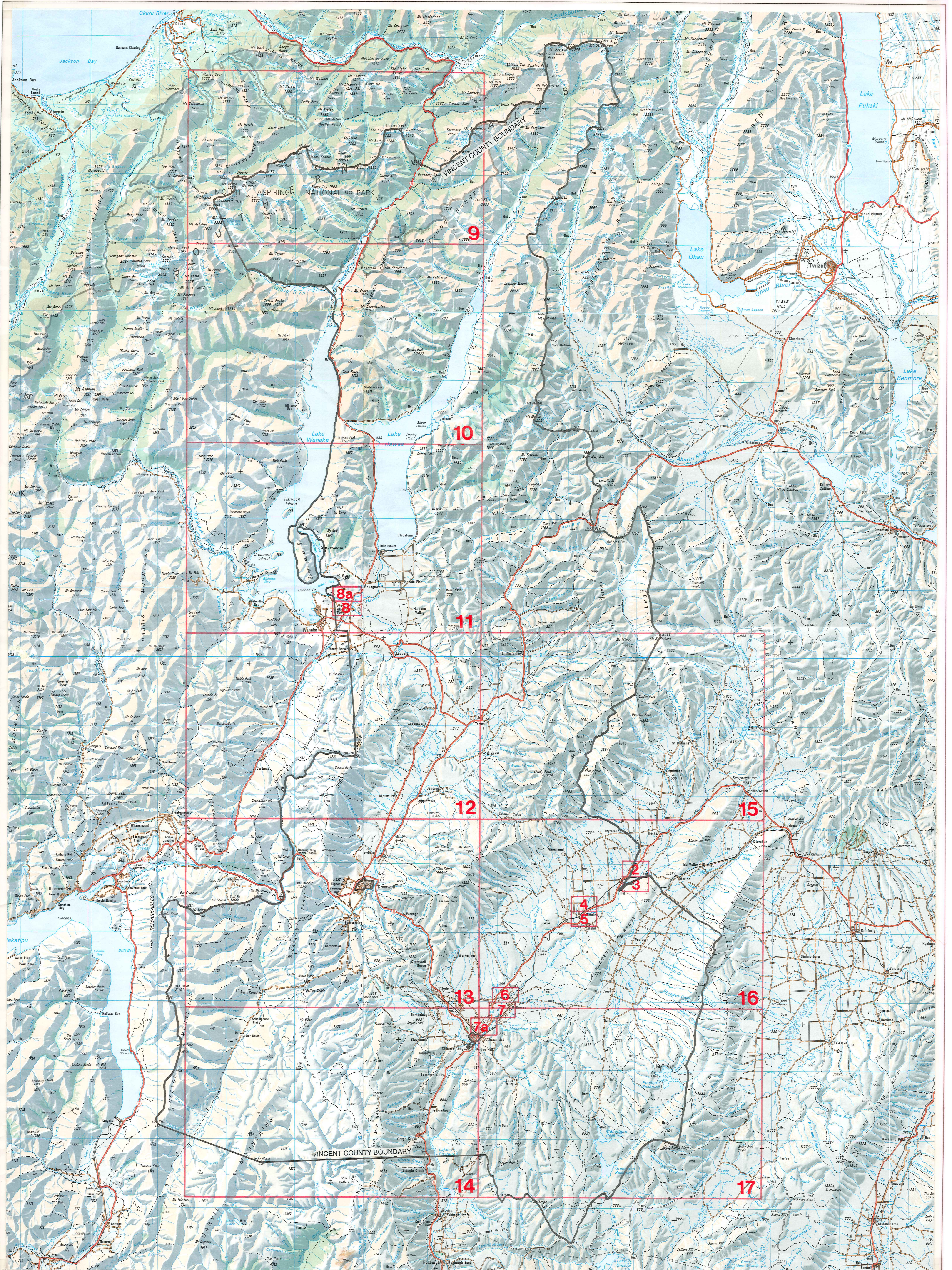


PRELIMINARY FLOOD HAZARD IDENTIFICATION
VINCENT COUNTY

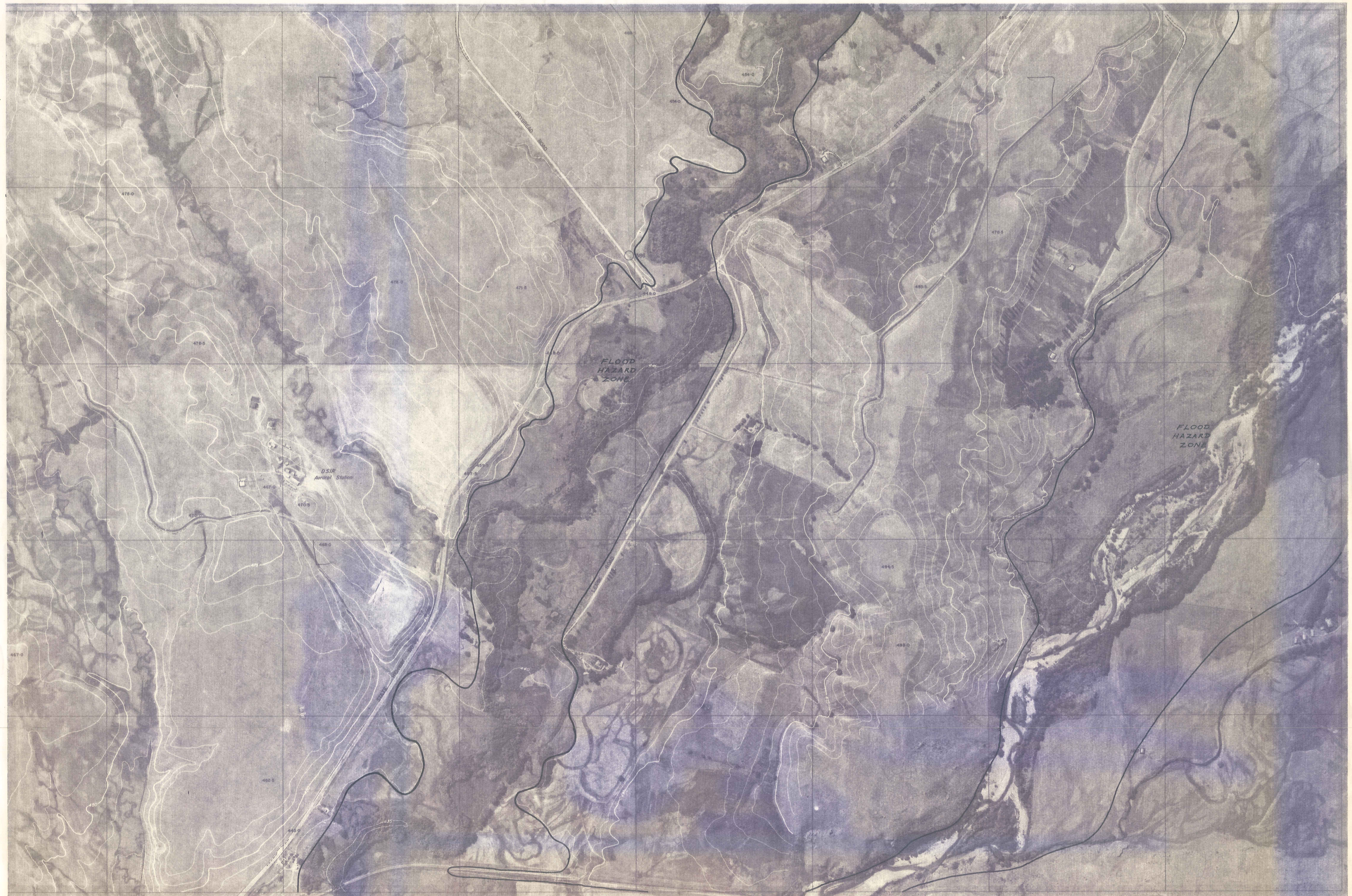
DECEMBER 1988



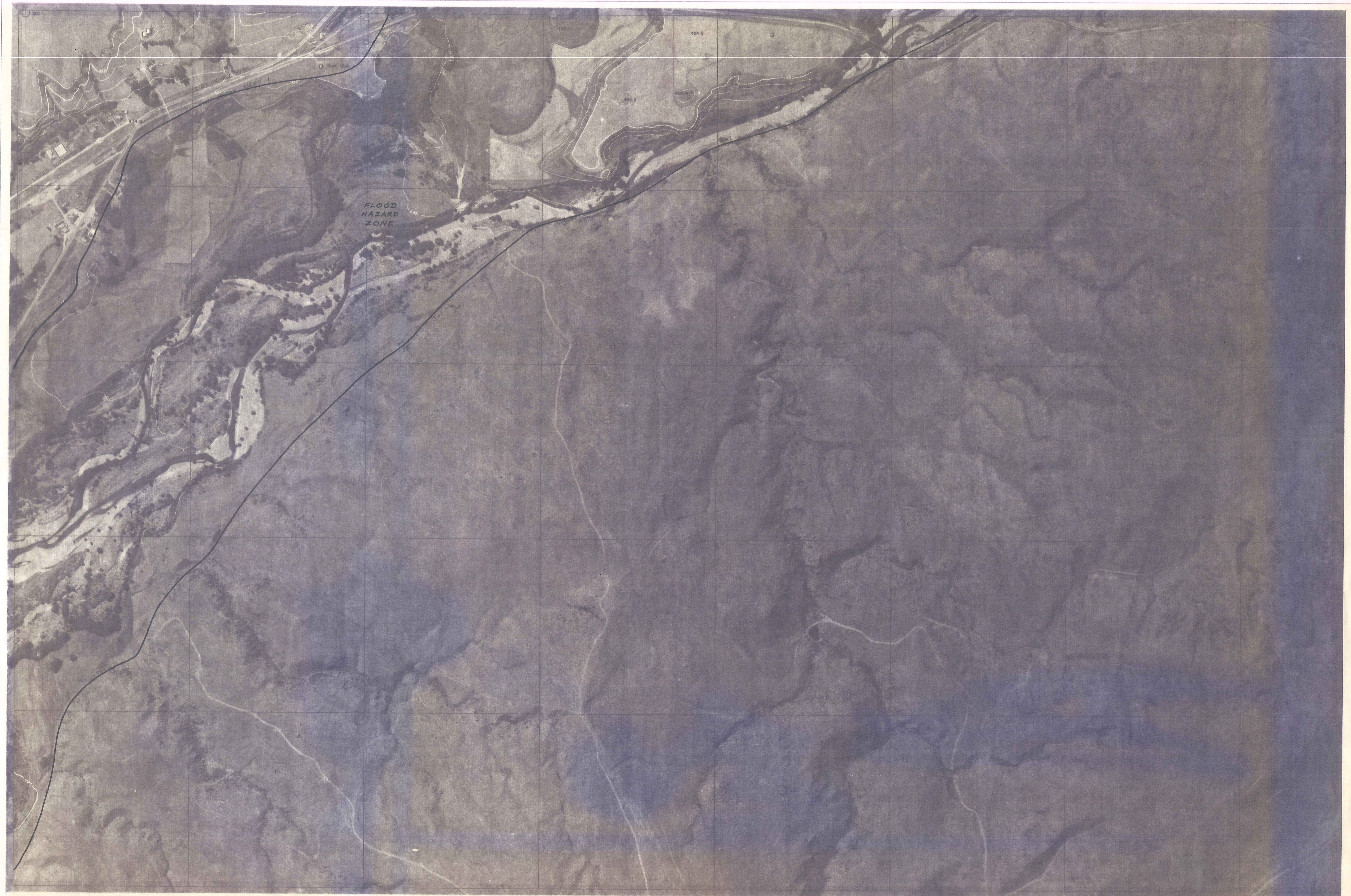
PROVISIONAL ONLY

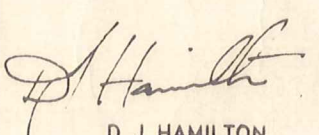


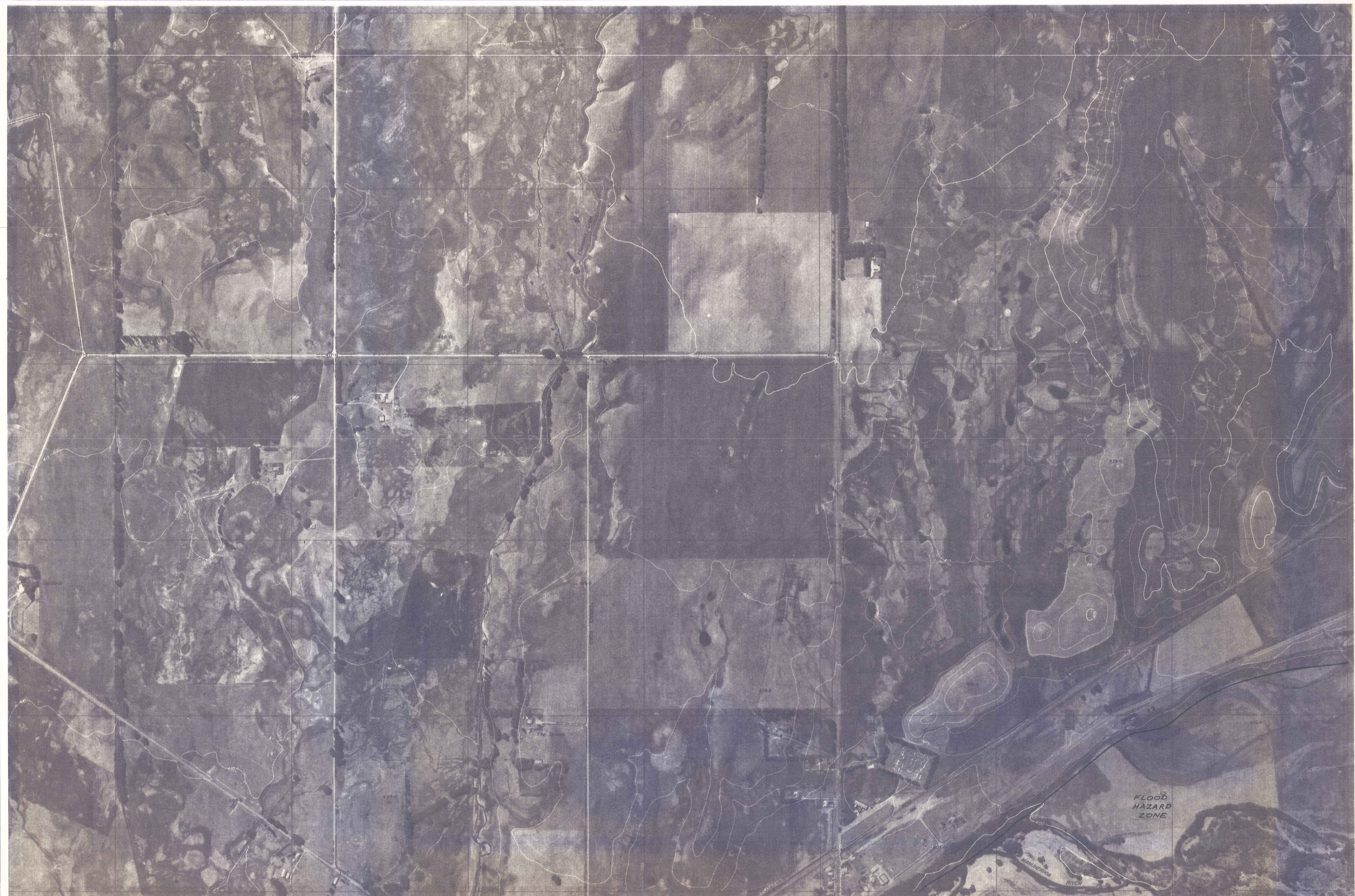
LEVEL DATUM	FB	LB	LEGAL DESCRIPTION	SURVEYED	DOSU	NAME	DATE	APPROVED		FLOOD HAZARD IDENTIFICATION VINCENT COUNTY INDEX SHEET		AMENDMENTS	JOB NO. 1
BEARING ORIGIN	APPLICATION PROGRAM		CATCHMENT NO. 1 SOIL & WATER CONSERVATION PLAN NO. 1	AERIAL PHOTO		A.G.K.R.K.	12/88	 D. J. HAMILTON B.E.(Hons) M.A.P.E.N.Z. CHIEF ENGINEER		L 12634/1			
GRID	COMPUTER FILES			DRAWN		A.G.K.R.K.	12/88						
SURVEY COMPUTER REF.				TRACING CHK									
										SCALE: 1:25000		SHEET 1 OF	



LEVEL DATUM OTAGO	FB	LB	LEGAL DESCRIPTION	SURVEYED AERIAL PHOTO DRAWN TRACED DESIGNED DESIGN CHK RECOMMENDED	NAME MWD.NZAM L9323/41 R.SKINNER R.EDWARDS R.SKINNER	DATE 1976 12/88 12/88 12/88	APPROVED D.J. HAMILTON B.E.(Hons) M.I.P.E.N.Z. CHIEF ENGINEER	 CATCHMENT BOARD & REGIONAL WATER BOARD	FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF LAUDER		AMENDMENTS	JOB NO. :
BEARING ORIGIN LINDIS PEAK	APPLICATION PROGRAM ALF		CATCHMENT NO. : SOIL & WATER CONSERVATION PLAN NO. :				PROVISIONAL ONLY		L 12634/2			
GRID MERIDIONAL CIRCUIT SURVEY COMPUTER REF.	COMPUTER FILES							SCALE : 1 : 5000	SHEET 2 OF			

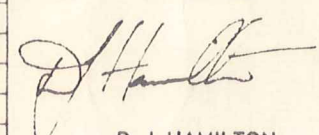


LEVEL DATUM OTAGO	FB	LB	LEGAL DESCRIPTION	SURVEYED MWD, NZAM	NAME	DATE 1976	APPROVED	 CATCHMENT BOARD & REGIONAL WATER BOARD	FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF LAUDER SCALE : 1 : 5000	AMENDMENTS	JOB NO. :
BEARING ORIGIN LINDIS PEAK	APPLICATION PROGRAM ALF	COMPUTER FILES	AERIAL PHOTO 19323/48	R.SKINNER	12/88	 D J HAMILTON B.E.(Hons) M.I.P.E.N.Z. CHIEF ENGINEER	PROVISIONAL ONLY			L 12634/3	
GRID MERIDIONAL CIRCUIT			DRAWN R.SKINNER	12/88							
SURVEY COMPUTER REF.			TRACED R.EDWARDS	12/88							
			DESIGNED R.SKINNER	12/88							
			CATCHMENT NO. : SOIL & WATER CONSERVATION PLAN NO. :	DESIGN CHK RECOMMENDED					SHEET 3 OF		



LEVEL DATUM OTAGO	FB	LB	LEGAL DESCRIPTION	SURVEYED MWD, NZAM	NAME	DATE	APPROVED	 CATCHMENT BOARD & REGIONAL WATER BOARD	FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF OMAKAU SCALE : 1 : 5000	AMENDMENTS	JOB NO. :	
BEARING ORIGIN LINDIS PEAK	APPLICATION PROGRAM ALF			AERIAL PHOTO L9323/52		1976	 D J HAMILTON B.E.(Hons) M.I.P.E.N.Z. CHIEF ENGINEER			PROVISIONAL ONLY	L 12634/4	
GRID	COMPUTER FILES			DRAWN R.SKINNER		12/88						
MERIDIONAL CIRCUIT				TRACED R.EDWARDS		12/88						
SURVEY COMPUTER REF.				DESIGNED R.SKINNER		12/88						
			CATCHMENT NO. : SOIL & WATER CONSERVATION PLAN NO. :	DESIGN CHK RECOMMENDED						SHEET 4 OF		



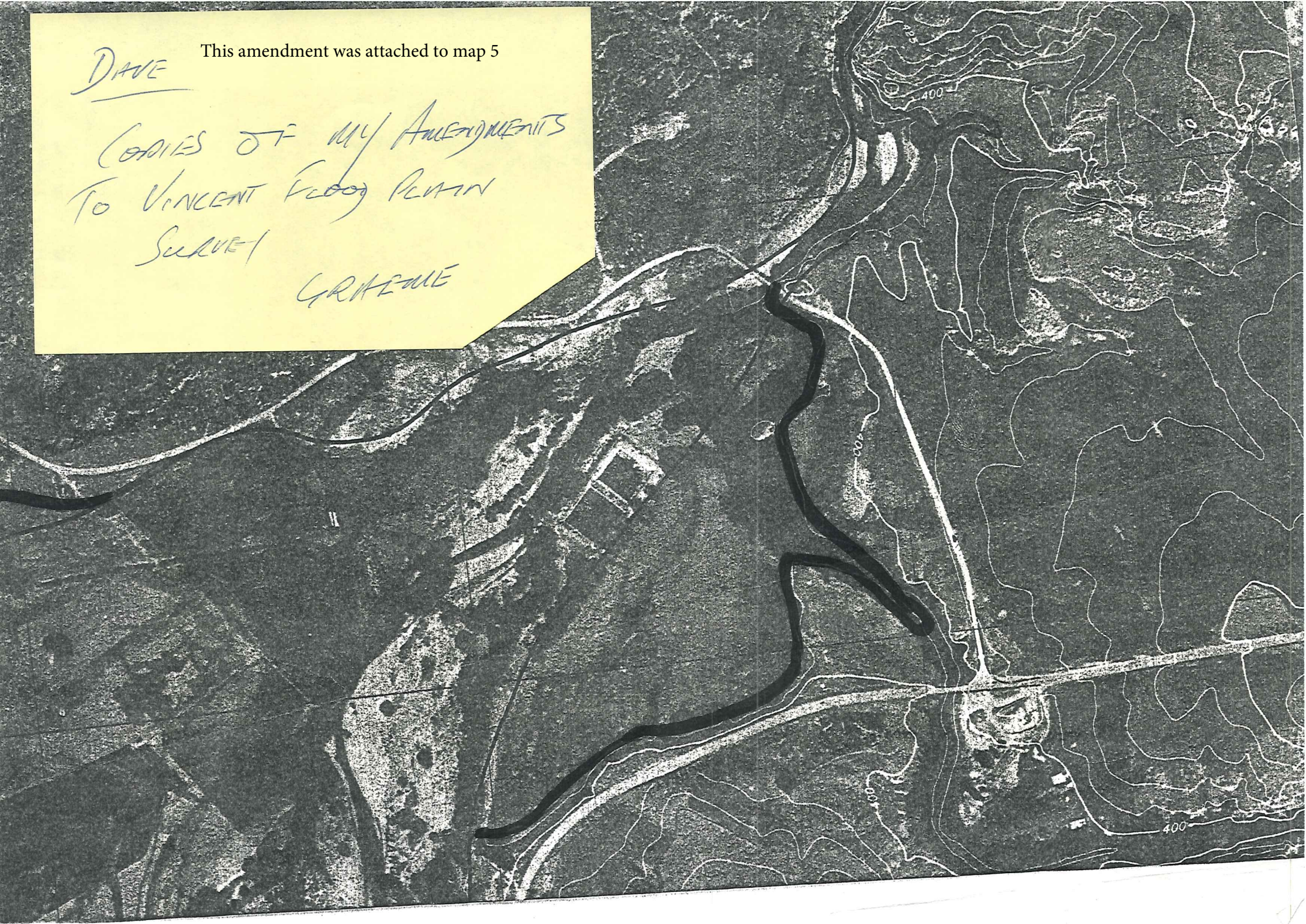
LEVEL DATUM OTAGO	FB	LB	LEGAL DESCRIPTION	SURVEYED AERIAL PHOTO DRAWN TRACED TRACING CHK DESIGNED DESIGN CHK RECOMMENDED	NAME MWD, NZAM R. SKINNER R. EDWARDS R. SKINNER	DATE 1976 12/88 12/88 12/88	APPROVED  D. J. HAMILTON B.E. (Hons) M.I.P.E.N.Z. CHIEF ENGINEER	 CATCHMENT BOARD & REGIONAL WATER BOARD	FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF OMAKAU - OPHIR	AMENDMENTS	JOB NO. : L 12634/5
BEARING ORIGIN LINDIS PEAK	APPLICATION PROGRAM ALF	COMPUTER FILES	CATCHMENT NO. : SOIL & WATER CONSERVATION PLAN NO. :						SCALE : 1 : 5000	PROVISIONAL ONLY	SHEET 5 OF

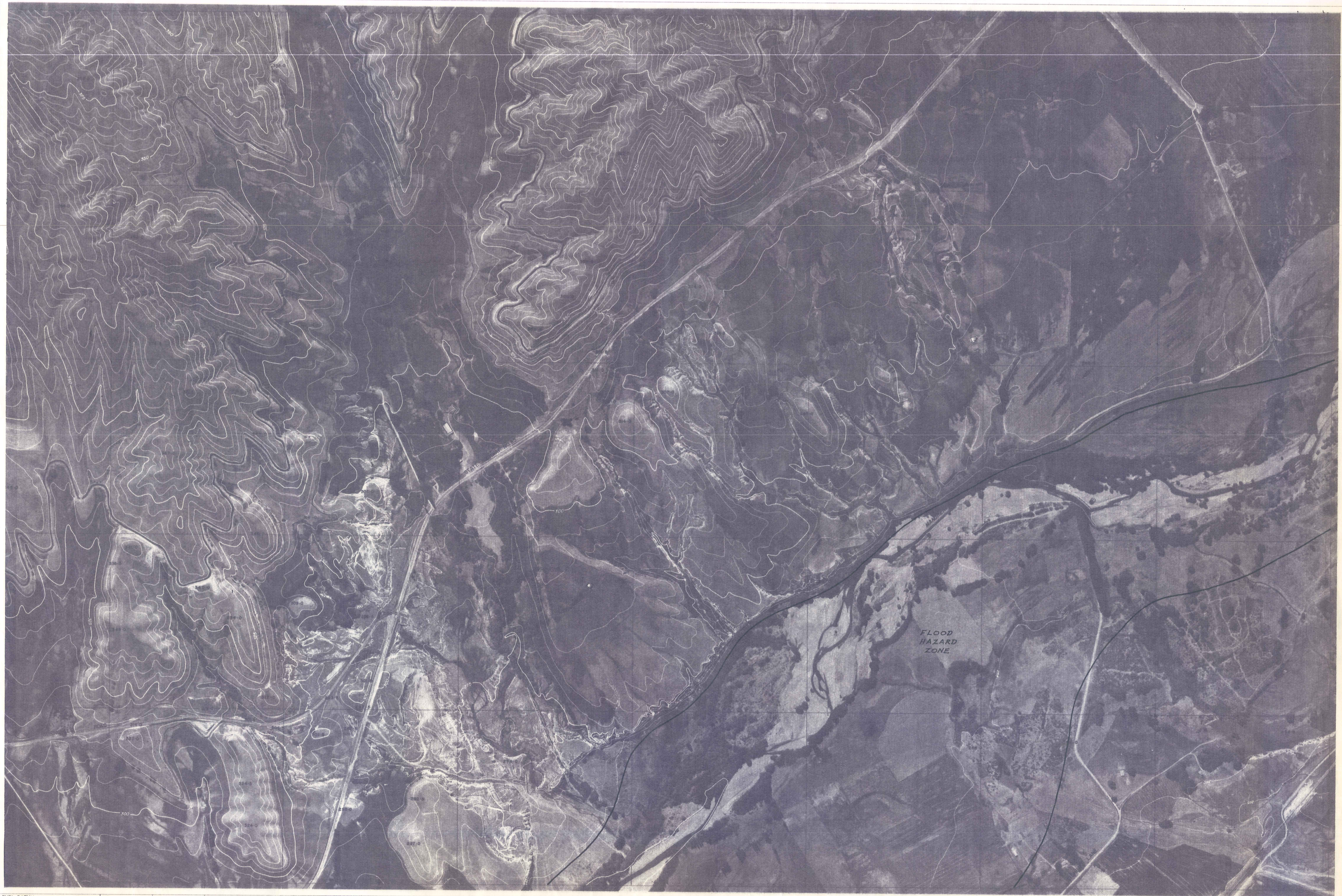
DAVE

This amendment was attached to map 5

COPIES OF MY AMENDMENTS
TO VINCENT FLOOD PLAIN
SURVEY

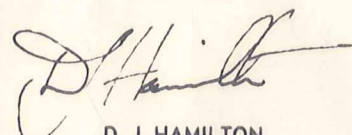
GRITHEME





LEVEL DATUM OTAGO	FB	LB	LEGAL DESCRIPTION	SURVEYED MWD, NZAM	NAME	DATE	APPROVED	 CATCHMENT BOARD & REGIONAL WATER BOARD	FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF GALLOWAY		AMENDMENTS	JOB NO. :	
BEARING ORIGIN LINDIS PEAK	APPLICATION PROGRAM ALF			AERIAL PHOTO R. SKINNER		1976	 D. J. HAMILTON B.E.(Hons) M.I.P.E.N.Z. CHIEF ENGINEER		L 12634/6				
GRID	COMPUTER FILES			TRACED R. EDWARDS		12/88							
MERIDIONAL CIRCUIT				TRACING CHK R. SKINNER		12/88							
SURVEY COMPUTER REF.				DESIGNED R. SKINNER		12/88							
			CATCHMENT NO. :										
			SOIL & WATER										
			CONSERVATION PLAN NO. :										
									SCALE : 1 : 5000				SHEET 6 OF

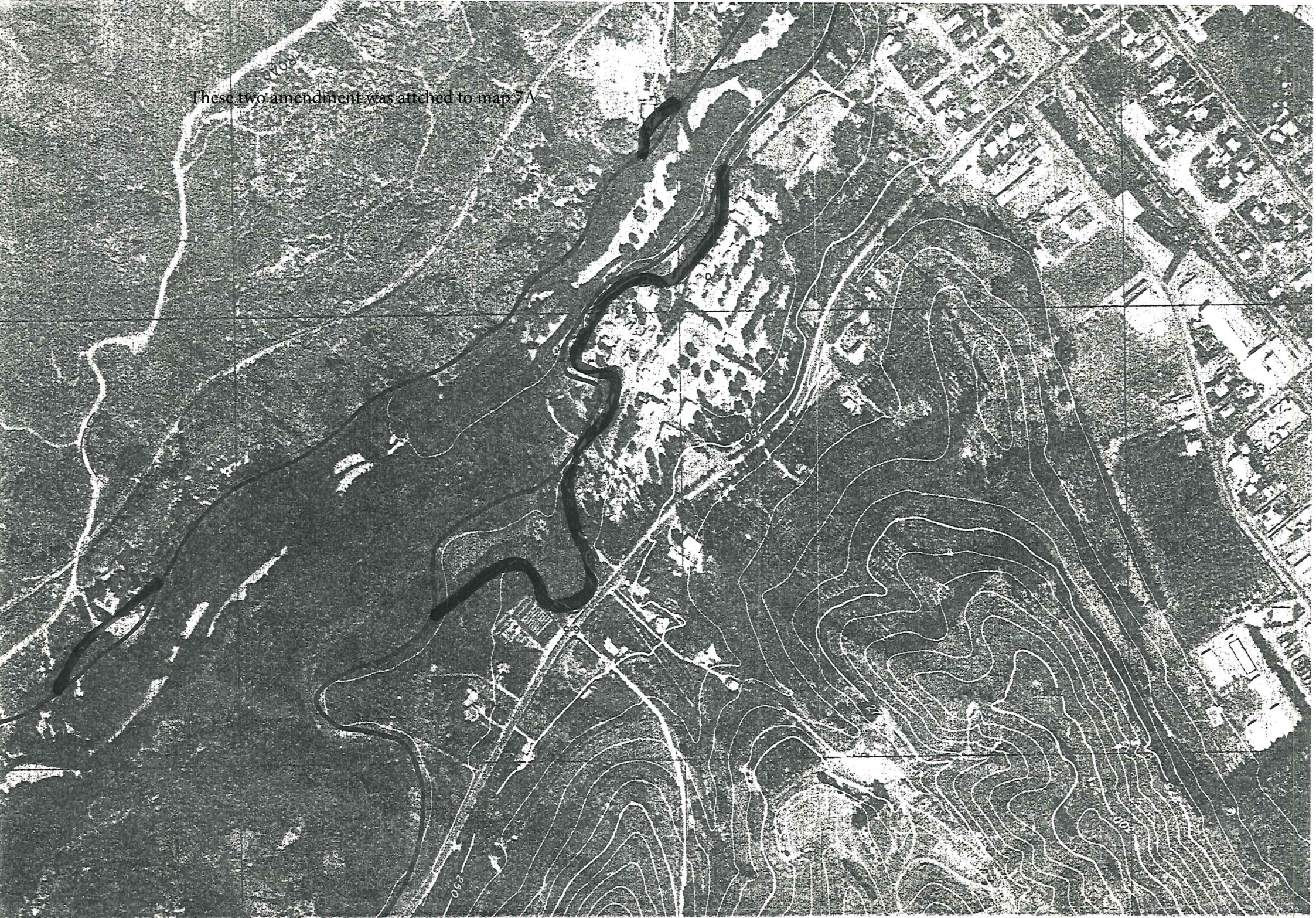


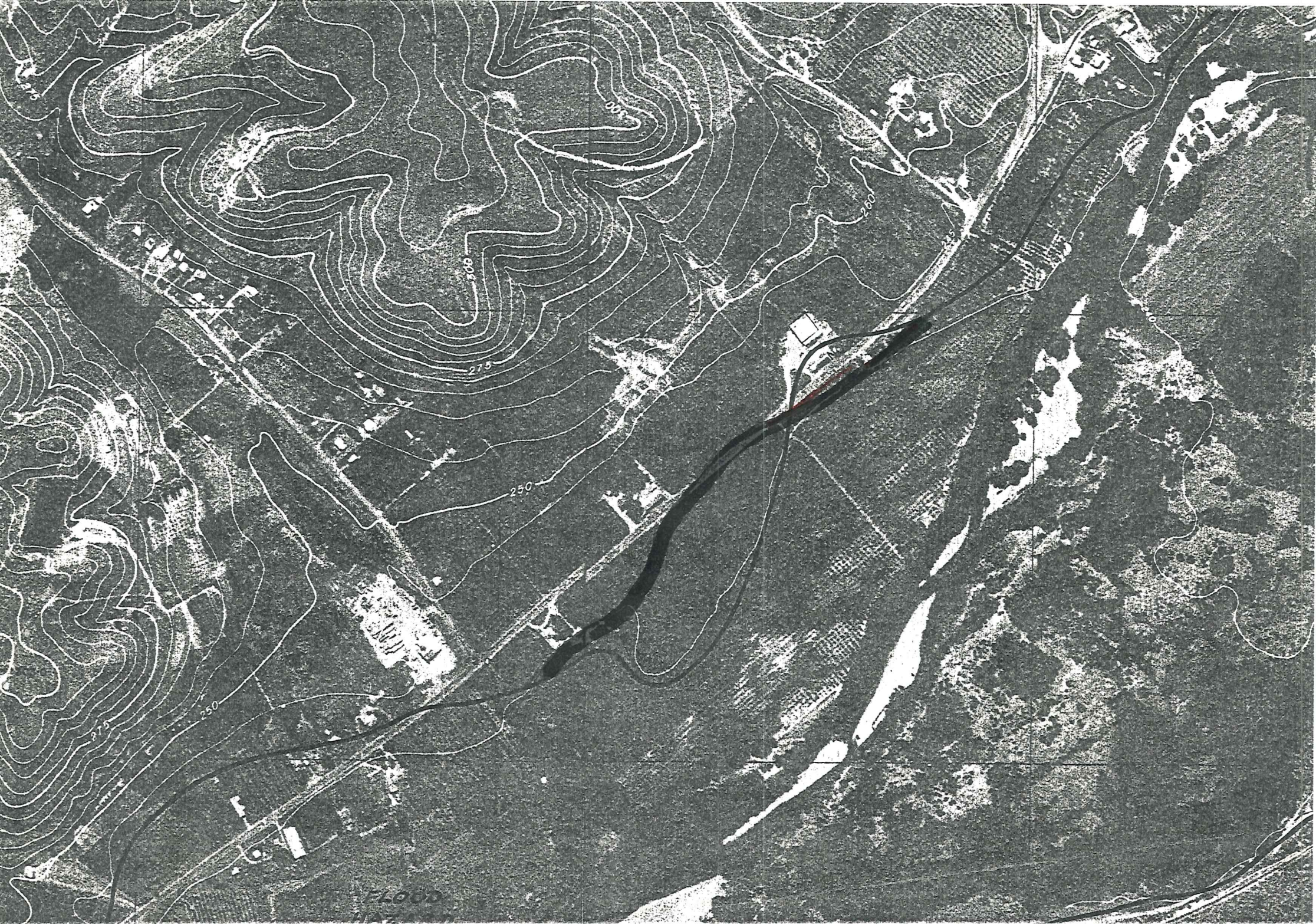
LEVEL DATUM OTAGO	FB	LB	LEGAL DESCRIPTION	SURVEYED MWD, NZAM	NAME	DATE	APPROVED	 CATCHMENT BOARD & REGIONAL WATER BOARD	FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF GALLOWAY SCALE : 1 : 5000	AMENDMENTS	JOB NO. :	
BEARING ORIGIN LINDIS PEAK	APPLICATION PROGRAM ALF	COMPUTER FILES	CATCHMENT NO. :	SURVEYED L9323/78		1976	 D J HAMILTON B.E.(Hons) M.I.P.E.N.Z. CHIEF ENGINEER			PROVISIONAL ONLY	L 12634/7	
GRID MERIDIONAL CIRCUIT			SOIL & WATER	DRAWN R.SKINNER		12/88						
SURVEY COMPUTER REF.			CONSERVATION PLAN NO. :	TRACED R.EDWARDS		12/88						
				TRACING CHK R.SKINNER		12/88						



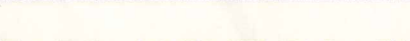
LEVEL DATUM OTAGO	FB	LB	LEGAL DESCRIPTION	SURVEYED NZAM, MWD	NAME	DATE	APPROVED	 CATCHMENT BOARD & REGIONAL WATER BOARD	FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF ALEXANDRA SCALE : 1 : 5000	PROVISIONAL ONLY	AMENDMENTS	JOB NO. :
BEARING ORIGIN LINDIS PEAK	APPLICATION PROGRAM ALF	COMPUTER FILES	CATCHMENT NO. :	DESIGNED R.SKINNER	12/88	D J HAMILTON B.E.(Hons) M.I.P.E.N.Z. CHIEF ENGINEER	L 12634/7A					
GRID MERIDIONAL CIRCUIT			SOIL & WATER CONSERVATION PLAN NO. :	RECOMMENDED			SHEET 7A OF					
SURVEY COMPUTER REF.												

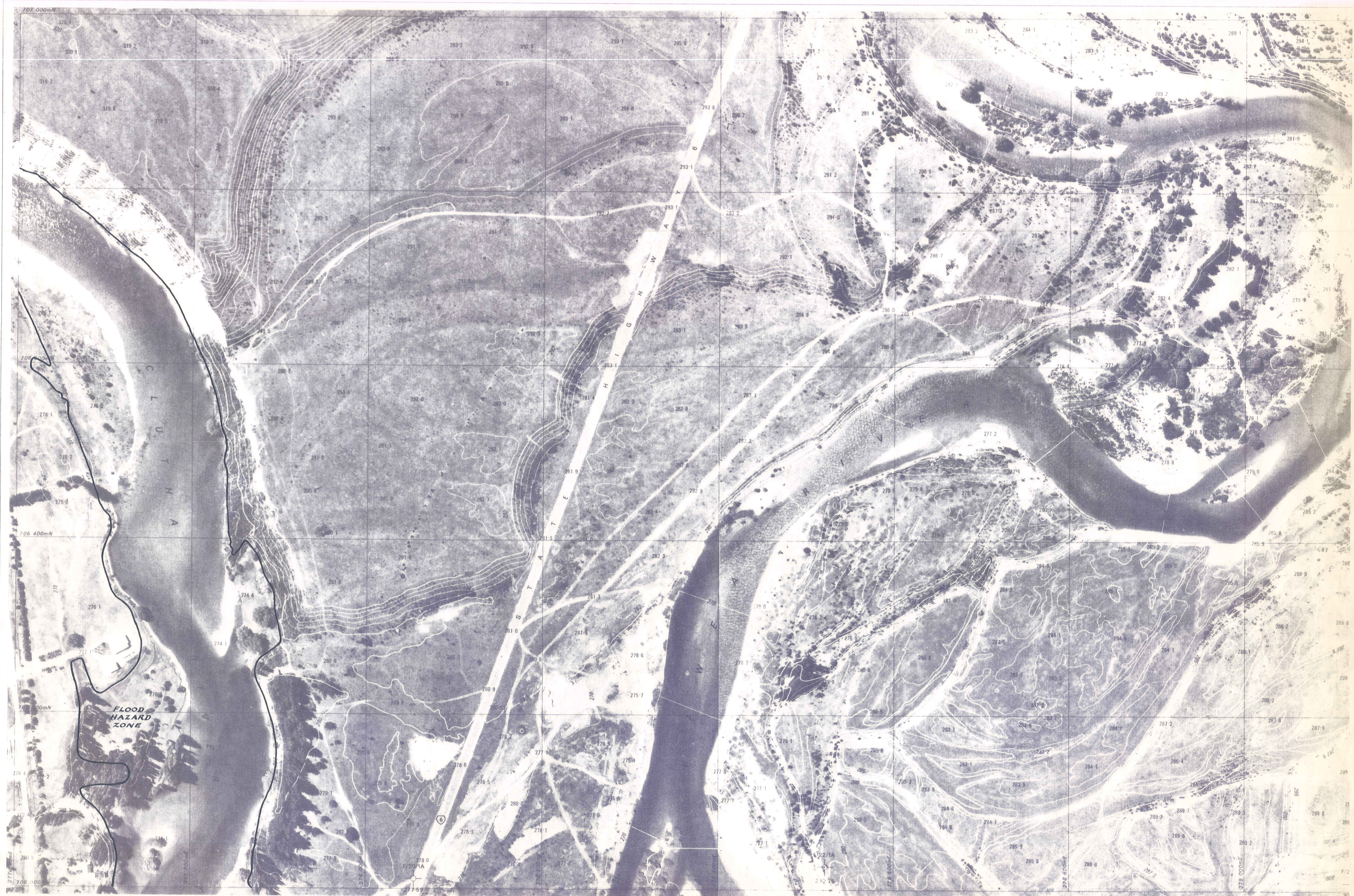
These two amendment was attached to map 7A







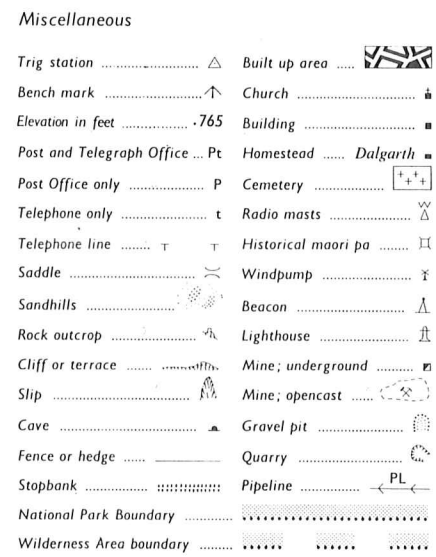
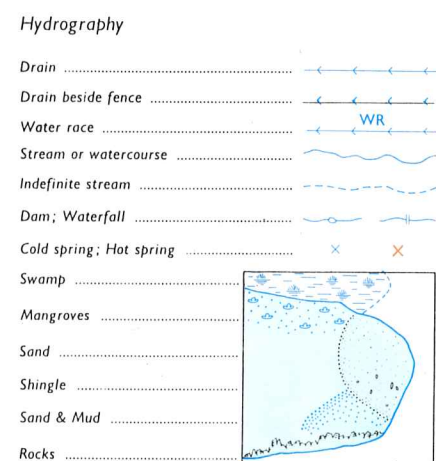
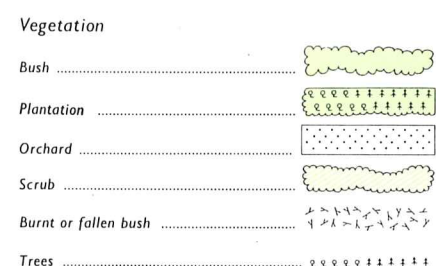
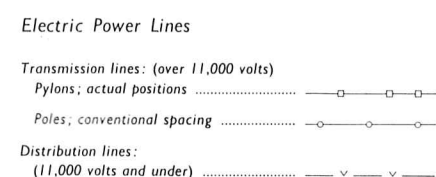
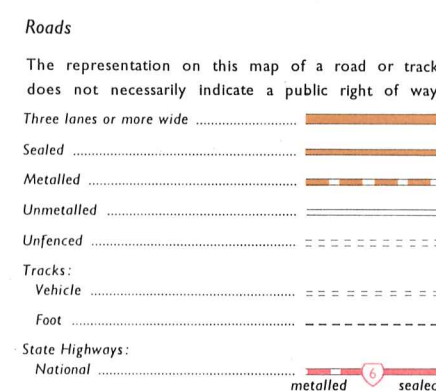
LEVEL DATUM	FB	LB	LEGAL DESCRIPTION	SURVEYED	NAME	DATE	APPROVED D J HAMILTON B.E.(Hons) M.I.P.E.N.Z. CHIEF ENGINEER	 CATCHMENT BOARD & REGIONAL WATER BOARD	FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF ALBERT TOWN	AMENDMENTS	JOB NO. : L 12634/8
BEARING ORIGIN	APPLICATION PROGRAM	DOSLI, MWD		1976							
LINDIS PEAK	ALF	AERIAL PHOTO		L11588/G11							
GRID	COMPUTER FILES	DRAWN		12/88							
MERIDIONAL CIRCUIT		TRACED		12/88							
SURVEY COMPUTER REF.			CATCHMENT NO. :	DESIGNED	R.SKINNER	12/88					
			SOIL & WATER CONSERVATION PLAN NO. :	DESIGN CHK							
				RECOMMENDED							



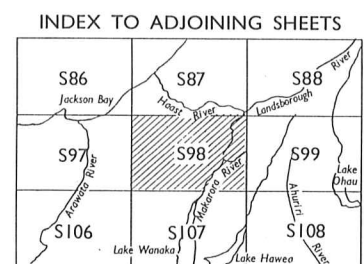
LEVEL DATUM MSL		FB	LB	LEGAL DESCRIPTION		SURVEYED		NAME		DATE		APPROVED		 CATCHMENT BOARD & REGIONAL WATER BOARD		FLOOD HAZARD IDENTIFICATION VINCENT COUNTY VICINITY OF ALBERT TOWN		AMENDMENTS		JOB NO. : L 12634/8A	
BEARING ORIGIN LINDIS PEAK		APPLICATION PROGRAM ALF		CATCHMENT NO. : SOIL & WATER CONSERVATION PLAN NO. :		DRAWN		R.SKINNER		12/88		D J HAMILTON B.E.(Hons) M.I.P.E.N.Z. CHIEF ENGINEER									
GRID MERIDIONAL CIRCUIT		COMPUTER FILES						TRACED		R.SKINNER		12/88									
SURVEY COMPUTER REF.						DESIGNED		R.SKINNER		12/88											
						RECOMMENDED															

PROVISIONAL ONLY

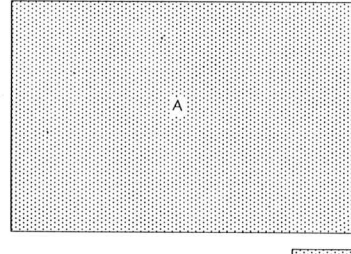
SCALE : 1 : 5000



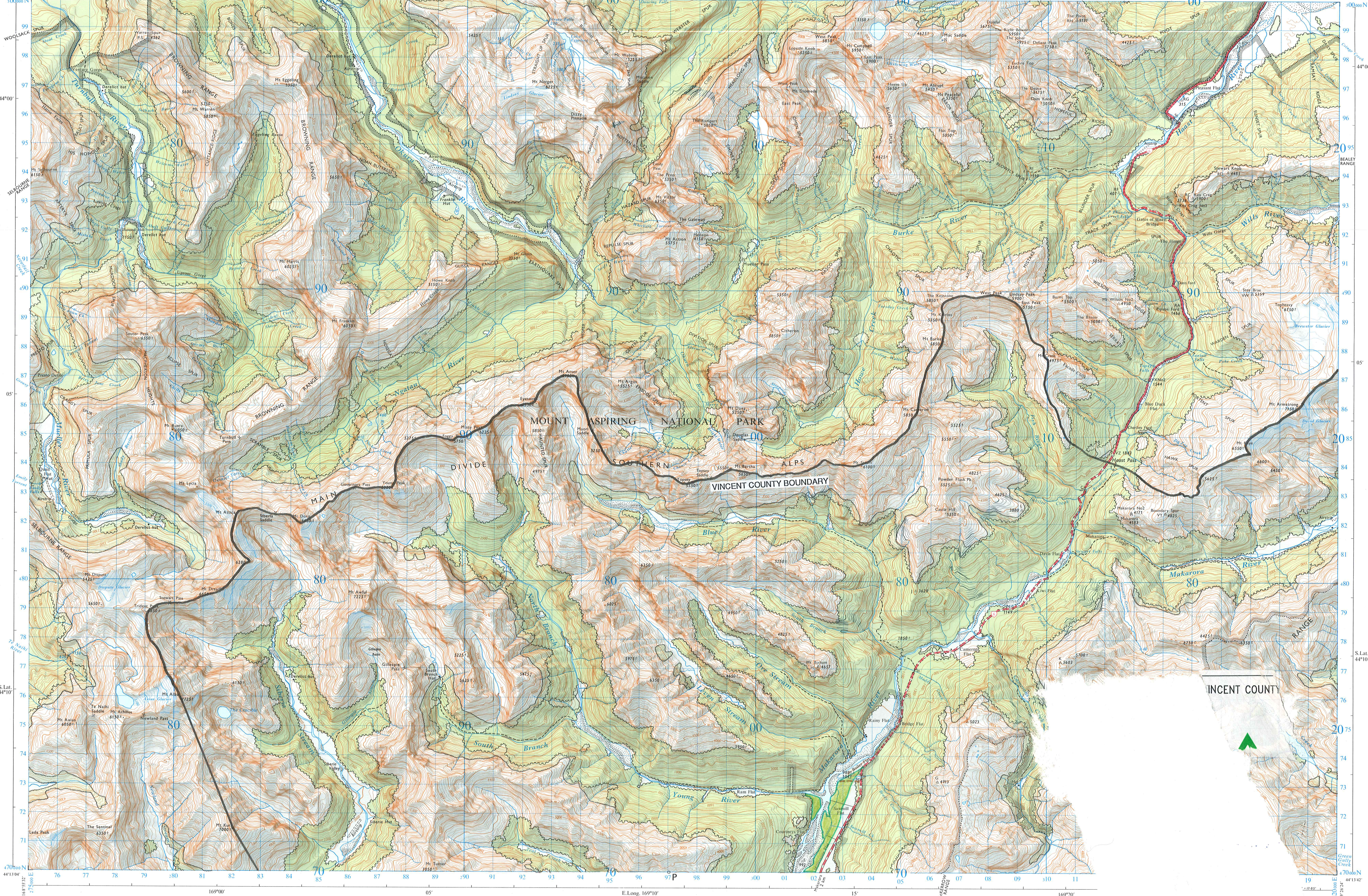
WARNING: This map does not show all aerial wires, cableways and obstructions that could be a hazard to aircraft.



NZMS 1 S98
HAAST PASS



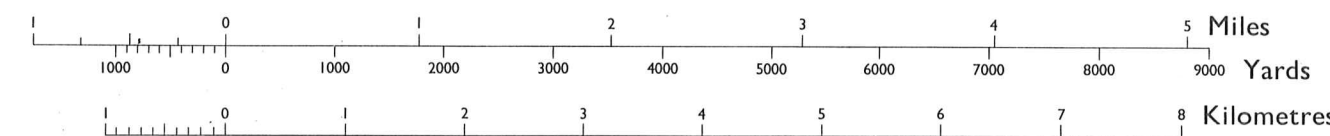
Aerial photographs	
Plotting instrument	A
Plane Table Survey	I
Existing Survey Records	C
Date of photography	1966 1968
Date of field check	February 198



HAAST PASS

The vertical interval between the contours is 100 feet (30.48 metres)

Scale 1: 63,360 (1 inch to 1 mile)



HEIGHT CONVERSION TABLE

Metres	Feet
0	0
500	1000
1000	2000
1500	3000
2000	4000
2500	5000
	6000
	7000
	8000
	9000

TO FIND A GRID REFERENCE ON THIS MAP			
Diagonal lines smaller characters on the margin. They are for finding full coordinates or grid square numbers.			
Pay attention to the larger marginal figures and to those printed on the face of the map.			
Point	△ D	Stewart	KN 4485
East			
Take west edge of square in which point lies and read the larger figures opposite this line on north or south margin (on the map or on the face of the map)	16		
Estimate tenths eastward on the line itself (on the map)	1		
	161		
North			
Take south edge of square in which point lies and read the larger figures opposite this line on east or west margin (on the map or on the face of the map)			94
Estimate tenths northward on the line itself (on the map)			9
			949
REFERENCE 161941			
Unit			yard
Square			1000 yards
Reference to the nearest			100 yards
This map lies in Grid Square 534 524			

TO CON-
GRID BE
TO CON-
MAGNETIC

TO OBTAIN
Magnetic Cha-
year since 19
- 60' or 17
Annual Magn-
C-M 1/8" or
for the central

Annual
number of
for 1982

1.8mils
or 368-9 mils.
this sheet.

Use the diagram to obtain numerical values.

To determine magnetic north line, connect the pivot point "P" on the South edge of the map with the value of the angle between GRID and MAGNETIC NORTH, as plotted on the degree/mil scale at the North edge of the map. The values for all angles are shown in the boxed mils.

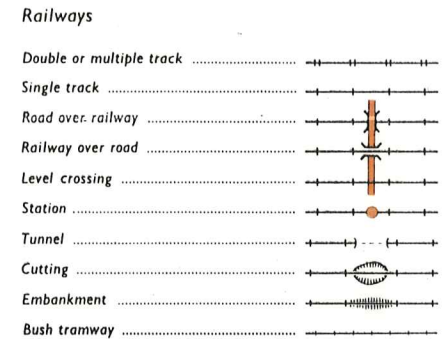
2nd EDITION 1982

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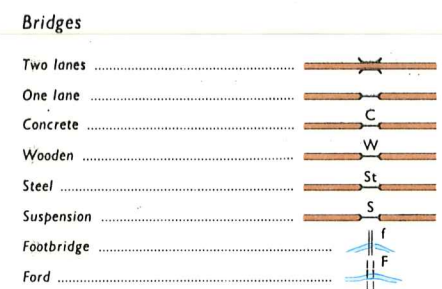


Published by the Department of Lands & Survey, New Zealand
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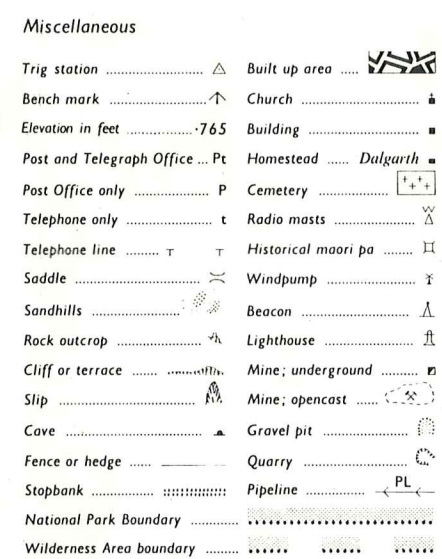
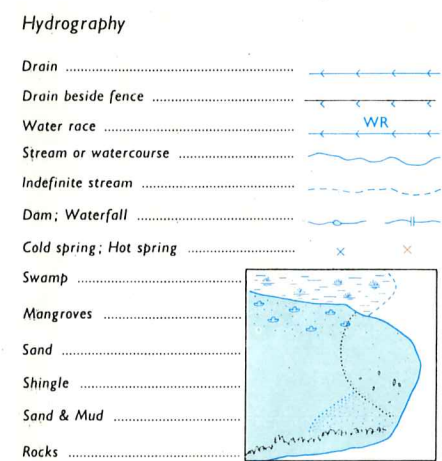
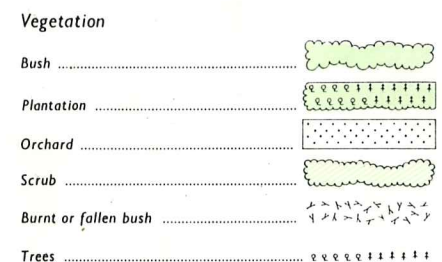
P.D. Hasselberg, Government Printer, Wellington, New Zealand.



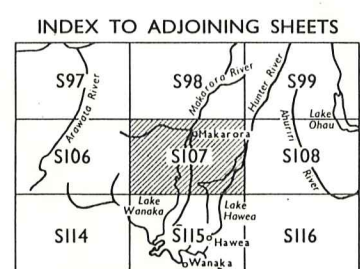
Roads
The representation on this map of a road or track does not necessarily indicate a public right of way
Three lanes or more wide
Sealed
Metalled
Unmetalled
Unfenced
Trucks
Vehicle
Foot
State Highways:
National
metalled sealed



Electric Power Lines
Transmission lines (over 11,000 volts)
Pylons, actual positions
Poles, conventional spacing
Distribution lines
(11,000 volts and under)

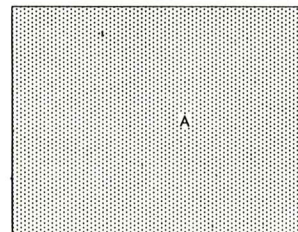


WARNING: This map does not show all aerial wires, cableways and obstructions that could be a hazard to aircraft.



NZMS 1 S107
MAKARORA

RELIABILITY DIAGRAM



Aerial photographs
Plotting instrument
Plane Table Survey
Existing Survey Records
Date of photography
Date of field check

Transverse Mercator Projection, International (Hayford) Spheroid
Origin of Projection 171° 30' E. Long. 44° 00' S. Lat.

The grid and graticule on this map are in terms of Geodetic Datum 1949

All grid coordinates on this map are in terms of False Origin

False Origin is (500,000 yds West) of True Origin

True Origin is (44° 00' S. Lat.)

True Origin is (171° 30' E. Long.)

True North (at the West edge of this map is 1° 48' 13" or 321 Miles W) of Grid North

True North (at the East edge of this map is 1° 26' 36" or 25.7 Miles W)

Height Datum: Mean Sea Level

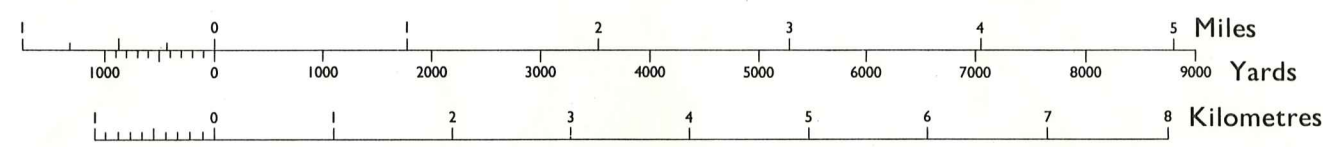
Contours through bush, forest and ice areas may be of lesser reliability

± indicates a height of lesser reliability

MAKARORA

The vertical interval between the contours is 100 feet (30.48 metres)

Scale 1: 63,360 (1 inch to 1 mile)



HEIGHT CONVERSION TABLE

Feet	Meters
0	0
1000	304.8
2000	609.6
3000	914.4
4000	1219.2
5000	1524.0
6000	1828.8
7000	2133.6
8000	2438.4
9000	2743.2
10000	3048.0

TO GIVE A GRID REFERENCE ON THIS MAP	
Divide the number of squares in the margin. They are for finding full coordinates or grid square numbers.	
Pay attention to the larger marginal figures and to those printed on the face of the map.	
East	North
Take west edge of square in which point lies and read the larger figure opposite this line on the line itself (on the face of the map)	Take south edge of square in which point lies and read the larger figure opposite this line on the line itself (on the face of the map)
Estimate southward	Estimate northward
02	59
05	8
025	598
REFERENCE 02598	
Unit: 1000 yards	
Square: 1000 yards	
Reference to the nearest 100 yards	
This map lies in Grid Squares 524 534	

TO CONVERT A MAGNETIC BEARING TO A GRID BEARING ADD G-M ANGLE

TO CONVERT A GRID BEARING TO A MAGNETIC BEARING SUBTRACT G-M ANGLE

TO OBTAIN G-M ANGLE add the Annual Magnetic Change multiplied by the number of years since 1980 to the G-M angle for 1980

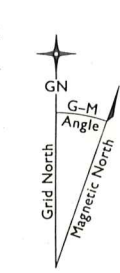
Annual Magnetic Change: 1.5 or 1.5 mils

G-M angle for 1980: 30° 50' or 370.4 mils

for the central grid line of this sheet.

Use the diagram only to obtain numerical values.

To determine magnetic north line, connect the pivot point "P" on the South edge of the map with the value of the angle between GRID NORTH & MAGNETIC NORTH, as plotted on the diagram scale at the North edge of the map. The values for all angles are shown in degrees and mils



2nd EDITION 1980

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P.D. Hasselberg, Government Printer, Wellington, New Zealand.

FLOOD HAZARD IDENTIFICATION – VINCENT COUNTY

COMPILED A. G. KIRK 12/88

APPROVED

D. Hamilton

D. J. HAMILTON
B. E. (Hons) M.I.P.E.N.Z.
CHIEF ENGINEER



PROVISIONAL ONLY

L 12634/10

Railways

Double or multiple track
Single track
Road over railway
Railway over road
Level crossing
Station
Tunnel
Cutting
Embankment
Footbridge
Both tramway

Roads

The representation on this map of a road or track does not necessarily indicate a public right of way
Three lanes or more wide
Scaled
Metalled
Unmetalled
Unfenced
Tracks:
Vehicle
Foot
State Highways:
National
Provincial

Bridges

Two lanes
One lane
Concrete
Wooden
Steel
Suspension
Footbridge
Ford

Electric Power Lines

Transmission lines: (over 11,000 volts)
Pylons, actual positions
Poles, conventional spacing
Distribution lines: (11,000 volts and under)

Vegetation

Bush
Plantation
Orchard
Scrub
Burnt or fallen bush
Trees

Hydrography

Drain
Drain beside fence
Water race
Stream or watercourse
Indefinite stream
Dam, Waterfall
Cold spring; Hot spring
Swamp
Mangroves
Sand
Shingle
Sand & Mud
Rocks

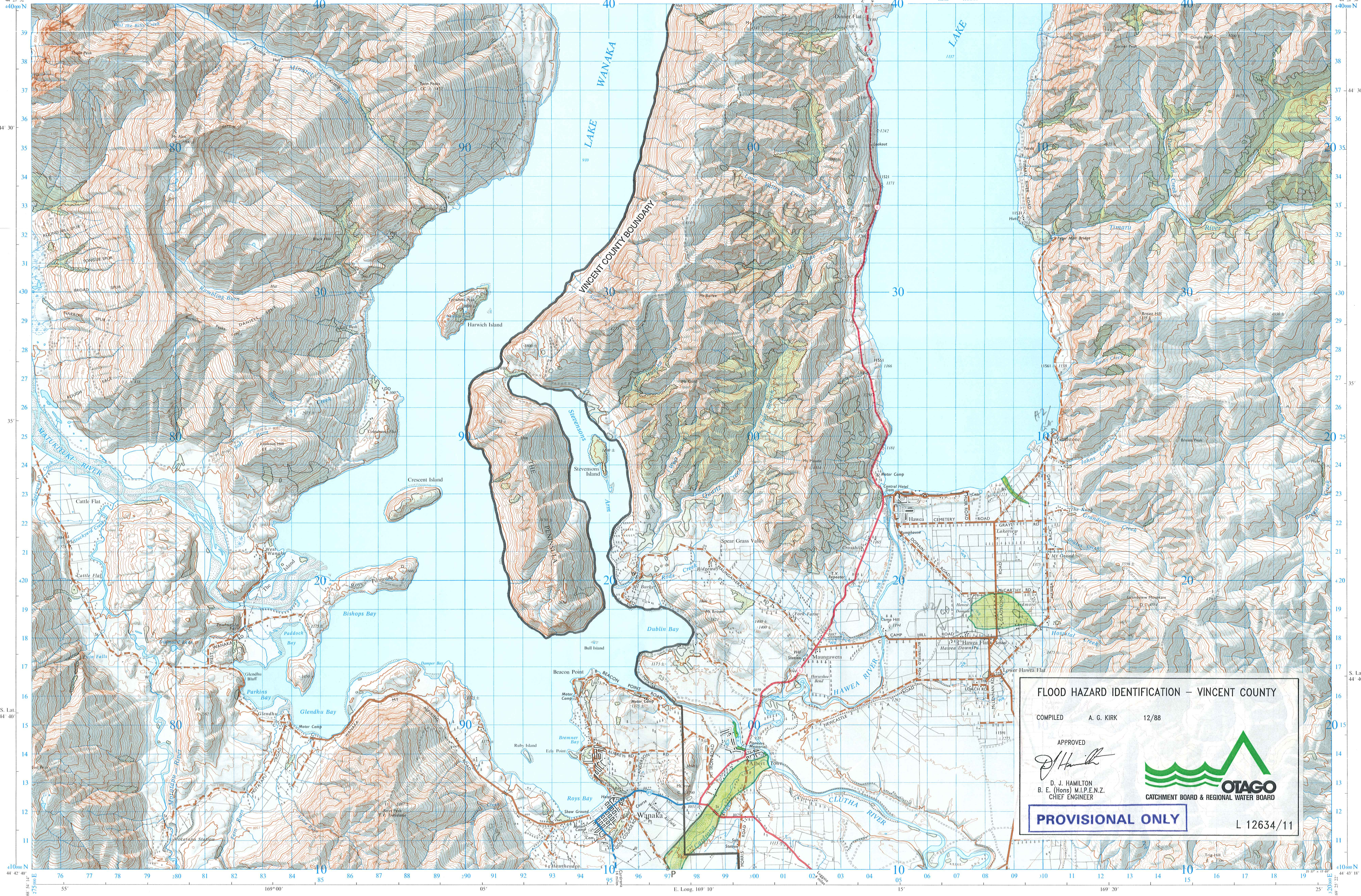
Contours

Index
Intermediate
Supplementary
Depression

Miscellaneous

Trip station
Bench mark
Elevation in feet
Post and Telegraph Office
Post Office only
Telephone only
Telephone line
Saddle
Sandhills
Rock outcrop
Cliff or terrace
Slip
Cave
Fence or hedge
Stopbank
National Park Boundary
Wilderness Area Boundary

WARNING: This map does not show all aerial wires, cableways and obstructions that could be a hazard to aircraft.



FLOOD HAZARD IDENTIFICATION – VINCENT COUNTY

COMPILED A. G. KIRK 12/88

APPROVED
D. J. Hamilton
D. J. HAMILTON
B. E. (Hons) M.J.P.E.N.Z.
CHIEF ENGINEER

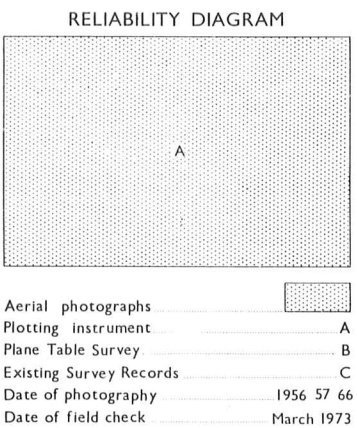
OTAGO
CATCHMENT BOARD & REGIONAL WATER BOARD

PROVISIONAL ONLY

L 12634/11

INDEX TO ADJOINING SHEETS

S106	S107	S108
S114	S115	S116
S123	S124	S125



Transverse Mercator Projection, International (Hayford) Spheroid
Origin of Projection 171° 30' E. Long. 44° 00' S. Lat.
The grid and graticule on this map are in terms of Geodesic Datum 1949

All grid coordinates on this map are in terms of False Origin
False Origin is (500,000 yds West
1,500,000 yds South) of True Origin
(44° 00' S. Lat.
171° 30' E. Long.

True North (at the West edge of this map is 1° 49' 10" or 32.3 Mils W) of Grid North
(at the East edge of this map is 1° 27' 21" or 25.9 Mils W)

Height Datum: Mean Sea Level

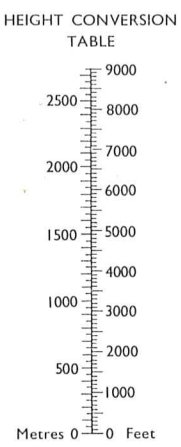
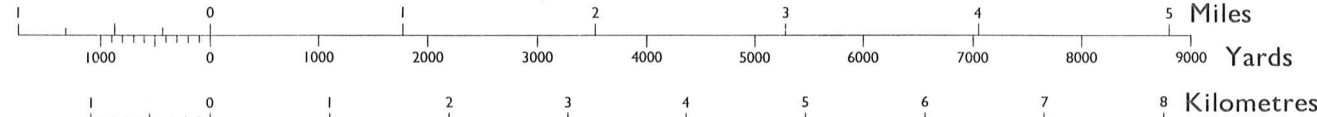
The representation on this map of a road or track is no evidence of the existence of a right of way

Contours through bush, forest and ice areas may be of lesser reliability
± indicates a height of lesser reliability

WANAKA

The vertical interval between the contours is 100 feet (30.48 metres)

Scale 1: 63,360 (1 inch to 1 mile)



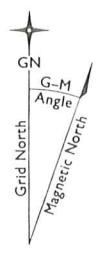
TO GIVE A GRID REFERENCE ON THIS MAP
Disregard the smaller coordinates in the margin. They are for finding full coordinates or grid square numbers.
Pay attention to the larger marginal figures and to those pointed on the face of the map.

Point	Dingle Peak
East Take north edge of square in which point lies and read the large figure against this line on north or south margin or on the face itself for the face of the map. Estimate tenths eastward	North Take north edge of square in which point lies and read the large figure against this line on east or west margin or on the face itself for the face of the map. Estimate tenths northward
15	38
154	387
REFERENCE 154387	
Unit: Square	yard
	1000 yards
	Reference to the nearest 100 yards
	This map lies in Grid Square S24 S34

TO CONVERT A MAGNETIC BEARING TO A GRID BEARING ADD G-M ANGLE
TO CONVERT A GRID BEARING TO A MAGNETIC BEARING SUBTRACT G-M ANGLE

TO OBTAIN G-M ANGLE add the Annual Magnetic Change multiplied by the number of years since 1973 to the G-M angle for 1973
G-M angle for 1973 20° 05' or 352 mils.
Annual Magnetic Change +4° or 1.2 mils.
Use the diagram only to obtain numerical values.

To determine magnetic north line, connect the given point "P" on the South edge of the map with the value of the angle between GRID NORTH & MAGNETIC NORTH, as plotted on the degree/mil scale at the North edge of the map. The values for all angles are shown in degrees and mils.

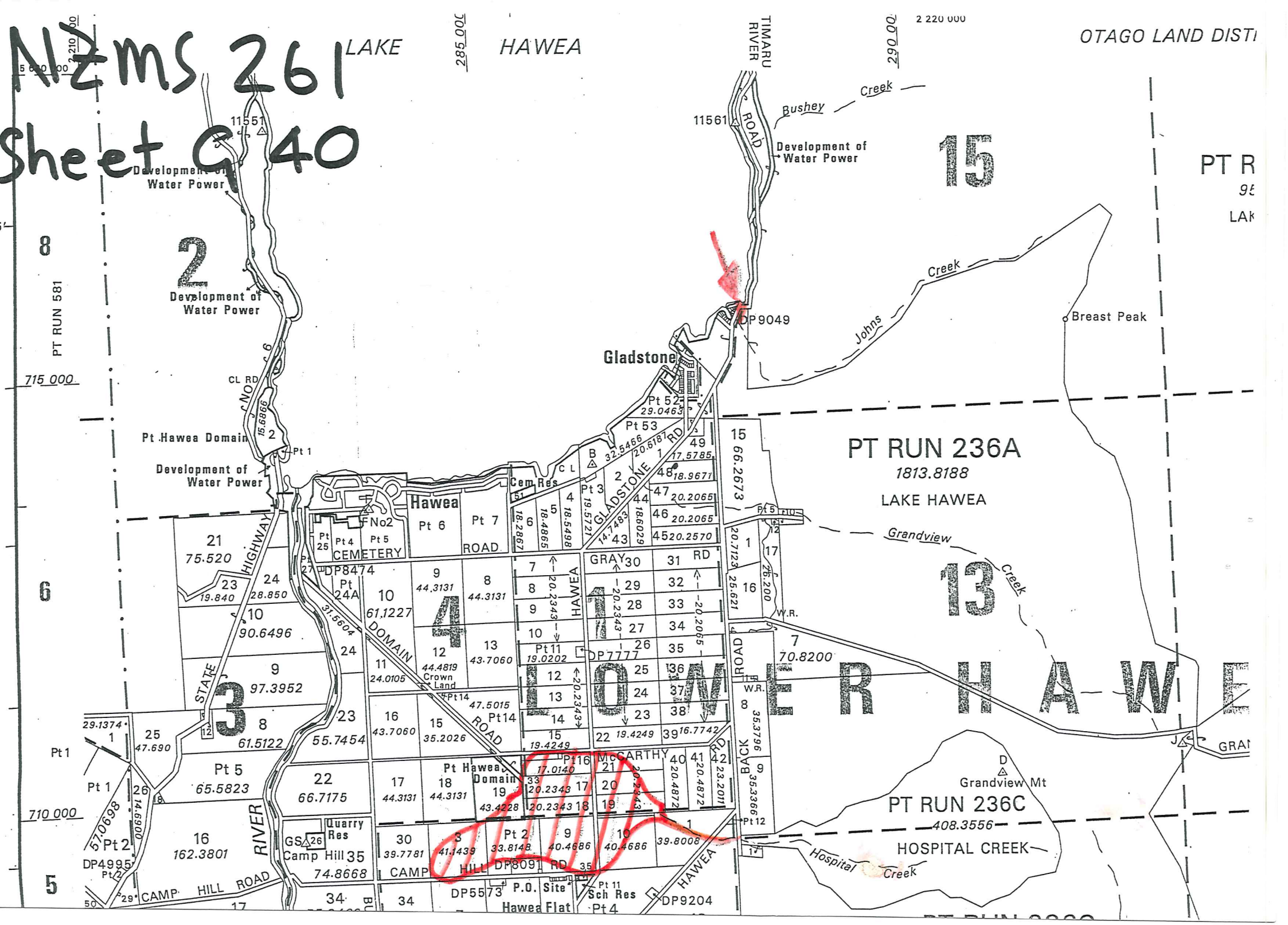


NZMS 261
Sheet 940

LAKE

HAWEA

OTAGO LAND DIST



PT R
9
LAK

PT RUN 236A
1813.8188
LAKE HAWEA

PT RUN 236C
408.3556
HOSPITAL CREEK

13

15

4

3

8

6

5

PT RUN 581

715 000

710 000

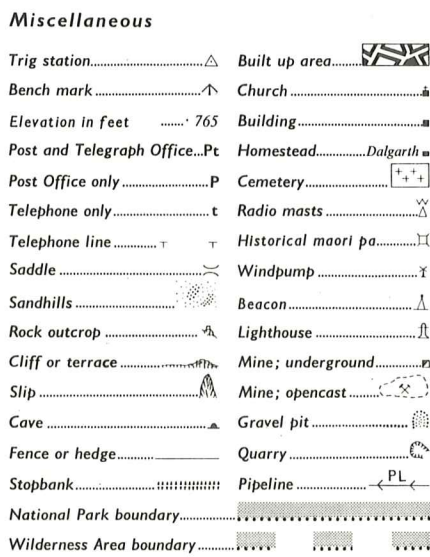
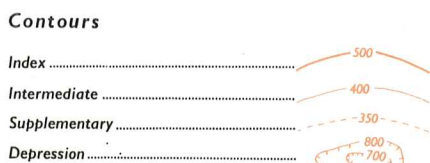
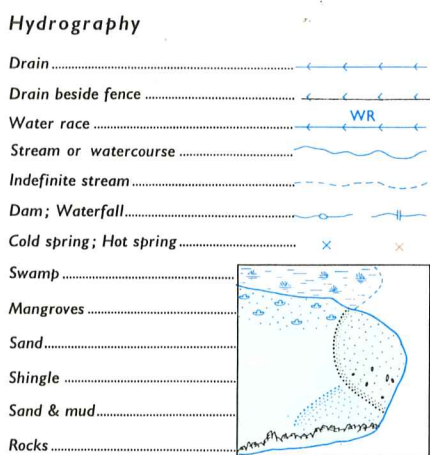
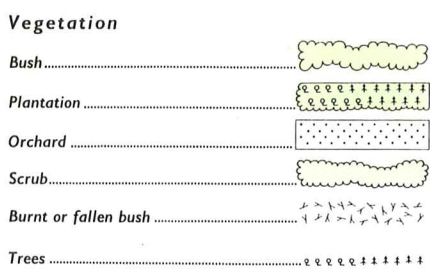
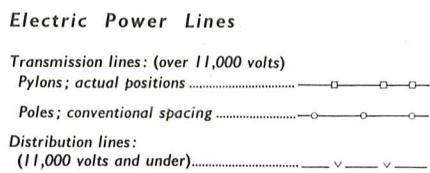
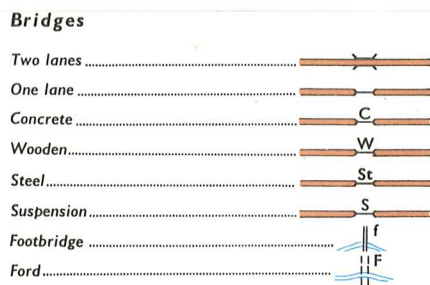
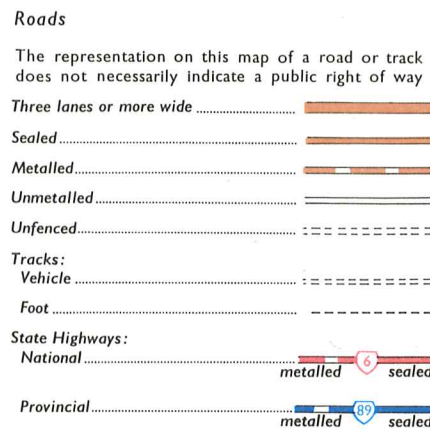
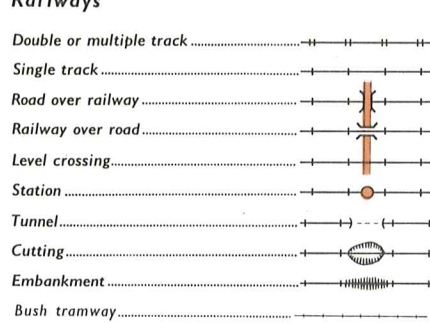
290 000

2 220 000

285 000

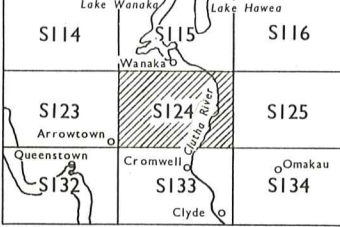
220 000

5 800 000

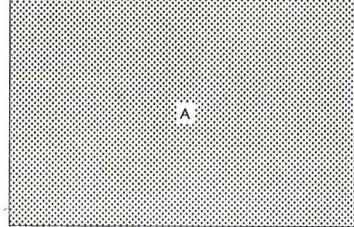


WARNING: This map does not show all aerial wires, cableways and obstructions that could be a hazard to aircraft.

INDEX TO ADJOINING SHEETS



RELIABILITY DIAGRAM



Aerial photographs
Plotting instrument
Plane Table Survey
Existing Survey Records
Date of photography
Date of field check

Transverse Mercator Projection, International (Hayford) Spheroid
Origin of Projection 171° 30' E. Long. 44° 00' S. Lat.

The grid and graticule on this map are in terms of Geodetic Datum 1949

All grid coordinates on this map are in terms of False Origin
False Origin is 500,000 yds West
of True Origin
True Origin is 44° 00' S. Lat.
171° 30' E. Long.

True North { at the West edge of this map is 1° 50' 06" or 32.4 Mils W } of Grid North
at the East edge of this map is 1° 38' 00" or 26.1 Mils W }

Height Datum: Mean Sea Level

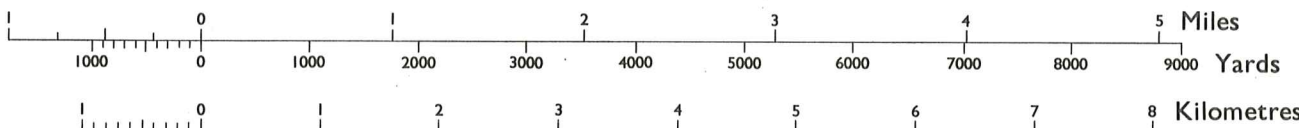
Contours through bush, forest and ice areas may be of lesser reliability

± Indicates a height of lesser reliability

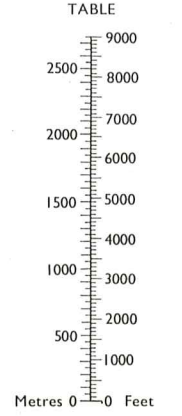
CARDRONA

The vertical interval between the contours is 100 feet (30.48 metres)

Scale 1:63,360 (1 inch to 1 mile)



HEIGHT CONVERSION TABLE



TO GIVE A GRID REFERENCE ON THIS MAP
Disregard the smaller coordinates in the margin. They are for finding full coordinates or grid square numbers.
Pay attention to the larger marginal figures and to those printed on the face of the map.

Point: Mt. Piss No. 2 6441

East: Take west edge of square in which point lies and read the large figures opposite this line on north or south margin or on the line itself (on the face of the map) Estimate tenths eastward

North: Take south edge of square in which point lies and read the large figures opposite this line on east or west margin or on the line itself (on the face of the map) Estimate tenths northward

REFERENCE 004910

Unit: Square
Reference to the nearest 100 yards
This map lies in Grid Squares S23 S24 S33 S34

FLOOD HAZARD IDENTIFICATION – VINCENT COUNTY

COMPILED A. G. KIRK 12/88

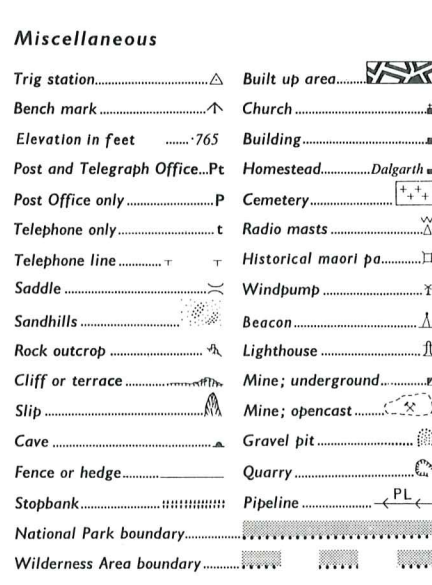
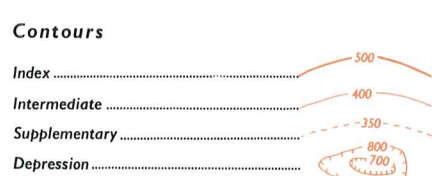
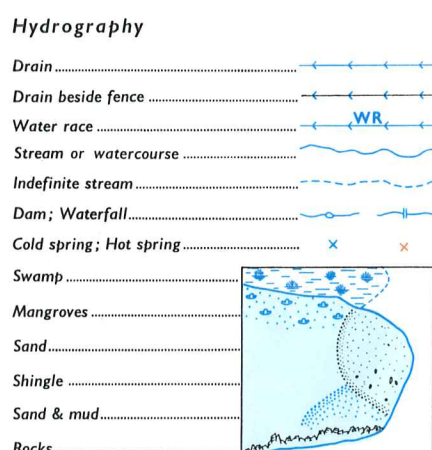
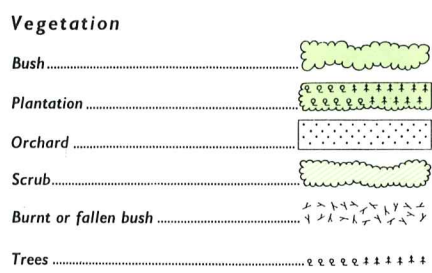
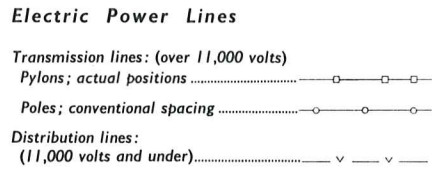
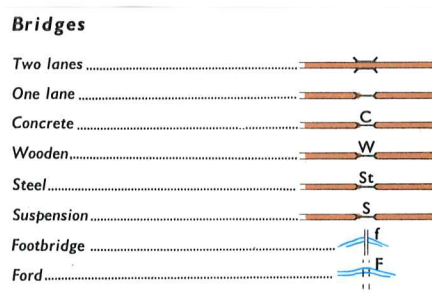
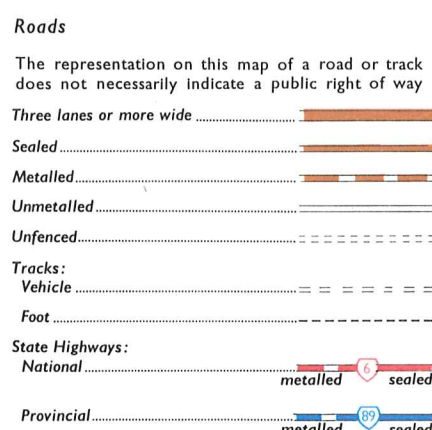
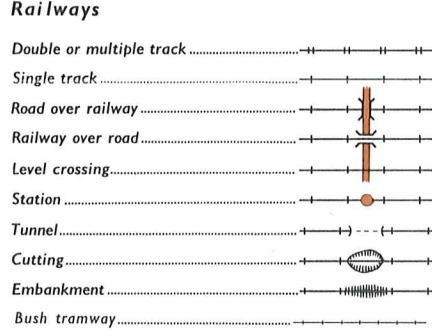
APPROVED
D. J. HAMILTON
B. E. (Hons) M.P.E.N.Z.
CHIEF ENGINEER



PROVISIONAL ONLY

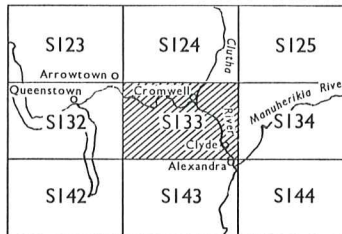
L 12634/12

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P.D. Hasselberg, Government Printer, Wellington, New Zealand.

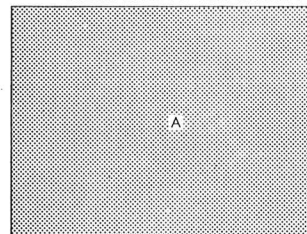


WARNING: This map does not show all aerial wires, cableways and obstructions that could be a hazard to aircraft.

INDEX TO ADJOINING SHEETS



RELIABILITY DIAGRAM



Aerial photographs
Plotting instrument
Plane Table Survey
Existing Survey Records
Date of photography
Date of field check

Transverse Mercator Projection, International (Hayford) Spheroid
Origin of Projection 171° 30' E. Long. 44° 00' S. Lat.

The grid and graticule on this map are in terms of Geodetic Datum 1949

All grid coordinates on this map are in terms of False Origin
False Origin is { 500,000 yds West } of True Origin
False Origin is { 500,000 yds South } of True Origin
True Origin is { 171° 30' E. Long. 44° 00' S. Lat. }

True North { at the West edge of this map is 1° 51' 03" or 32.9 Miles W } of Grid North
{ at the East edge of this map is 1° 28' 52" or 26.3 Miles W }

Height Datum: Mean Sea Level

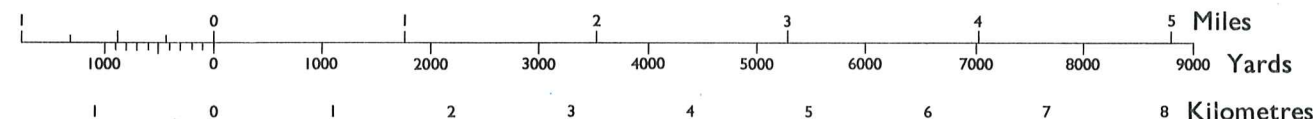
± Indicates a height of lesser reliability.

Contours through bush, forest and ice areas may be of lesser reliability.

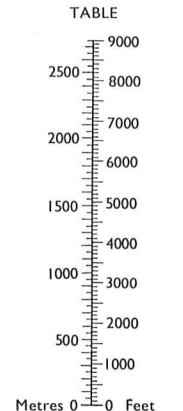
CROMWELL

The vertical interval between the contours is 100 feet (30.48 metres)

Scale 1: 63,360 (1 inch to 1 mile)



HEIGHT CONVERSION TABLE



TO GIVE A GRID REFERENCE ON THIS MAP

Disregard the smaller coordinates in the margin. They are for finding foot coordinates or grid square numbers. Pay attention to the larger marginal figures and to those printed on the face of the map.

East	Point A D Double Rock 2076	North
Take west edge of square in which point lies and read the large figure opposite this line on north or south margin as on the line itself (on the face of the map) 96		Take north edge of square in which point lies and read the large figure opposite this line on east or west margin as on the line itself (on the face of the map) 70
Estimate tenths eastward 96.2		Estimate tenths northward 70.8

REFERENCE 962708

Unit: 1000 yards

Square: 1000 yards

Reference to the nearest 100 yards

This map lies in Grid Squares 523 & 533

TO CONVERT A MAGNETIC BEARING TO A GRID BEARING ADD G-M ANGLE

TO CONVERT A GRID BEARING TO A MAGNETIC BEARING SUBTRACT G-M ANGLE

TO OBTAIN G-M ANGLE add the Annual Magnetic Change multiplied by the number of years since 1981 to the G-M angle for 1981

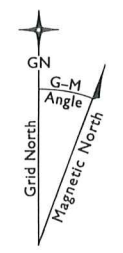
Annual Magnetic Change +4' or 1.8 mils.

G-M angle for 1981 51°21' or 379.6 mils.

for the central grid line of this sheet

Use the diagram only to obtain numerical values.

To determine the magnetic north line, connect the pivot point "P" on the South edge of the map with the value of the angle between GRID NORTH & MAGNETIC NORTH, as plotted on the diagram scale at the North edge of the map. The values for all angles are shown in degrees and mils



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- Railways**
- Double or multiple track
 - Single track
 - Road over railway
 - Railway over road
 - Level crossing
 - Station
 - Tunnel
 - Cutting
 - Embankment
 - Bush tramway

- Roads**
- The representation on this map of a road or track does not necessarily indicate a public right of way
- Three lanes or more wide
- Sealed
- Metalled
- Unmetalled
- Unfenced
- Tracks:
- Vehicle
 - Foot
- State Highways:
- National
 - Provincial

- Bridges**
- Two lanes
 - One lane
 - Concrete
 - Wooden
 - Steel
 - Suspension
 - Footbridge
 - Ford

- Electric Power Lines**
- Transmission lines (over 11,000 volts)
- Pylons: actual positions
- Poles: conventional spacing
- Distribution lines (11,000 volts and under)

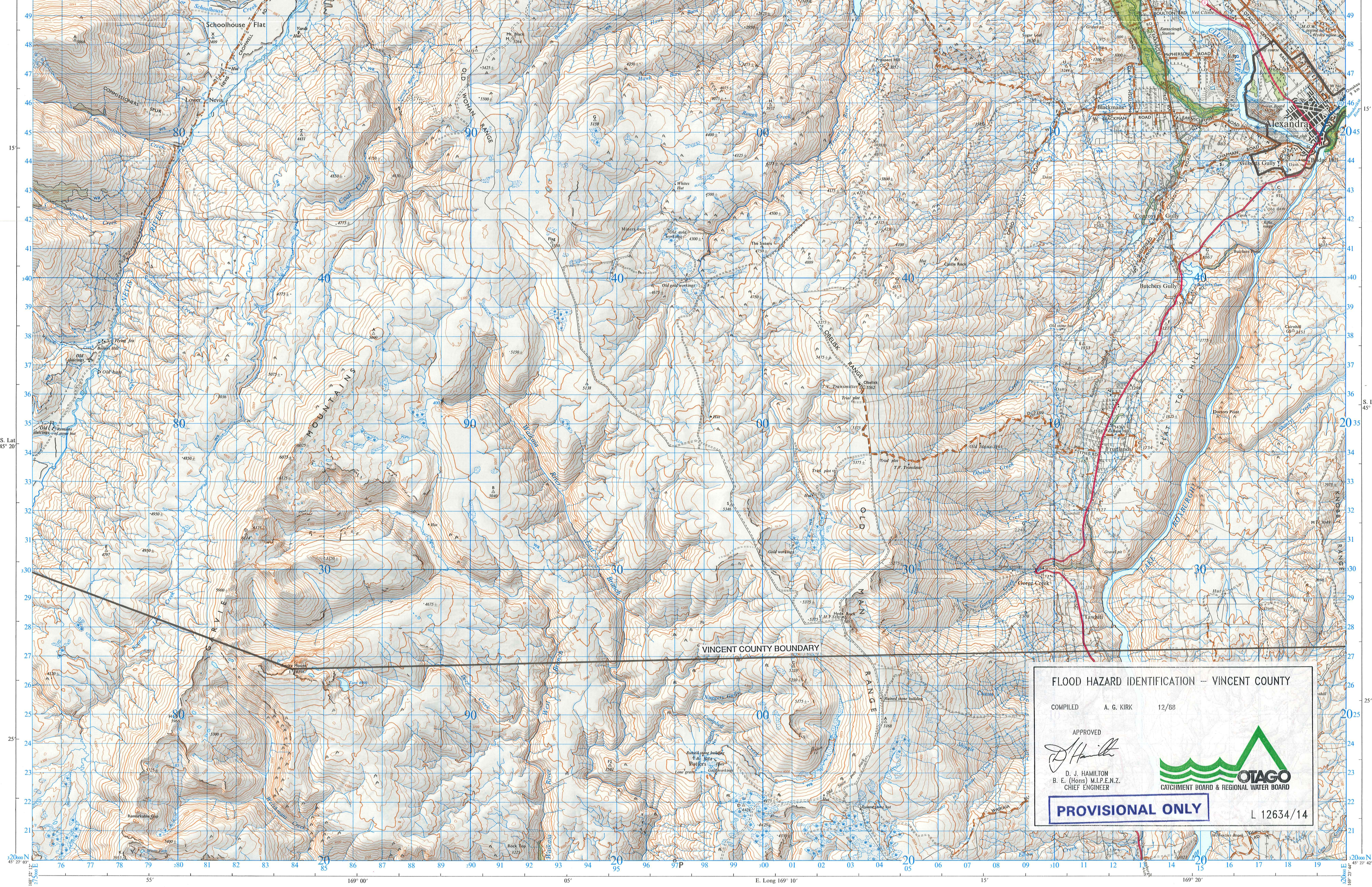
- Vegetation**
- Bush
 - Plantation
 - Orchard
 - Scrub
 - Burnt or fallen bush
 - Trees

- Hydrography**
- Drain
 - Drain beside fence
 - Water race
 - Stream or watercourse
 - Indefinite stream
 - Dam; Waterfall
 - Cold spring; Hot spring
 - Swamp
 - Mangroves
 - Sand
 - Shingle
 - Sand & mud
 - Rocks

- Contours**
- Index
 - Intermediate
 - Supplementary
 - Depression

- Miscellaneous**
- Trig station
 - Built up area
 - Bench mark
 - Church
 - Elevation in feet
 - 765 Building
 - Post and Telegraph Office
 - Post Office only
 - Radio masts
 - Telephone line
 - Historical mason
 - Saddle
 - Windpump
 - Sandhills
 - Beacon
 - Rock outcrop
 - Lighthouse
 - Cliff or terrace
 - Mine; underground
 - Slope
 - Mine; opencast
 - Cave
 - Gravel pit
 - Fence or hedge
 - Quarry
 - Stopbank
 - Pipeline
 - National Park boundary
 - Wilderness Area boundary

WARNING: This map does not show all aerial wires, cableways and obstructions that could be a hazard to aircraft



FLOOD HAZARD IDENTIFICATION – VINCENT COUNTY

COMPILED A. G. KIRK 12/88

APPROVED

D. J. HAMILTON
B. E. (Hort) M.P.E.N.Z.
CHIEF ENGINEER

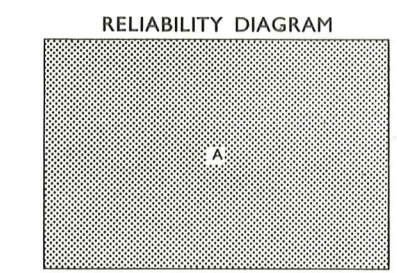
OTAGO
CATCHMENT BOARD & REGIONAL WATER BOARD

PROVISIONAL ONLY

L 12634/14

INDEX TO ADJOINING SHEETS

S132	S133	S134
S142	S143	S144
S151	S152	S153



Transverse Mercator Projection, International (Hayford) Spheroid
Origin of Projection 171° 30' E. Long. 44° 00' S. Lat.

The grid and graticule on this map are in terms of Geodetic Datum 1949

All grid coordinates on this map are in terms of False Origin

False Origin is 500,000 yds West, 500,000 yds South, of True Origin

True Origin is 171° 30' S. Lat., 44° 00' E. Long.

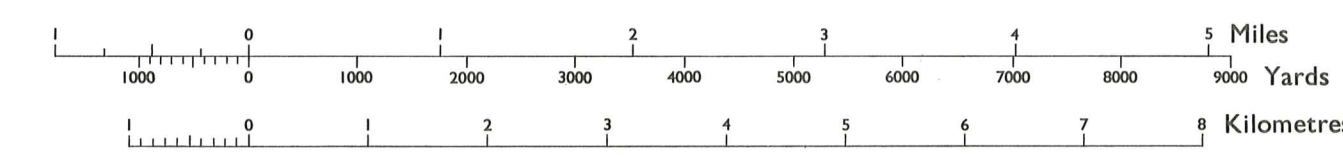
True North (at the West edge of this map is 1° 52' 01" or 33.2 Miles W) of Grid North
(at the East edge of this map is 1° 29' 38" or 26.5 Miles W)

Height Datum: Mean Sea Level

ALEXANDRA

The vertical interval between the contours is 100 feet

Scale 1: 63,360 (1 inch to 1 mile)



HEIGHT CONVERSION TABLE

Feet	Meters
0	0
1000	304.8
2000	609.6
3000	914.4
4000	1219.2
5000	1524.0
6000	1828.8
7000	2133.6
8000	2438.4
9000	2743.2

TO GIVE A GRID REFERENCE ON THIS MAP

Designate the smaller coordinates in the margin. They are for finding full coordinates or grid square numbers. Pay attention to the larger marginal figures and to those printed on the face of the map.

Point	Obelisk	North
East	03	36
Unit	034	362
REFERENCE	034362	
Unit	034362	
Square	034362	
Reference to the nearest 100 yards	034362	
This map lies in Grid Square S23 & S33		

TO CONVERT A MAGNETIC BEARING TO A GRID BEARING

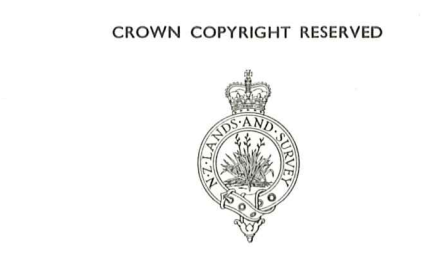
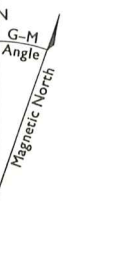
TO CONVERT A GRID BEARING TO A MAGNETIC BEARING SUBTRACT G-M ANGLE

TO OBTAIN G-M ANGLE add the Annual Magnetic Change multiplied by the number of years since 1973 to the G-M angle for 1978

Annual Magnetic Change + 4' or 1.2 mils. G-M angle for 1978 - 20°59' or 373.1 mils. for the central grid line of this sheet.

Use the diagram only to obtain numerical values.

To determine the magnetic north line, connect the pivot point "P" on the South edge of the map with the value of the angle between GRID NORTH & MAGNETIC NORTH, as plotted on the degreelike scale at the North edge of the map. The values for all angles are shown in degrees and mils.



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[illegible]

- Railways**
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- The representation on this map of a road or track does not necessarily indicate a public right of way
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- Sand & mud.....
- Rocks.....

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- Index.....
- Intermediate.....
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- Depression.....

- Miscellaneous**
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- Bench mark.....
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S124	S125	S126
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NZMS 1 S125
ST BATHANS

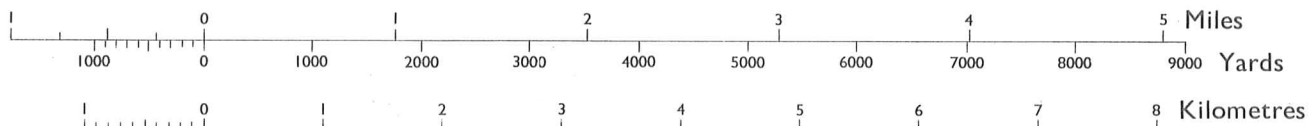
RELIABILITY DIAGRAM	
Aerial photographs.....	A
Plotting instrument.....	B
Existing Survey Records.....	C
Date of photography.....	1971 1973
Date of field check.....	Dec 1979

Transverse Mercator Projection, International (Hayford) Spheroid
Origin of Projection: 171° 30' E, Long. 44° 00' S, Lat.
The grid and graticule on this map are in terms of Geodetic Datum 1949
All grid coordinates on this map are in terms of False Origin
False Origin is { 500,000 yds West } of True Origin
True Origin is { 44° 00' S, Lat. }
True North { at the West edge of this map is 1° 28' 00" or 26.1 Miles W } of Grid North
at the East edge of this map is 1° 06' 05" or 19.6 Miles W }
Height Datum: Mean Sea Level
Contours through bush, forest and ice areas may be of lesser reliability
± indicates a height of lesser reliability

ST BATHANS

The vertical interval between the contours is 100 feet (30.48 metres)

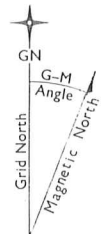
Scale 1: 63,360 (1 inch to 1 mile)



HEIGHT CONVERSION TABLE	
Feet	Metres
0	0
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5000	1524.0
6000	1828.8
7000	2133.6
8000	2438.4
9000	2743.2
10000	3048.0

TO GIVE A GRID REFERENCE ON THIS MAP	
Divide the easting coordinate by 100,000 and the northing coordinate by 100,000. The result is the grid reference. The grid reference is the number of the grid square in which the point lies. The grid square is the square of the grid.	
Point: Lindis Peak	Grid Square: 239 9
East: Take west edge of square in which point lies and read the large figures opposite the line on the left margin or on the line itself (on the face of the map). Estimate to the nearest 1000 yards.	North: Take south edge of square in which point lies and read the large figures opposite the line on the right margin or on the line itself (on the face of the map). Estimate to the nearest 1000 yards.
REFERENCE: 239 9	Grid Square: 239 9
Unit: 1000 yards	Reference: to the nearest 100 yards
This map lies in Grid Square: 239 9	

TO CONVERT A GRID BEARING TO A MAGNETIC BEARING ADD G-M ANGLE
TO CONVERT A GRID BEARING TO A MAGNETIC BEARING SUBTRACT G-M ANGLE
TO OBTAIN G-M ANGLE add the Annual Magnetic Change multiplied by the number of years since 1980 to the G-M angle for 1980
Annual Magnetic Change: 1/2" or 1.8 mils.
G-M angle for 1980: 21377 or 384.3 mils.
for the central grid line of this sheet.
Use the diagram only to obtain numerical values.
To determine the magnetic north line, connect the point "M" on the South edge of the map with the value of the angle between GRID NORTH & MAGNETIC NORTH, as plotted on the degree/mil scale at the North edge of the map. The value for all angles is shown in degrees and mils.



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FLOOD HAZARD IDENTIFICATION – VINCENT COUNTY

COMPILED A. G. KIRK 12/88

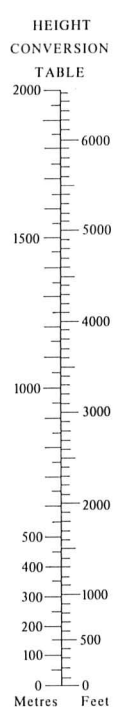
APPROVED

D. J. HAMILTON
B. E. (Hons) M.P.E.N.Z.
CHIEF ENGINEER

CATCHMENT BOARD & REGIONAL WATER BOARD

PROVISIONAL ONLY

L 12634/15



OTAGO
CATCHMENT BOARD & REGIONAL WATER BOARD

TO CONVERT A
MAGNETIC BEARING
TO A G-M BEARING
ADD G-M ANGLE

TO CONVERT A
G-M BEARING TO A
MAGNETIC BEARING
SUBTRACT C-M-A
ANGLE

TAIN G-M ANGLE add the Annual
Convergency of the bearing
to the G-M angle for 1979 or
subtract it for 1980 or 1981
Magnetic line of sight. + or - 1.0 mils.
+ or - 0.5 mils. or 385.2 mils.
Central line change of this sheet.

Diagram only to obtain numerical values.

Intersect the magnetic north line, connect
point "P" on the South side of the map
to the center of the circle. The angle
of the angle between GRID
& MAGNETIC NORTH is marked on
the map in degrees at the North edge of
the map for all angles are shown in degrees

All grid co-ordinates on this sheet are in terms of False Origin
False origin is 500,000 yards West
of True Origin
True origin is 441° North Latitude
171° East Longitude

TO GIVE A GRID REFERENCE ON THIS SHEET
This sheet lies in Grid Square S-3

*Disregard the smaller co-ordinates in the margins. They are for finding full
coordinates or grid square numbers.*

For convenience the larger marginal figures and those printed on the face
of the map.

	Point	North	Rough Ridge Hill	The Hill
	East	North		
Take note of point in which plot is made and read the figure in the margin. The figure on north or south margin is on the line of sight from the base of the map.	56	56	Take note of point in which plot is made and read the figure in the margin. The figure on east or west margin is on the line of sight from the base of the map.	56
Estimate these figures	56	56	Estimate these figures	56
	East	560	North	562

REFERENCE 560562

Unit.....yard
Square.....1000 yds.
Reference to nearest 100 yards.



S124 Cromwell	S125 Omaka	S126 Ranfurly
S133 Alexandra	S134 Omaka	S135 Ranfurly
S143	S144	S145

P.D.Hasselberg, Government Printer, Wellington, New Zealand.

NZMS 1 S134
OMAKAU

Published by the Department of Lands & Survey, New Zealand, under the authority of I.F. Stirling, Surveyor General.

Aerial Photographs.....	
Plotting Instrument.....	
Plane Table Survey.....	
Existing Survey Records.....	
Date of Photography.....	1958 1959
Date of Field Check.....	

TO CONVERT A
MAGNETIC BEARING
TO A GRID BEARING
ADD G-M ANGLE

TO CONVERT A
GRID BEARING TO A
MAGNETIC BEARING
SUBTRACT G-M ANGLE

TO OBTAIN G-M ANGLE add the
Magnetic Change multiplied by the num-
bers years since 1979 to the G-M angle for
1° = 60' or 17.8 mils

Annual Magnetic Change +6' or -1'
G-M angle for 1979 21°39' 385'
for the central grid line of this sheet.

Railways

Double or multiple track
Single track
Road over railway
Railway over road
Level crossing
Station
Tunnel
Cutting
Embankment
Bush tramway

Roads

The representation on this map of a road or track does not necessarily indicate a public right of way
Three lanes or more wide
Sealed
Metalled
Unmetalled
Unfenced
Tracks:
Vehicle
Foot
State Highways:
Provincial
metalled sealed

Bridges

Two lanes
One lane
Concrete
Wooden
Steel
Suspension
Footbridge
Ford

Electric Power Lines

Transmission lines (over 11,000 volts)
Pylons; actual positions
Poles; conventional spacing
Distribution lines (11,000 volts and under)

Vegetation

Bush
Plantation
Orchard
Scrub
Burnt or fallen bush
Trees

Hydrography

Drain
Drain beside fence
Water race
Stream or watercourse
Indefinite stream
Dam; Waterfall
Cold spring; Hot spring
Swamp
Mangroves
Sand
Shingle
Sand & mud
Rocks

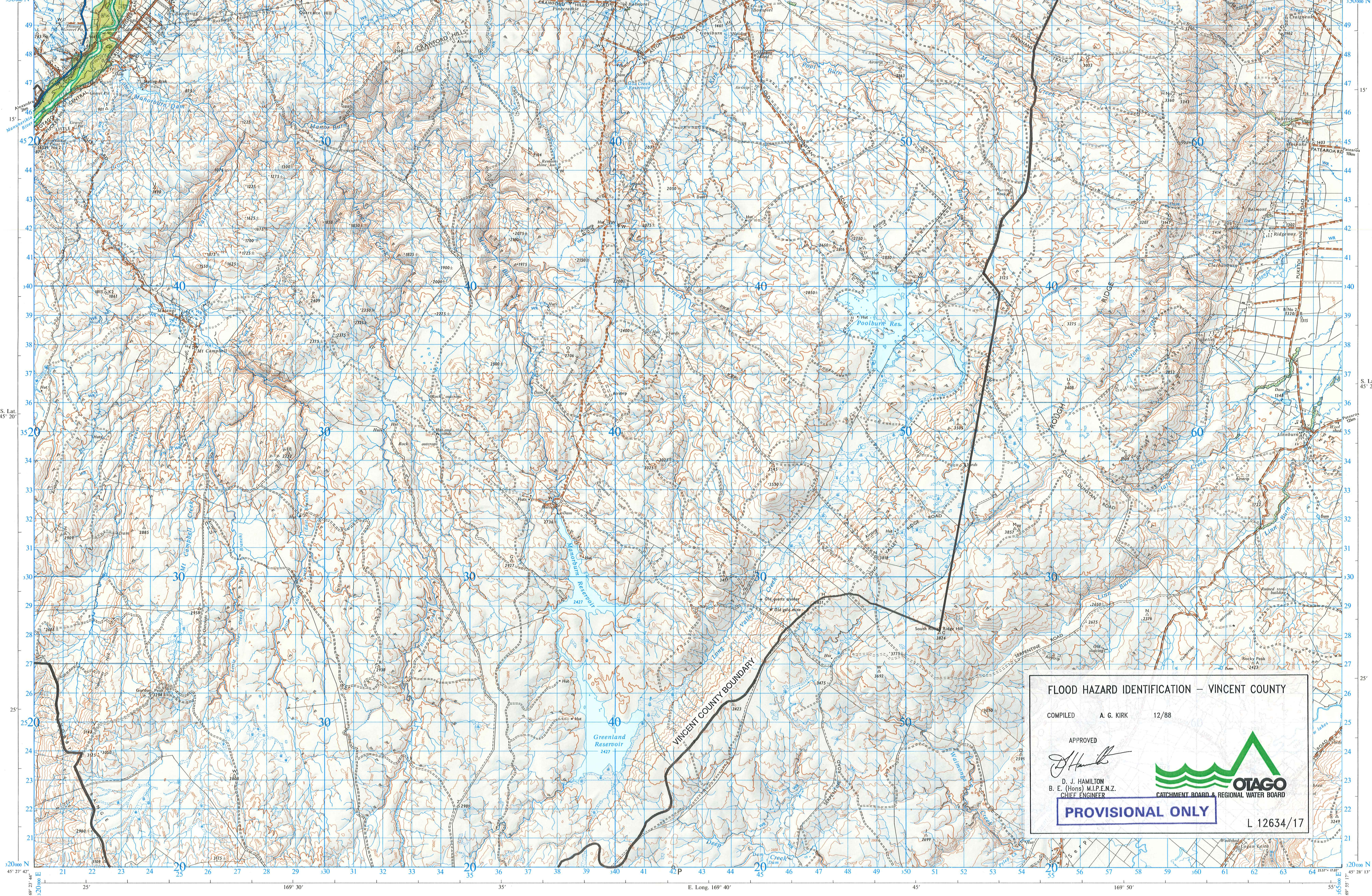
Contours

Index
Intermediate
Supplementary
Depression

Miscellaneous

Trig station
Bench mark
Spot elevation in feet
Post and Telegraph Office
Post Office only
Telephone only
Telephone line
Saddle
Sandhills
Rock outcrop
Cliff or terrace
Slip
Cave
Fence or hedge
Stopbank
National Park boundary
Wilderness Area boundary

WARNING: This map does not show all aerial wires, cableways and obstructions that could be a hazard to aircraft.



FLOOD HAZARD IDENTIFICATION – VINCENT COUNTY

COMPILED A. G. KIRK 12/88

APPROVED

D. J. HAMILTON
B. E. (Hons) M.J.P.E.N.Z.
CHIEF ENGINEER

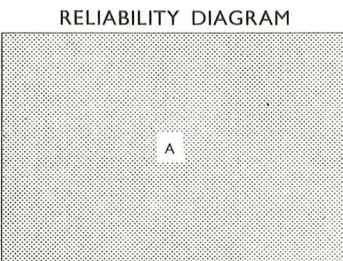
OTAGO
CATCHMENT BOARD & REGIONAL WATER BOARD

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INDEX TO ADJOINING SHEETS

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S143	S144	S145
S152	S153	S154



Aerial photographs
Plotting instrument
Existing Survey Records
Date of photography
Date of field check

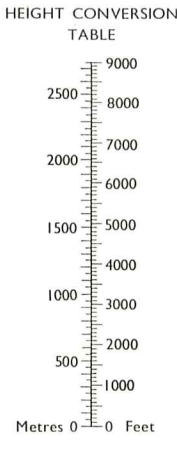
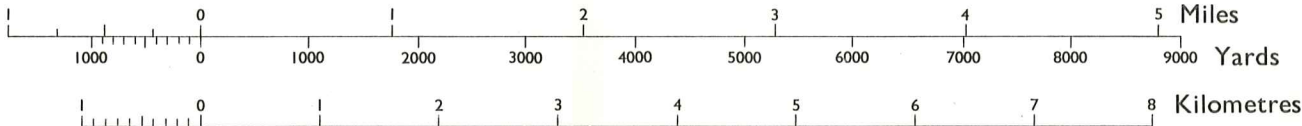
Transverse Mercator Projection, International (Hayford) Spheroid
Origin of Projection 171° 30' E. Long. 44° 00' S. Lat.
The grid and graticule on this map are in terms of Geodetic Datum 1949
All grid coordinates on this map are in terms of False Origin
False Origin is 500,000 yds West of True Origin
True Origin is 171° 30' E. Long.
True North (at the West edge of this map is 1° 29' 38" or 36.6 Miles W)
(at the East edge of this map is 1° 07' 14" or 19.9 Miles W)
Height Datum: Mean Sea Level

Contours through bush, forest and ice areas may be of lesser reliability
± Indicates a height of lesser reliability

MANORBURN

The vertical interval between the contours is 100 feet (30.48 metres)

Scale 1: 63,360 (1 inch to 1 mile)



TO GIVE A GRID REFERENCE ON THIS MAP

Divide the smaller coordinates in the margin. They are for finding grid coordinates or grid square numbers. Pay attention to the larger marginal figures and to those printed on the face of the map.

Point	East	North
Point A	47	41
Point B	47	41
Point C	47	41
Point D	47	41
Point E	47	41
Point F	47	41
Point G	47	41
Point H	47	41
Point I	47	41
Point J	47	41
Point K	47	41
Point L	47	41
Point M	47	41
Point N	47	41
Point O	47	41
Point P	47	41
Point Q	47	41
Point R	47	41
Point S	47	41
Point T	47	41
Point U	47	41
Point V	47	41
Point W	47	41
Point X	47	41
Point Y	47	41
Point Z	47	41

TO CONVERT A MAGNETIC BEARING TO A GRID BEARING ADD G-M ANGLE

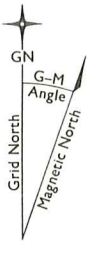
TO CONVERT A GRID BEARING TO A MAGNETIC BEARING SUBTRACT G-M ANGLE

TO OBTAIN G-M ANGLE add the Annual Magnetic Change multiplied by the number of years since 1980 to the G-M angle for 1980

Annual Magnetic Change +4° or 390.2 mils. for the central grid line of this sheet.

Use the diagram only to obtain numerical values.

To determine the magnetic north line, connect the pivot point "P" on the South edge of the map with the value of the angle between GRID NORTH & MAGNETIC NORTH, as plotted on the diagram scale at the North edge of the map. The values for all angles are shown in degrees and mils.



2nd EDITION 1980
Limited Revision

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