WICKHAM 011020 Order 2

Established by: NATIONAL MAPPING

Authority: " "

Observations by: " "

Mark: 2" Copper tube in 2" G.I. pipe in 8" Concrete pipe

Beacon Type: Cairn with G.I. Pole and Vanes over mark.

Beacon Height:

Convergence ° ' "	T.M. Co-ordinates [redacted]	Height
	Origin [redacted]	305.0

In Metres on A.G.D.

ICKHAM SECTION 101 128 SERIAL 6

SOUTH LATITUDE	EAST LONGITUDE	ZONE	EASTING	NORTHING	CONVERGENCE	HEIGHT
9 35 42.8309	143 56 56.3726	54	753227.214	5612995.846	+1 52 50.04	93.0
		55	238011.292	5612703.187	-1 56 44.50	

O	SERIAL	ADJ AZIMUTH	ADJ LENGTH
ABINE	4	349 53 23.84	109316.902
SEA ELEPHANT	7	153 20 41.12	21301.665
GENTLE ANNIE	9	173 15 36.09	49286.986
ARY	8	182 57 36.51	42224.707
CHAPPLE	5	337 12 14.80	112029.477

Field Books	No.											
	Page											

NOTES: P.T.a For RM's, Access and additional information see NM Summary

Computations

File	Figure

Parish	County	Chart	No.	Map Sheet	Run	Photo
			7618	CURRIE		

Date	REPORT ON CONDITION OF STATION

020

WICKHAM

TRIGONOMETRICAL

011021

Department: National Development

Station established by: Division of National Mapping Date: 1963

Re-occupied by:

Renovations:

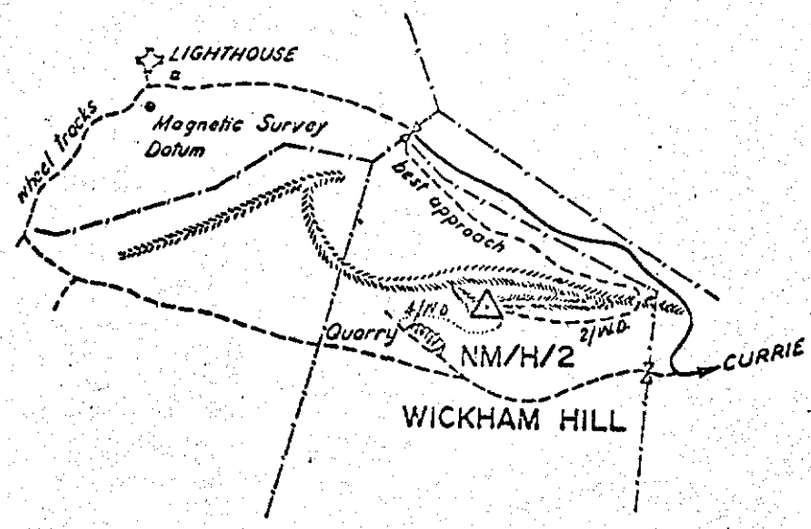
Reference Books: Trig: 2298, 2390, 2392, Tell: 2041, 2042, 2043, 2044, 2045, 2051.

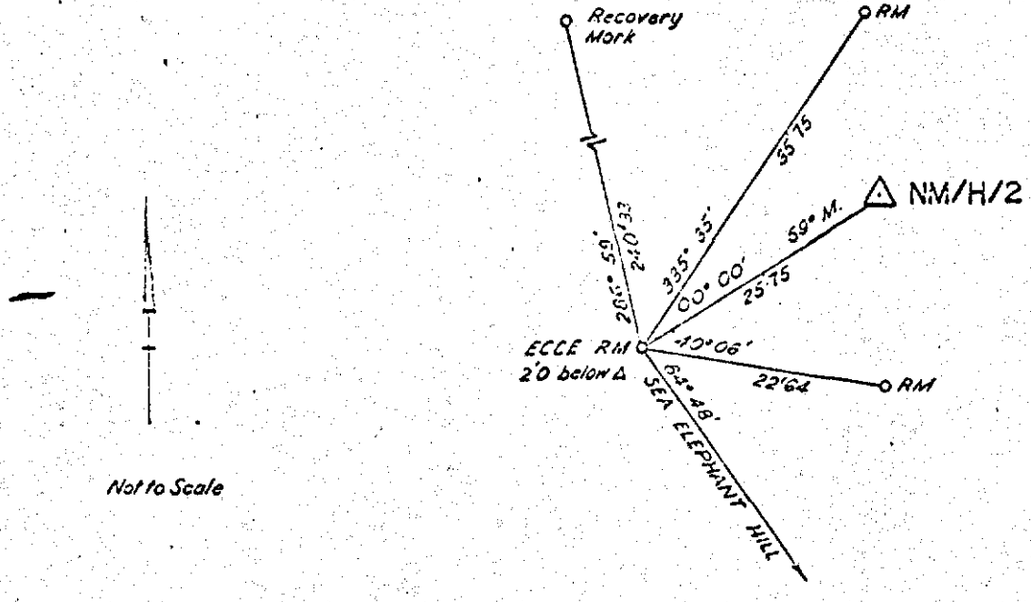
Particulars of station marking and beacon: BEACON : Galvanised steel pole, 11' long, and 3' x 1'9" steel vanes. Beacon is supported by 9' diam. by 7'6" high rock cairn. STATION MARK : ½" copper tube set in 6' x 2" G.I. pipe driven vertically, set in 3' x 8" concrete pipe, set in 3' by 18" concrete block - all components fully concreted, one to another. TYPE OF SURVEY : Traverse.

Cadastral connections: State County / District

Parish / Hundred Allotment / Section / Portion

Access and Locality Sketch: This is a sandridge on top of a layer of very soft sandstone, with a base of granite. Approach from Currie along main road to Wickham lighthouse (approx 29 miles) as directed by many sign posts. When well graded road peters into wheel tracks turn left through gate and follow fence line back on south side of fence almost to corner as shown in sketch. Drive on to ridge and head for trig site. An easy drive on for four wheel drive vehicle.





7319 A192

021

Trig. No. 463

STATION SEA ELEPHANT 011022 Order 2

Established by: NATIONAL MAPPING	*Mark:* ½" Copper tube in concrete over star picket in rock cleft
Authority: " "	*Beacon Type:* Cairn with pole & vanes over mark
Observations by: " "	*Beacon Height:* Top of Vanes 10.87'

Convergence ° ' "	T.M. Co-ordinates [redacted]	HEIGHT
	Origin [redacted]	281.0'

SEA ELEPHANT — *In Metres ON A.G.D.* — SECTION 101 128 — SERIAL 7

SOUTH LATITUDE	EAST LONGITUDE	ZONE	EASTING	NORTHING	CONVERGENCE	HEIGHT
37 45 59.9194	144 37 48.814	55	248213.864	5593993.728	-1 52 52.53	85.6
		54	762156.251	5593646.085	+1 57 31.73	

TO	SERIAL	ADJ AZIMUTH	ADJ LENGTH
WICKHAM	6	333 16 24.75	21301.685
MARY	8	206 49 57.63	25937.953

FIELD BOOKS — No. — Page

NOTES: P.T.O. — For RM's, Access, and additional obs. see NM Summary

COMPUTATIONS

File	Figure

Parish	County	Chart	No.	Map Sheet	Run	Photo
			7718	NARACOOPA		

Date	REPORT ON CONDITION OF STATION

022

SEA ELEPHANT

TRIGONOMETRICAL

Department: National Development

011023

Station established by: Division of National Mapping Date: 1963

Re-occupied by:

Renovations:

Reference Books: Trig : 2297 Tell: 2042

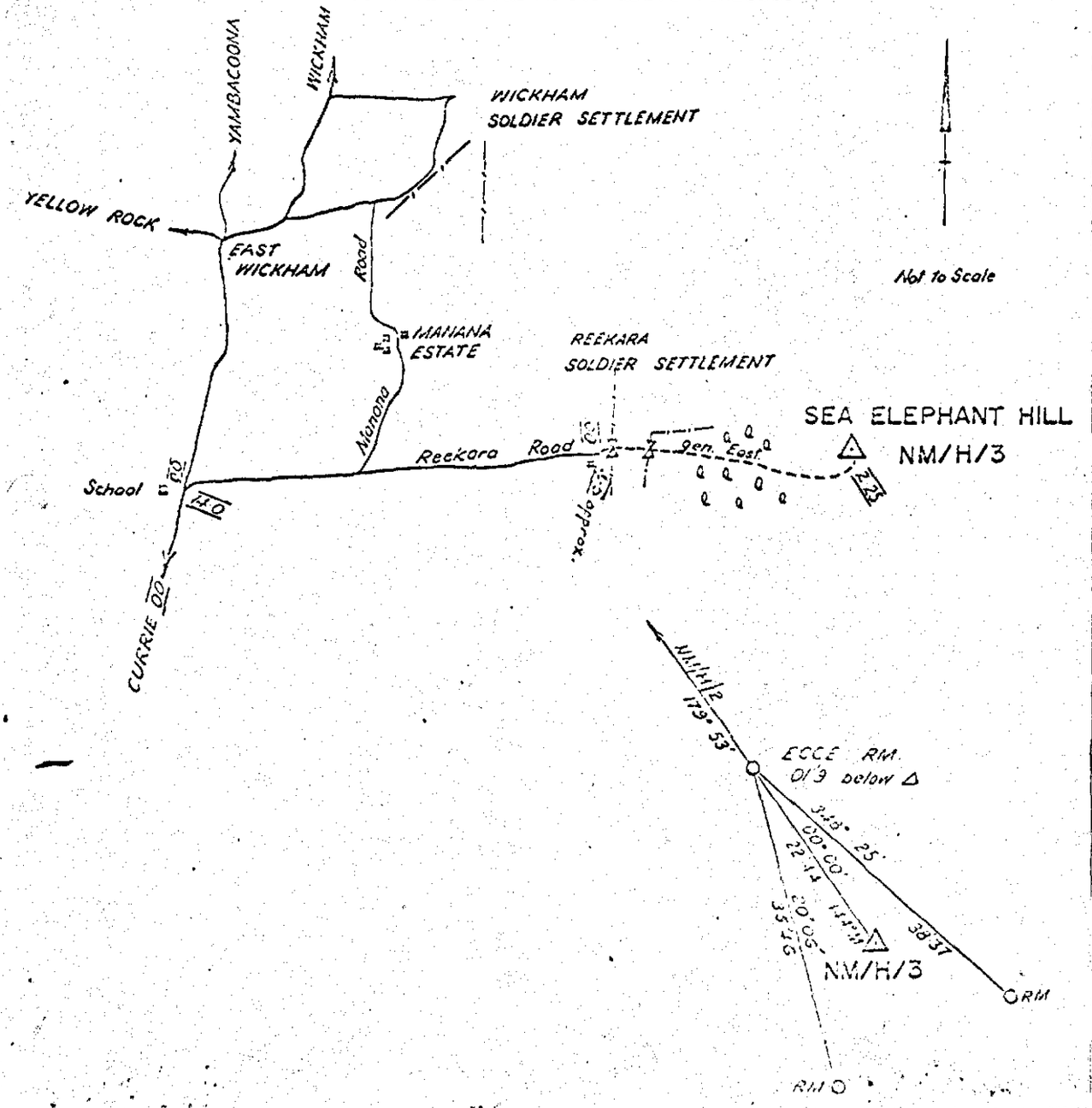
Particulars of station marking and beacon: BEACON : 11' x 2" x 2" G.I. pole supported by 4 G.I. struts inside a rock cairn 9' diam. by 7½' high. Vanes are 3' x 1'9", painted black, attached 0!24 below top of pole. STATION MARK : ½" copper tube set in concrete above star picket driven into cleft in rocks.
TYPE OF SURVEY : Traverse. (Top of pin: 11.11 above Station Mark)

Cadastral connections: State County / District

Parish / Hundred Allotment / Section / Portion

Access and Locality Sketch:

A stony hill 2½ miles east of the end of Reekara road. In 1963 a track was bulldozed from this point through dense light timber making it possible to drive to trig site with a four wheel drive vehicle.



023

Trig. No. 462

STATION MARY 011024 Order 2

Established by: NATIONAL MAPPING	*Mark:* ½" Copper tuoe cemented in 1½" G1 Pipe
Authority: " "	*Beacon Type:* Cairn with Pole & Vanes over mark
Observations by: " "	*Beacon Height:* Top of Vanes 10.62'

Convergence ° ' "	T.M. Co-ordinates [redacted]	Height
	Origin [redacted]	129.0'

In Metres on A.G.D.

MARY SECTION 101 128 SERIAL 8

SOUTH LATITUDE	EAST LONGITUDE	ZONE	EASTING	NORTHING	CONVERGENCE	HEIGHT
39 58 30.0629	143 55 24.4809	54	749657.203	5570906.291	+1 52 44.98	130.5
		55	237269.149	5570466.104	-1 58 39.57	

TO	SERIAL	ADJ AZIMUTH	ADJ LENGTH
WICKHAM	6	2 58 35.31	42224.707
SEA ELEPHANT	7	26 55 13.93	25937.953
GENTLE ANNIE	9	130 24 48.42	10458.587

Field Books													
No.	NMO												
Page													

NOTES: P.T.O.-For RM's, access and additional obs. See N.M Summary

Computations	
File	Figure

Parish	County	Chart No.	Map Sheet	Run	Photo
		7618	CURRIE		

Date	REPORT ON CONDITION OF STATION

024

Department: National Development

TRIGONOMETRICAL

011025

Station established by: Division of National Mapping Date: 1963

Re-occupied by:

Renovations:

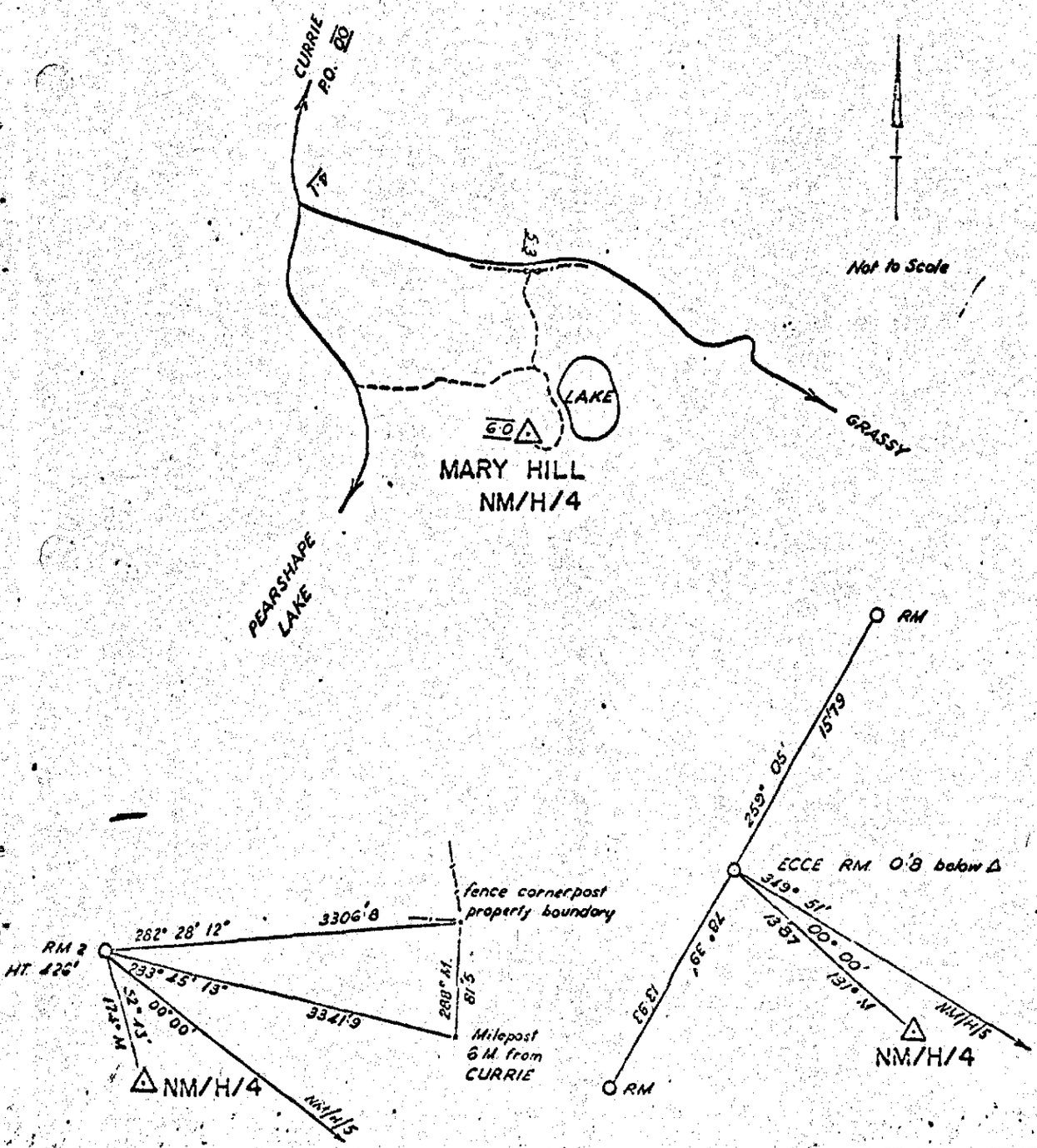
Reference Books: Trig : 2299, 2397, Tell: 2042, 2044, 2048, Remote Tell: 2684.

Particulars of station marking and beacon: BEACON : 11' G.I. pole. G.I. vanes, beacon derion-strutted and wire braced supported also by rock cairn 5'6" base dia. by 3'6" high Top of vanes 10!62 above station mark. Top of pin 11!03 above station mark. STATION MARK : ½" copper tube cemented into top of 5'6" by 1½" G.I. waterpipe previously driven into ground. TYPE OF SURVEY : Traverse.

Cadastral connections: State County / District

Parish / Hundred Allotment / Section / Portion

Access and Locality Sketch: A firm grassy sandune over a base of soft sandstone. Approach from Currie along main road to Grassy. Turn off through gate at 5.3 and follow wheel tracks as shown to trig at 6.0. Easy drive on.

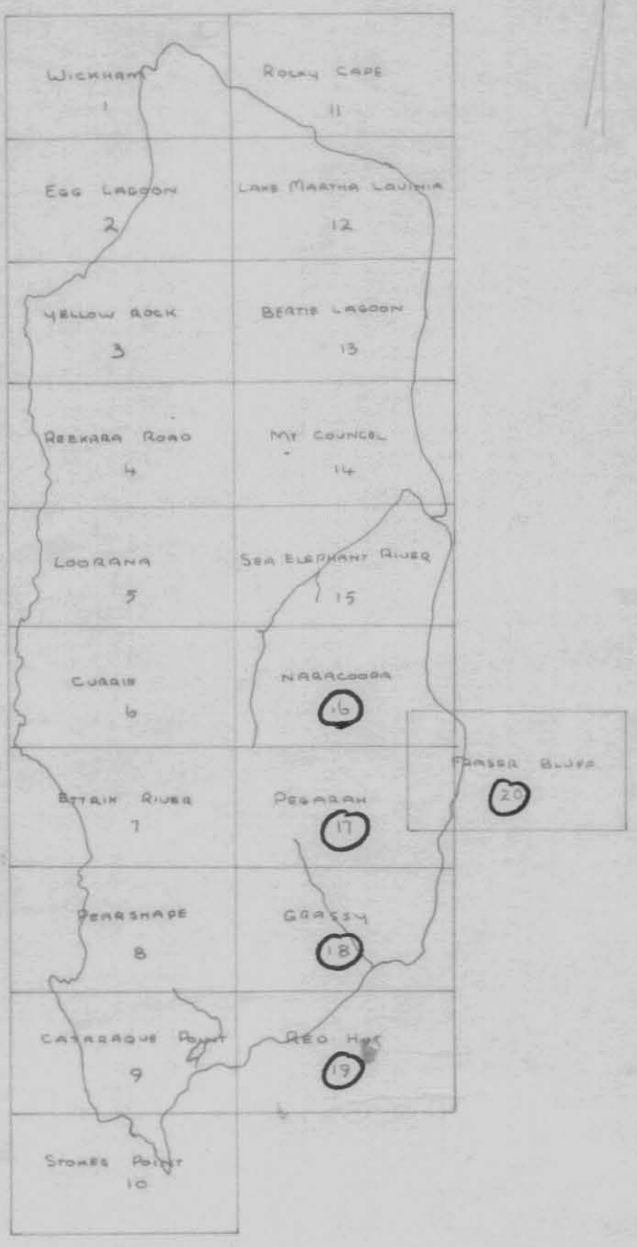


025

011026

5 cm

MN



70-629.

GEOPEKO LTD		Scale
REGIONAL SHEET LAYOUT		Date Mar 70
	Drawn JJG	
FOR KING ISLAND	Traced	
	Checked	

242 000E
244 000E
246 000E
248 000E
250 000E
252 000E
254 000E
5 580 000N
5578 000N
5576 000N
3092
3143
3188
3295
3366
3091
3330
3187
3144
3294
3365
3090
3331
3186
3145
3364
3293
3089
3332
3189
3146
3292
3363
3088
3184
3333
3147
3362
3291
3087
3307
3183
3148
3334
3361
3290
3706
3086
3708
RUN 14A

Sandstone	Black Shale	Phorphry and Basic Dyke	Unformed Roads	Inclined Dip and Strike	Old dunes
Limestone	Slate	Tillite	Geological boundary observed	Scout bore for mineral beach sands	Lagoon stream
Laterite or Ironstone	Breccia	Quartzite	" " inferred	Submarine bar	Intermittent stream
Volcanics	Actinolite Hornfels	Mica Shists and muscovite sillimanite shists	Fault observed	Sand beach shore feet	Swamp
Altered Volcanics	Biotite Actinolite Hornfels	Siltstone	" inferred	Sand cliff	Slope in bedrock
Agglomerate and Tuffs	Biotite Hornfels	Aplite	Anticlinal axis	Vegetated sand cliff	Conical dunes
Shale	Pyroxene Hornfels	Granite	Synclinal axis	New stranded shorelines	Direction of younging
Spotted Shale	Pyroxene Garnet Hornfels	Sand dune development boundary	Horizontal Dip and Strike	New dunes	Sandhills
Grey mudstone	Quartz	Formed Roads	Vertical " "	Old stranded shorelines	Drains

TN GN MN
1° 56' – 9° 34'
Convergence and declination approx only

5	15	
6	16	
7	17	20

Index to adjoining sheets

GEOPEKO LIMITED
KING ISLAND GROUP
70-629.
SCALE 1:12000 METRIC GRID
N° K
5 cm
011027
NARACOOPA
SHEET 16
Date MARCH '70
Geologist
Drawn N.R.K.
Checked
2382

70-629

242 000E
244 000E
246 000E
248 000E
250 000E
252 000E
254 000E
5 574 000N
5 572 000N
5 570 000N
5 568 000N
3182
3289
3335
3360
3705
3149
3181
3288
3326
3359
3704
3150
3180
3287
3337
3358
3703
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3179
3286
3338
3357
3702
3152
3178
3285
3339
3356
3701
3153
3177
3284
3340
3355
3700
3154

Sandstone	Black Shale	Phorphry and Basic Dyke	Unformed Roads	Inclined Dip and Strike	Old dunes
Limestone	Slate	Tillite	Geological boundary observed	Scout bore for mineral beach sands	Lagoon stream
Laterite or Ironstone	Breccia	Quartzite	" " inferred	Submarine bar	Intermittent stream
Volcanics	Actinolite Hornfels	Mica Shists and muscovite sillimanite shists	Fault observed	Sand beach, shore reef	Swamp
Altered Volcanics	Biotite Actinolite Hornfels	Siltstone	" inferred	Sand cliff	Slope in bedrock
Agglomerate and Tuffs	Biotite Hornfels	Aplite	Anticlinal axis	Vegetated sand cliff	Conical dunes
Shale	Pyroxene Hornfels	Granite	Synclinal axis	New stranded shorelines	Direction of younging
Spotted Shale	Pyroxene Garnet Hornfels	Sand dune development boundary	Horizontal Dip and Strike	New dunes	Sandhills
Grey mudstone	Quartz	Formed Roads	Vertical	Old stranded shorelines	Drains

70-629

TN GN MN

1°55' – 9°34'

Convergence and declination approx only

6	16	
7	17	20
8	18	

Index to adjoining sheets

GEOPEKO LIMITED
KING ISLAND GROUP
70-629
SCALE 1:12 000 METRIC GRID N° K

5cm

PEGARAH
SHEET 17
011028
2393

Date MARCH 70
Geologist:
Drawn: GL
Checked:

242 000E
244 000E
246 000E
248 000E
250 000E
252 000E
254 000E
5 566 000N
5 564 000N
5 562 000N
3155
3156
3157
3158
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3262
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3350
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3352
3353
3354
3695
3696
3697
3698
3699
GENTLE ANNIE
OPEN CUT
RUN 13
RUN 14A

- Sandstone
- Limestone
- Laterite or Ironstone
- Volcanics
- Altered Volcanics
- Agglomerate and Tuffs
- Shale
- Spotted Shale
- Grey mudstone
- Black Shale
- Slate
- Breccia
- Actinolite Hornfels
- Biotite Actinolite Hornfels
- Biotite Hornfels
- Pyroxene Hornfels
- Pyroxene Garnet Hornfels
- Quartz
- Phorphyry and Basic Dyke
- Tillite
- Quartzite
- Siltstone
- Aplite
- Granite
- Sand dune development boundary
- Formed Roads
- Unformed Roads
- Geological boundary observed
- " " inferred
- Fault observed
- " inferred
- Anticlinal axis
- Synclinal axis
- Horizontal Dip and Strike
- Vertical " " "
- Inclined Dip and Strike
- Scout bore for mineral beach sands
- Submarine bar
- Sand beach, shore reef
- Sand cliff
- Vegetated sand cliff
- New stranded shorelines
- New dunes
- Old stranded shorelines
- Old dunes
- Lagoon stream
- Intermittent stream
- Swamp
- Slope in bedrock
- Conical dunes
- Direction of youngning
- Sandhills
- Drains

TN GN MN

1°56'-9°34'

Convergence and declination approx only

7 17 20
8 18
9 19

Index to adjoining sheets

GEOPEKO LIMITED
KING ISLAND GROUP
70-629
SCALE 1:2000 METRIC GRID
N° K
5 cm
GRASSY
SHEET 18
011029
2394
Date MARCH 70
Geologist
Drawn JJG
Checked

70-629

242 000 E | 246 000 E | 248 000 E | 250 000 E | 252 000 E | 254 000 E

5 560 000 N

5 558 000 N

5 556 000 N

5 554 000 E

3161 3169 3277 3347 3276 RUN 12 3348 3162 3158 3275 3163 RUN 10 3167 RUN 11 3274 RUN 9 3164

Sandstone
Limestone
Laterite or Ironstone
Volcanics
Altered Volcanics
Agglomerate and Tuffs
Shale
Spotted Shale
Grey mudstone

Black Shale
Slate
Breccia
Actinolite Hornfels
Biotite Actinolite Hornfels
Biotite Hornfels
Pyroxene Hornfels
Pyroxene Garnet Hornfels
Quartz

Phorphry and Basic Dyke
Tillite
Quartzite
Mica Shists and muscovite sillimanite shists
Siltstone
Aplite
Granite
Sand dune development boundary
Formed Roads

Unformed Roads
Geological boundary observed
" " inferred
Fault observed
" inferred
Anticlinal axis
Synclinal axis
Horizontal Dip and Strike
Vertical " "

Inclined Dip and Strike
Scout bore for mineral beach sands
Submarine bar
Sand beach, shore reef
Sand cliff
Vegetated sand cliff
New stranded shorelines
New dunes
Old stranded shorelines

Old dunes
Lagoon, stream
Intermittent stream
Swamp
Slope in bedrock
Conical dunes
Direction of younging
Sandhills
Drains

TN GN MN

1°55' 9°36'

Convergence and declination approx only

8 18 9 19 10

Index to adjoining sheets

GEOPEKO LIMITED
KING ISLAND GROUP

70-629

SCALE 1:12000 METRIC GRID

N° K

RED HUT

SHEET 19

011030

2395

5 cm

Date MARCH '70
Geologist
Drawn NRK
Checked

70-629

252000E 254000E 256000E 258000E 260000E 262000E 264000E

557600N 557400N 557200N

3707 3706 3705 3704 3703 3702

5576000N 5574000N 5572000N

Sandstone	Black Shale	Phorphry and Basic Dyke	Unformed Roads	Inclined Dip and Strike	Old dunes
Limestone	Slate	Tillite	Geological boundary observed	Scout bore for mineral beach sands	Lagoon stream
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Spotted Shale	Pyroxene Garnet Hornfels	Sand dune development boundary	Horizontal Dip and Strike	New dunes	Sandhills
Grey mudstone	Quartz	Formed Roads	Vertical " "	Old stranded shorelines	Drains

TNGN MN

1°55' 19°34'

Convergence and declination approx only

6 16 20 7 17 8 18

Index to adjoining sheet

Date MARCH 70

Geologist

Drawn JJG

Checked

GEOPEKO LIMITED
KING ISLAND GROUP

SCALE 1 12 000 METRIC GRID

N° K 011031

FRASER BLUFF

5 cm

SHEET 20

2396

70-629