

MINUTE.

NM: 68/170

Subject :LEVELLING SECTION GEODETIC BRANCH 1968 FIELD SEASON, INSTRUCTIONS

Mr Granger Field Party Leader
 Mr Reardon Sub-Party Leader
 Mr Whalen Sub-Party Leader
 Mr Woodger Sub-Party Leader

General. This year's field activity will take place in Queensland north of latitude 24° and in the Northern Territory east of the Stuart Highway.

Object. The object of the field work is to:

connect selected trigonometric, traverse and Aerodist stations and one Hiran station to the National Levelling Network;

identify the exact location of permanent bench marks or nearby easily identifiable points on aerial photographs;

check level between permanent bench marks of hitherto unchecked Third Order Contract Levelling work;

provide levelling connections between traverses on either side of the Queensland/Northern Territory Border;

provide levelling connections between the tree tide gauge bench marks at tide gauge stations and the nearest State bench marks;

establish clusters of 3 Reference Bench Marks at selected localities and connect them to existing permanent bench marks by Third Order Levelling.

Composition of Field Party.

Mr H. Granger, Surveyor Class 1, will be in charge of the field party which consists of 3 sub-parties as follows:

Sub-Party 1	Sub-Party 2	Sub-Party 3
F. Reardon, T.O.1,	M. Whalen, T.O.1,	J. Woodger, T.O.1,
R. Mooney, FA,	J. Rutherford, FA,	A. Rodgers, FA
K. Byrne, FA,	P. Walkley, FA	R. Murray FA

Vehicles.

The party will be equipped with 7 International trucks of the C-1300 series with the following registration numbers:

ZSU-208	ZSU-214
ZSU-209	ZSU-219
ZSU-210	ZSU-222
ZSU-213	

Administrative Instructions.

Please study the Administrative Instructions for Field Parties carefully, paying particular attention to Chapter 2 (Extra Duty Pay), Chapters 7 and 8 (Purchase Orders) Chapter 16 (Use of Official Vehicles) and Chapter 19 (Travelling).

Finance.

The party leader has been issued with Finance Requisition NMF 2458 for \$1,000.

Communication.

Call signs on the PMG and WRE Networks are:

	PMG	WRE
H.W. Granger	8 SUI	BW 123
F.C. Reardon	8 SHA	BW 203
M.H. Whalen	8 SUG	BW 206
J.W. Woodger	8 SXR	BW 128

You should arrange a daily radio schedule between yourselves on the National Mapping Radio Frequencies (see Chapter 10 of the Administrative Instructions for Field Parties);

The party leader shall telegraph "Natmap Canberra" on arrival in Brisbane and on the conclusion of the fieldwork;

The party leader shall telephone me at least once per fortnight preferably on a Monday morning on Canberra 45144 reversing the charges. He is to give a description of the work completed by the whole party and to nominate a Post Office for the forwarding of mail;

Every other week the party leader shall inform me by telegram of the work completed during the week.

Claims Diaries and Field Attendance Records shall be forwarded fortnightly to the "Director of National Mapping, Box 667, Canberra City, A. T. 2601, Attention Mr Leppert" by airmail. They should be based on a fortnight starting on Thursday of an off pay week and finishing on a Wednesday of an off pay week.

Field Work.

Details of the field work to be undertaken are contained in the attached Schedule of Technical Instructions.

K. LEPPERT
Surveyor Class 2
26/4/1968.

Schedule of Technical Instructions

The party leader shall call on the:

Surveyor General Queensland when in Brisbane
Surveyor General N.T. when in Darwin
Supervising Surveyor Alice Springs when in Alice Springs

Location of Work

The location of survey work to be done is marked on the attached map in various colours. All levelling is to be done in accordance with the Specifications for One-Way Levelling or the Specifications for Two-Way Levelling as required. Marking is to be done in accordance with the Specification for Permanent Marking and the Specification for Establishing of Reference Bench Marks. Bench Marks are to be of type "A", "B", "C" or "D".

Level Connections to horizontal control stations are indicated by a red circle. Such stations are to be connected to the National Levelling Network by two-way levelling to existing permanent bench Marks. Levelling between these two existing marks shall be one-way only.

Where the distance measured along the levelling route from the nearest of the two existing permanent bench marks to the horizontal control stations exceeds 4 miles, new permanent bench marks are to be established at intervals not exceeding 4 miles.

At the horizontal control station all reference marks and the station mark shall be levelled. Where the station mark is not accessible (stone cairn) the top of the disc or flag of the beacon shall be levelled.

The relation between the station mark (centre) and the reference marks shall be determined by magnetic bearing to the nearest $\frac{1}{2}$ degree and by distance to the nearest 1/100 ft. All such measurements are to be recorded in the level field book together with a sketch showing the relative position of reference marks and station mark (see sample sketches). Wherever possible distances shall be measured horizontally. Slope distances shall be reduced to horizontal distances.

Before leaving a horizontal control station all disagreements between previous measurements and present measurements have to be resolved.

Horizontal control stations and permanent bench marks for which prints of aerial photographs are provided shall be identified by pricking their position with a fine needle.

Border connections are indicated by a brown circle. Two permanent bench marks on one side of the border shall be connected to two Permanent bench marks on the opposite side of the border by two-way levelling.

Tide gauge connections are indicated by a green circle. The three tide gauge bench marks shall be connected to two State bench marks by two-way levelling.

Check levelling at the two Aerodist stations levelled by contract surveyors shall be one-way levelling. The amount of check levelling is to be determined by the party leader.

Clusters of three Reference Bench Marks are indicated by an orange circle. Such clusters shall contain one existing permanent bench mark and two newly established ones. The three marks are to be connected by two-way levelling to each other. The existing mark is to be connected to the nearest other existing mark by one-way levelling. A sketch is to be made showing the relation between the three marks of a cluster and to existing natural or man-made features. Distances to be shown to the nearest foot and magnetic bearings to the nearest $\frac{1}{2}^{\circ}$.

Photo identification of permanent bench marks along traverses is indicated by a green line. All permanent bench marks along these traverses shall be identified on aerial photographs by pricking their position with a fine needle and annotation on the back of the photograph. Where an identification is in doubt an easily identifiable point nearby shall be levelled and identified by a pinprick. The difference in height between the bench mark and this point shall be written on the back of the photograph (i.e. +17.4 ft from PBM No or - 19.7 ft from PBM No.....).

Check levelling along contract levelling traverses is indicated by a blue line. Randomly selected sections between permanent bench marks constituting about 10% of the whole distance of the traverse shall be check levelled by one-way levelling.

Numbering of yet unnumbered marks in Queensland. Each permanent mark which has been positively identified with the aid of the Permanent Bench Mark Sketch and which is not numbered shall have its identification number punched into the space provided on the bronze plaque.

Permanent Bench Mark Record Cards have to be filled in for newly established marks; existing marks which have been Photo identified and marks which are found damaged or destroyed.

Record cards for Control Stations (white) and/or Aerodist Stations (orange) have to be filled in when work is carried out at horizontal control stations.

Map Correction Report. Please note all omissions, errors and outdated information pertaining to the 1:250,000 and 1:1,000,000 maps you have been

provided with on the Map Correction Forms issued to you.

Checking of Work. Before leaving the immediate area in which levelling work has been carried out a summary of this work shall be completed in all detail and a check made to see that all levelling is of specified accuracy. Summary sheets for this Purpose will be supplied.

Photography of Marks. Two black and white photographs shall be taken of each horizontal control station at which work is to be carried out and of each newly established permanent bench mark. One photograph shall be a closeup of the station mark or bench mark and the other shall show the immediate area surrounding the station or bench mark.

Photographs shall also be taken of marks found destroyed, damaged or improperly constructed.

A record of exposures is to be kept on the Film Record sheets provided. It is advisable to make a blank exposure at intervals of about 8 exposures and to register these blanks as such. On completion the film is to be numbered on the wrapping paper and on the cassette.

Bench Mark Identification Numbers. The following numbers have been allotted to you:

	NT	Queensland	SA
Mr Granger			NMV/E/20 to 25
Mr Reardon	NMV/G/1 to 29	NMV/B/8 to 99	
Mr Woodger	NMV/G/30 to 59	NMV/B/102 to 150	
Mr Whalen	NMV/G/50 to 89	NMV/B/151 to 199	

K. LEPPERT
Surveyor Class 2
25. 4.1968.