



R A SVY PLANNING CONFERENCE

3-10 OCT 1972

REPORT

BY

D A D SVY N COMD

R220/2/1

30 Aug 72

AHQ (D Svy)

RA SVY PLANNING CONFERENCE
3 - 10 OCT 72

- References: A. AHQ GS Instr 101/72
 B. AHQ 3/134/1 of 11 Aug 72
 C. N Comd 788/N1/25 of 16 Aug 72
 D. AHQ Svy 081255 of 14 Aug 72

PART I - SURVEY OPERATIONS - 1972

Project A1

1. Field completion of seven standard 1:50,000 maps, the current status of which is as follows:

Map	Field Completion Percentage	Despatch	
		Anticipated	Actual
9442-I IPSWICH	75	9 Oct 72	
9442-III HARRISVILLE	100		24 Jul 72
9442-IV ROSEWOOD	100		24 Jul 72
9443-I CABCOLTURE	Nil	2 Oct 72	
9443-II SAMFORD	50	25 Sep 72	
9443-III LOWOOD	50	23 Oct 72	
9443-IV SOMERSET DAM	Nil	23 Oct 72	

Project A2

2. Compilation and field completion of the 14 standard 1:50,000 maps, and four standard 1:100,000 maps comprising the PORT CLINTON 1:250,000 area, which are programmed to commence on receipt of aerotriangulation data from AHQ Svy Regt. It is unlikely that this project will be completed in 1972.

Project A3

3. Finalisation of seventeen standard 1:100,000 maps and has been completed.

Map	Compilation Percentage	Despatch	
		Anticipated	Actual
<u>SE 55-9 EINASLEIGH</u>			
7761 MOUNT SURPRISE	100		30 May 72
7861 ST ROMANS	100		30 May 72
7961 CASHMERE	100		30 May 72
7760 EINASLEIGH	100		30 May 72
7860 CONJUBOY	100		30 May 72
7960 VALLEY OF LAGOONS	100		30 May 72

/ SE 55-10 INGHAM

Map	Compilation Percentage	Despatch	
		Anticipated	Actual
<u>SE 55-10 INGHAM</u>			
8060 KANGAROO HILLS	100		14 Apr 72
8160 INGHAM	100		14 Apr 72
8260 PALM ISLAND	100		14 Apr 72
8061 KIRRAMA	100		14 Apr 72
8161 CARLWELL	100		14 Apr 72
<u>SE 55-13 CLARKE RIVER</u>			
7759 LYNTHURST	100		21 Jul 72
7859 BURGESS	100		21 Jul 72
7959 CLARKE RIVER	100		21 Jul 72
7758 CHUDLEIGH PARK	100		21 Jul 72
7858 WANDO VALE	100		21 Jul 72
7958 MARYVALE	100		21 Jul 72

Project A4

4. Finalisation of the compilation and field completion of sixteen standard 1:100,000 maps, the current status of which is as follows:

Map	Compilation Percentage	Field Completion Percentage	Despatch Anticipated
<u>SG 56-14 IPSWICH</u>			
9243 OAKLEY	100	Nil	20 Nov 72
9242 TOOWOOMBA	100	Nil	21 Dec 72
9343 ESK	100	Nil	20 Nov 72
9342 HELIDON	100	Nil	21 Dec 72
<u>SG 56-9 CHINCHILLA</u>			
8945 GULUGUBA	98	1. Plotting to be completed by 30 Oct 72. 2. Field completion proposed for May 72. 3. Despatch anticipated Jun/Jul 73.	
9045 BARAKULA	30		
9145 BOONDOOMA	80		
8944 MILES	78		
9044 CHINCHILLA	98		
9144 JANDOWAE	2		
<u>SH 56-1 GOONDIWINDI</u>			
8941 GOODAR	100	1. Field completion proposed for early Feb 73. 2. Despatch anticipated Apr/May 73	
9041 WYAGA	100		
9141 INGLEWOOD	100		
8940 GOONDIWINDI	100		
9040 YETMAN	100		
9140 TEXAS	100		

Project A5

5. Compilation of four 1:250,000 maps from 1:100,000 reprostat, which has been received for SE 55-2 CAIRNS and SE 55-6 INNISFAIL. Work has not commenced on this project, but it is proposed to employ RAER personnel on these two sheets commencing in Nov 72. It must be realised of course that specifications for this series are still not yet available.

Project A6

6. Control survey for the aerotriangulation of twelve 1:250,000 map areas, with provision for an additional four 1:250,000 map areas if practicable, in North Queensland. This project was a major field operation and was carried out during Apr - Jul 72. A separate report is attached at Annex A.

Project A7

7. Compilation of two standard 1:100,000 maps in PNG:

Maps	Plotting	Remarks
7586 DCMA 7686 WAPENAMANDA	80% 86%	Both maps have been plotted as far as possible pending receipt of Lake Kutubu aerotriangulation from AHQ Svy Regt.

Project A8

8. Completion of the geodetic traverse to CROYDON. This project has not been commenced. In view of the establishment of aerodist control throughout the area, the need for this traverse should be reconsidered.

Project A9

9. Conversion of all outstanding station summaries to AMG/AMS in accordance with AHQ Technical Instruction 2/67 (AHQ Svy 39349 of Nov 67). A separate report is attached at Annex B.

Project A10

10. Permanent markings of survey stations established on Torres Straits islands during 1970. This project was completed in Jul/Aug 72, and a separate report is attached at Annex C.

PART II - SURVEY OPERATIONS - 1973

Proposal

11. That field operations for 1973 be an extension of 1972 operations, with emphasis on completing the pockets within the 1972 area of operations, which were not completed, together with those areas which are known to have either AHQ or HQ N Comd priority.

12. As the priority areas are widely dispersed, and vary considerably in their geographical characteristics, it is proposed that 1973 operations be mounted as three technically independent, simultaneous operations under the overall command and control of CC Det, viz:

- a. Project One. Consisting of air/sea borne survey of the Torres Strait and Wellesey Islands;
- b. Project Two. Consisting of air/vehicle borne survey of the mainland area; and

/c. Project Three.

- c. Project Three. Consisting of air/vehicle borne survey and annotation of the CAPE WEYMOUTH 1:100,000 map area.

Project One

13. This will be conducted in two phases:

a. Phase 1.

- (1) Task. Reconnaissance, marking and third order tellurometer traverse of the Wellesley Islands, from Bentinck Island to the Bountiful Islands, connecting to A664 on the mainland. All stations are to be panelled for spot photography, and the traverse terminals established with a view to their co-ordination by aerodist connections to the mainland. Astronomical azimuth is to be established and maintained throughout the traverse.
- (2) Personnel. The traverse party will consist of one survey officer and three OR.
- (3) Support.
 - (a) Air. One RW Sioux for a total of 150 hours.
 - (b) Sea. One LCH with landing craft facilities.
 - (c) Vehicles. One truck $\frac{1}{2}$ ton GS.
- (4) Timings. It is estimated that this phase of Project One will take four weeks.
- (5) Aerodist Connections. The traverse will be interrupted on direction of OC Det, to enable traverse personnel to occupy the traverse terminals with aerodist remote equipment, which will be flown into Mornington Islands when required.
- (6) Resupply. Once a week by Caribou to Mornington Island.
- (7) General Outline. The LCH will provide a mobile base for RA Svy and A A Avn personnel, and assist in the positioning of AVGAS and ground marking stores. AVGAS for the project will be estimated and pre positioned at Mornington Island.

- b. Phase 2. AHQ Svy Regt is currently producing mosaics of the mapping photography. These will relate existing control to that required for aerotriangulation, and until this is completed, full details of this phase of Project One are not known. However, in general the task will consist of the re-establishment and identification of existing control, plus reconnaissance and observation by tellurometer of any additional control required. The same personnel and support will be employed on this phase as on Phase 1, the resupply point being Horn Island.

/Project Two.

Project Two

14. This project will be conducted in three phases:

a. Tasks.

- (1) Phase 1. Aerodist observations of stations established in the CROYDON and MILLJUNGERA 1:250,000 map areas during 1972, and the reconnaissance, heighting and observation of new stations in the NORMANTON and RED RIVER 1:250,000 areas. This phase consists of 42 lines in the former and 49 lines in the latter area. On direction from OC Det aerodist observation of traverse terminals for Project One, Phase 1.
- (2) Phase 2. Reconnaissance, heighting and aerodist observation of stations to be established in the GALBRAITH, RUTLAND PLAINS, HANN RIVER and WALSH 1:250,000 map areas, and consists of about 90 lines.
- (3) Phase 3. Reconnaissance, heighting and aerodist observation of stations to be established in the MOSSMAN, COOKTOWN and CAPE MELVILLE 1:250,000 map areas, and consists of about 60 lines.

b. Locations. Aerodist bases will be established adjacent to aerodromes suitable for Queenair operations as follows:

- (1) Phase 1 - Croydon.
- (2) Phase 2 - Koolatah.
- (3) Phase 3 - Cooktown.

c. Personnel. Personnel for this project will consist of:

OC
2IC (WO or senior NCO)
2 x Aerodist Master Operators
12 x Aerodist Remote Operators
4 x Reconnaissance personnel
3 x Heighting personnel
2 x Cooks
1 x Dvr
1 x Op Radio Sig
1 x Radar Mech
A A Avn personnel as required.

d. Support.

- (1) Air. Three RW Sioux for a total of:
Phase 1 - 100 hrs each
Phase 2 - 100 hrs each
Phase 3 - 100 hrs each.

- (2) Vehicles. 3 x trucks 5 ton
10 x trucks $\frac{1}{2}$ ton
1 x truck electronic eqpt repair shop.

/e. Timings.

e. Timings. Total time required for this project is eleven weeks, as follows:

- Phase 1 - 4 weeks
- Phase 2 - 4 weeks
- Phase 3 - 3 weeks

f. Resupply. Once a week by Caribou.

Project Three

15. This project will only be undertaken if the production of the four 1:50,000 map sheets comprising the CAPE WEYMOUTH 1:100,000 map area is accepted by AHQ as a priority task, and will consist of re-establishing existing horizontal control, extending it if necessary by tellurometer, obtaining identification photography, and establishing sufficient vertical control to enable the map area to be set up as individual stereo models.

16. Uncontrolled mosaics at 1:50,000 will be produced for field annotation.

17. The conduct of this project will be on direction by OC Det, and will depend on the rate of progress made on Projects One and Two for the availability of personnel and aircraft.

General

18. Det HQ. This will be located at Cooktown, and will provide main base facilities for forward elements.

19. Personnel - RA Svy. A minimum of four officers and 36 other rank surveyors is required for the proposed projects. On projected strengths, the provision of four officers will be beyond the resources of 1 Fd Svy Sqn, and the provision of 36 other rank surveyors will virtually demude the squadron, resulting in a complete standstill of compilation for the duration of the field operations.

20. Personnel - Attached.

a. Officers. In addition to the four officers mentioned in para 19, a fifth officer is required as Admin Offr for the Det. If this cannot be provided from RA Svy resources, it may be filled by a suitably experienced non-corps appointment.

b. Other Ranks. The following other rank attachments are requested:

(1)	Op Radio Cpl	RA Sigs	ECN T272	1
(2)	Op Radio Sig	" "	" "	2
(3)	Clerk Tech (Sup) Sgt	RAASC	" T075	1
(4)	Asst Med Cpl	RAAME	" T031	1
(5)	Radar Mech Sgt	RAEME	" T224	1
(6)	Radar Mech Cpl	"	" "	1
(7)	Veh Mech Cpl	"	" T229	1
(8)	Veh Mech Cfn	"	" "	1
(9)	Electric Systems Fitter Cpl	"	" T148	1
(10)	Cook Sgt	AACC	" T084	1
(11)	Cook Pte	"	" "	1
(12)	Op petroleum	RAASC	" T269	1
(13)	Driver	"	" T109	2

/(14) Dutyman

(14) Dutyman GD *	RCH T118	2
(15) Dutyman Hygiene *	" T119	1

* Authority requested to engage local labour to fill these appointments for employment in the main base at Cooktown.

21. Timings. As Easter occurs on 20 - 23 Apr 73, it is suggested that operations do not commence until late April, this also gives the area another month to dry out. However, if an earlier start is required to co-ordinate with other RA Svy unit operations, no real problems are anticipated.

Conclusion

22. The above proposals are optimistic in the light of aerodist statistics derived from 1972 operations, which approximated two hours per line. However with the experience gained by squadron personnel, it is felt that some degree of optimism is warranted and must be planned for.


(K.S. TODD)
Maj
DAD Svy

Annexes: A. Report Project A6
B. Report Project A9
C. Report Project A10

REPORT ON PROJECT A6
CONDUCTED BY
1 FIELD SURVEY SQUADRON - APR/AUG 1972

Aim

1. The aim of Project A6 was to establish survey control for aerotriangulation of maps in the area 16°S to 20°S latitude, and 138°E to 144°E longitude.

Deployment

2. A detachment of 1 Fd Svy Sqn together with supporting elements was based at Normanton for the conduct of the project. Strength of the detachment was maintained at about 10 officers and 60 other ranks. The detachment was commanded by Capt C.W. Watson, RA Svy.

3. Most of the detachment personnel and stores moved to Normanton by road as follows:

- a. First Convoy. This comprised 15 vehicles and 30 personnel, departing Gaythorne on 4 Apr 72 and arriving Normanton 11 Apr 72.
- b. Second Convoy. This comprised 14 vehicles and 28 personnel, departing Gaythorne on 17 Apr 72 and arriving Normanton on 23 Apr 72.

4. Three RW Sioux, aviation stores and aerodist equipment were moved from Brisbane to Townsville in two C 130 aircraft. These were to proceed direct to Normanton, but the landing concession was withdrawn by DCA. All of the stores less the Sioux aircraft were transferred to Caribou and moved to Normanton in four sorties. The Sioux flew in independently.

5. All personnel and stores were in location by 24 Apr 72, the commencement date of the civil air charter.

Air Support

6. One FW Porter, modified for the Wild RC 10 camera and three RW Sioux from Army Aviation and one Queenair A65 under civil charter were in support as follows:

Aircraft	Period		Hours	
	Allocated	Employed	Allocated	Employed
FW Porter	10 Apr - 10 Aug 72	18 Apr - 1 Aug 72	400	314 ⁰⁶
RW Sioux	24 Apr - 31 Jul 72	24 Apr - 31 Jul 72	600(1)	619 ⁰⁶
Queenair	24 Apr - 31 Jul 72	24 Apr - 21 Jul 72	250(2)	349 ¹¹
	(1) This was extended by 50 hrs			
	(2) This was extended by 100 hrs			

7. The serviceability rate of all aircraft was exceptionally high due to the efforts of ground crews and pilots, which combined with excellent weather conditions enabled a very high flying rate.

/Equipment

Equipment

8. Communication Equipment.

- a. AN/GRC 106. Initially these sets were very troublesome, four replacement sets being obtained before three were found to operate reliably. However once these initial problems were overcome, the sets performed well throughout the remainder of the project.
- b. GRC/F2. Generally these were employed in the F1 configuration. Four of the original sets were replaced, but otherwise they proved to be quite remarkable radios, good voice communications over 200 miles range with a rod aerial being normal.
- c. Power Supply PP-F1. These were not issued, HQ N Comd being unwilling to break CES's to make the equipment available. Their lack did not adversely effect the satisfactory employment of the GRC/F2 sets.

9. Generators. The 500 watt and 15 KVA generators were used, but a 62.5 KVA diesel operated generator was used in lieu of the 2.5 KVA and two 10 KVA generators authorised under the AHQ GS Instruction. This was done on engineer advice and proved very satisfactory, the large diesel operating continuously throughout the entire project. However, a smaller diesel with a 20-25 KVA output together with the 2.5 KVA for the Hewlett Packard would be favoured, as the large generator was under-loaded and very bulky, particularly for air-portable operations.

10. Refrigeration. While the domestic type refrigerators used are hardly suitable for field operations, no better alternatives seem to be available. However all refrigeration plant functioned adequately and the scale of issue was satisfactory.

11. Vehicles.

- a. Fourteen $\frac{3}{4}$ ton Landrovers were used primarily for the movement of mobile Aerodist Remote parties, and proved satisfactory, there being very little time lost due to unserviceability.
- b. Five 5 ton GS F1 trucks were employed, three of which travelled in excess of 12,000 miles in the project area over very rough roads and tracks, being used for resupply duties from Normanton to forward bases. Their serviceability rate was very good.
- c. The $\frac{1}{2}$ ton CL utility was used as a ration and local administration vehicle in Normanton.
- d. For the number of vehicles, distances travelled, and condition of road surfaces encountered, the rate of serviceability maintained was a credit to all of the transport personnel responsible for repair and maintenance. For this type of operation, one vehicle mechanic is inadequate, particularly when repairs in situ are involved over a very wide area.

POL

12. In general, POL was locally purchased from one reseller located at Normanton, thence issued as required to forward bases by detachment transport. While simplifying control and accounting, this imposed a considerable strain on both vehicles and drivers, which could have been reduced by using resellers in other locations such as Burketown, Croydon and Georgetown. Issues amounted to:

MT	12,867 gallons
AVGAS	28,666 gallons
AVTUR	10,933 gallons

Pay/Allowances

13. The ration element of the survey party allowance was initially fixed at \$ 1-23 per man per day, and subsequently raised to \$ 1-70 which proved satisfactory. However, this increase was not approved until 4 Jul 72, some three months after the project was commenced.

14. It is recommended that on future operations, GC Det be authorized to approve movement of personnel including the payment of Travelling Allowance within the survey area, and between the survey area and Fm/Unit HQ. The possibility of running a small Imprest a/c for the advance payment of Travelling Allowance should also be examined.

15. It is further recommended that troops engaged on field/survey projects of this nature be paid by cheque.

Rationing

16. Rationing was effected in three ways:

- a. Fresh Element. Perishables were purchased locally from Survey Party Ration Allowance, and were issued to main base personnel and generally to all forward elements for two days a week. Alternatively, a tinned equivalent was drawn from 1 Supply Depot in Townsville and was issued in lieu of perishables to forward elements for five days a week.
- b. Non-Perishable Element. This part of the ration was drawn from 1 Supply Depot in Townsville, and issued to all elements except the two man Aerodist and Reconnaissance parties, for whom the units of issue were too large to be practicable.
- c. Combat Rations. All of the two man survey parties employed on aerodist stations and reconnaissance were rationed with 10-man combat rations, supplemented with two days fresh element per week. This was due to the mobility of their employment, and the units of issue of the tinned equivalent and non-perishable elements being too large for issue to two men. Similarly, it was found impracticable to issue a complete fresh ration for two men for two days, and it was normal to issue larger quantities of readily consumable food such as steak, bread, fruit etc, against the entitlement of the larger camps, which by force of numbers were able to sustain these issues.

17. With the above rationing system, and the continual changing of strengths and movement of parties being rationed, a tremendous work load was put on all personnel concerned. The system was cumbersome, complicated and not terribly effective. Certainly the rationing of the two man survey parties was not good, and it is recommended that on future survey projects all personnel are rationed entirely by local purchase from Survey Party Ration Allowance.

18. Expenditure of Survey Party Ration Allowance is summarised as follows:

Entitlement	\$ 10,233-49
Expenditure	\$ 9,794-83
Underspent	\$ 438-66 (= 258 rations).

The large underspending was due to the delayed approval of the higher rate of this allowance(see para 13 a.).

Personnel

19. Organisation of the detachment is shown at Appendix 1.

20. The non-RA Svy personnel attached for the project were in general well selected, but being junior in rank to that requested, were lacking in experience and maturity for a project of this nature. This imposed further strains on the barely adequate command structure of the detachment, which consisted initially of three RA Svy officers, one warrant officer and one staff sergeant. As two of the RA Svy officers were NS officers with minimal experience, and as both the OC and warrant officer were heavily committed in technical duties, not sufficient emphasis was given to the day to day running of the detachment or to the supervision of administrative personnel.

Withdrawal of Detachment

21. The return of the detachment from Normanton was planned to duplicate the road movement up, but was jeopardised by a nation wide oil dispute current at the time of the proposed date of return. In effect, the detachment had sufficient MT fuel to enable unit transport to proceed direct to Townsville, but resupply en route from Normanton to Brisbane, or alternatively Townsville to Brisbane was too uncertain to risk. Furthermore, HQ 3TF/NQ Area had insufficient stocks of MT fuel to enable RAASC transport to proceed from Townsville to Normanton, thence Normanton to Brisbane or alternatively Normanton to Townsville. The entire withdrawal operation was revised and carried out as follows:

- a. Road/Rail. The first convoy of 12 unit vehicles and 25 personnel left Normanton on 2 Aug 72 proceeding to Townsville by road, thence by rail to Brisbane arriving 7 Aug 72.
- b. Air. Stores and personnel were airlifted from Normanton to Goroka/Lae by one Caribou sortie, and from Normanton to Brisbane three C 130 sorties over the period 2 - 7 Aug 72.

/e. Road.

- e. Road. The second convoy of five unit vehicles and five personnel left Normanton on 10 Aug 72. By the time they reached Townsville, the strike was over and the supply situation much improved. As a consequence, the second convoy continued by road from Townsville to Brisbane, arriving on 18 Aug 72.

22. The emergency plan adopted to ensure that detachment personnel and stores were not left indefinitely to await the outcome of the oil dispute after long and arduous field operations reflected a great deal of credit on all concerned, the respective staffs of HQ N Comd, 3TF/NQ Area and 6TF/SQ Area displaying considerable help and co-operation throughout. OC Det, and the Det 1 AASO warrant particular commendation for the part they played in so successfully implementing the emergency plan.

Technical

23. Progress. Work completed on this project during 1972 operations is shown as Appendix 2. This is summarised as follows:

a. Aerodist.

Horizontal control established	43
Primary lines measured	28
Secondary lines measured	128
Flying time (Queenair)	349 hrs

b. Heighting.

Vertical control established	258
Number of heighting sorties	88
Number of heighting bases	14
Flying time	246 hrs

Misclosures:

Maximum	8.4m
Average	1.8m
Better than \pm 1m	41.5%
Better than \pm 2m	68.6%
Better than \pm 5m	96.2%

- c. Photography. Due to the problems experienced with the RC 10 camera, many photographic sorties were abortive. Also, duplicate 35mm photography was flown over much of the area. Consequently no useful statistics can be readily summarised.

24. Aerodist Reductions. As soft copy is not available due to the malfunction of the aircraft computer, the following procedures are being adopted for the reduction and computation of MRB 3 Aerodist lines:

- a. Hard Copy Preparation. The hard copy is divided into 21 Terms and scanned for obvious errors or inconsistencies as follows:

- (1) Master 1 and Master 2 A+ terms are summed to find the minimum.
- (2) The 21 Terms are ruled off.

/(3) The Master 1

- (3) The Master 1 and Master 2 A+ sum readings are checked for balance on terms 1, 2, 20 and 21.
 - (4) The tape is scanned for * and the rejected terms interpolated.
 - (5) The Pressure, Dew Point and Dry Temperature readings are scanned for consistency.
 - (6) The 21 Terms are numbered.
 - (7) The Data Check List is signed.
- b. Hewlett Packard Computation. Three Coarse Figures, the 21 Terms and the aircraft height are computed for each crossing to provide data for Lincros 3 preparation.
 - c. Lincros 3. The Lincros 3 data sheets are prepared to facilitate electronic computation of the Spheroidal Distance.
 - d. Solution of Triangles. Co-ordinates for each new station are to be computed from two triangles to provide preliminary co-ordinates for Varycord preparation.
 - e. Varycord. The Varycord data sheets are to be prepared to facilitate electronic computation of the network.
 - f. Timings. It is anticipated that the Lincros 3 data sheets for the Primary Network will be completed by 11 Sep 72.

25. Availability of Project Data. Project data required for the aerotriangulation of the 1:250,000 blocks comprising the project area with their anticipated despatch dates are tabulated at Appendix 3.

Conclusion

26. Technical progress achieved on the Project was disappointing. This is attributed to three main factors:

- a. Premature introduction of MRB 3 equipment;
- b. Last minute changes in ARQ priorities within the project; and
- c. Inexperience of detachment personnel in all aspects of field survey operations.

- Appendices:
1. Organisation of the Detachment.
 2. Horizontal Control Diagram
 3. Anticipated despatch dates of project data

AEROTRIANGULATION NORTH QUEENSLAND
ANTICIPATED DATES OF AVAILABILITY OF DATA

Place	Horizontal Trig Diagram	Vertical Trig Diagram	Heights Idents & Summaries	RC10 Target Idents	Feature Idents	PCP Enlargements	PCP Locality Plots	Horizontal Control
Georgetown	25 Aug 72	8 Sep 72	13 Sep 72	13 Sep 72	13 Sep 72	13 Sep 72	13 Sep 72	7 Dec 72
Gilberton	"	"	"	"	"	"	"	"
Mornington	1 Sep 72	"	21 Sep 72	21 Sep 72	21 Sep 72	21 Sep 72	21 Sep 72	14 Feb 73
Westmoreland	"	"	"	"	"	"	"	"
Lawn Hill	22 Sep 72	22 Sep 72	5 Oct 72	5 Oct 72	5 Oct 72	5 Oct 72	5 Oct 72	"
Camooweal	20 Oct 72	20 Oct 72	20 Oct 72	20 Oct 72	20 Oct 72	20 Oct 72	20 Oct 72	"
Burketown	7 Dec 72	7 Dec 72	7 Dec 72	7 Dec 72	7 Dec 72	7 Dec 72	7 Dec 72	6 Apr 73
Donors Hill	"	"	"	"	"	"	"	"
Dobbyn	"	"	"	"	"	"	"	"
Groydon	"	"	"	"	"	"	"	"
Millungera	"	"	"	"	"	"	"	"

Note: Regt Trg approx 20 - 28 Sep 72

REPORT ON PROJECT A9
ANG CONVERSION - 1972

1. The following Varycord sections have been completed since Aug 71:
 - a. PIEDAN (Cooktown area). Two sections bearing this name were computed. One in 1967 and another in 1971. Investigation of the results was carried out in Nov 71 with a view to combining them. This was done in Feb 72.
Stations Involved - 25.
 - b. EMUDAN (Hughenden to Mossman). Final computation on this section was carried out in Jul 71, but large differences in the observed to adjusted directions were still present. Further investigation was entered into in Sep 71, but the differences could not be resolved, and the section stands as computed in the original form.
Stations Involved - 61.
 - c. CONPHANT (Mossman area). This section was computed in Feb 72.
Stations Involved - 12.
 - d. CHARYORK (Princess Charlottes Bay to Cape York). Considerable difficulty was experienced with this section which necessitated the whole traverse being hand computed before submission to the computer. The section was finally resolved in Apr 72, after deleting seven stations from the adjustment.
Final Comp - Stations Involved - 41.
 - e. HELDAN (Mossman to Cairns). Computations finalised Nov 71.
Stations Involved - 71.
2. Work has been commenced on the following sections:
 - a. HARVEY (Maryborough District). This section has been pending since 1969. The stations involved were re-examined in Jan 71 and finalisation recommended.
Stations Involved - 17.
 - b. CLINTON (Port Clinton). This section was returned to this unit for minor alterations in Jul 72. These corrections have been made and the section is awaiting finalisation.
Stations Involved - 26.
 - c. GULPAPUA (New Guinea). This section has had many runs on the computer but all difficulties have yet to be resolved.
Stations Involved - 32.
 - d. GENTENG (New Guinea). Similar situation to Gulpapua.
Stations Involved - 60.

- e. TORRES. This section has had five runs on the computer over the past four years and has not yielded entirely satisfactory results. Some alterations to observed angles were made, and some angles were deleted, together with the inclusion of a section ALBAYORK, (the northern end of OBAYORK), and the whole section was despatched in Jan 72 for another run on the computer. No further word has been received.
- f. COOKTOWN. A section has been prepared for varycord, but has not been submitted until the calculation of vertical rays has been completed, so that the horizontal and vertical adjustment can be carried out at the same time.

Stations Involved - 15.

3. In addition to the sections included above the following conversions are outstanding:

a. CAPE WEYMOUTH.

- (1) Cape Weymouth area has not been adjusted. A Lauf program has been run but yielded unsatisfactory results due to the adoption of only one station (TOZER) holding T.M. and U.T.M. co-ordinates. This area involves sixty odd second, third and fourth order stations. Quick perusal of some of the field notes involved indicate that this could be quite a time consuming task. The main radiations from TOZER for example have been read with a C.T.S. 5 inch jigger reading to 10 seconds of arc. Observations such as this will probably mean several runs will have to be made on the computer before acceptable results are obtained.
- (2) A point concerning the adoption of angles is that station summaries in the old form are not entirely reliable, and values have to be obtained from the original field notes and their reduction checked. Some angles listed on the AAF Q29s are not those observed, but angles already corrected by a least square adjustment. Strictly speaking each one should be plotted to see how it falls within a range or group to obtain the most probable value of the angle. This is a time consuming task and if speed is desired the method will have to be changed. Also triangles should be closed before submitting for a least square adjustment. The reason being an eccentric could be included within a least square and show up as only a small shift, even though it changed the whole fall of the net. Whereas the eccentric will show up as a triangle misclose on a single figure.

- b. Third/Fourth Order Stations. A further 70 third order stations and 170 fourth order stations have yet to be adjusted. Angle reductions and varycord cards have been prepared for the 70 third order stations, but they have yet to be checked or the serial numbers inserted on the cards. No work has been prepared for the fourth order stations. These stations are mainly resections and intersections.

/Work to be completed.

Work to be Completed	Amount Done	Time Estimate	Labour Involvement
TORRES	90%	2 Weeks	One Man
CAPE WEYMOUTH	Nil	4 Weeks	Two Men
3rd Order Stations	45%	3 Weeks	One Man
4th Order Stations	Nil	8 Weeks	Two Men

REPORT ON PROJECT A10
CONDUCTED BY
1 FIELD SURVEY SQUADRON - JUL/AUG 1972

Aim

1. A two man survey party using a civilian vessel on charter were to permanently ground mark, temporary ground marked stations, at the following islands in Torres Strait:

Bet Island
Coconut Island
Aukane Island
Darnley Island
Bramble Cay
Dalrymple

Operation Order

2. An operation order covering all technical and administrative aspects was written and proved satisfactory. The operation order was abided by and all tasks as listed carried out except for the photo identification of stations visited being checked and certified. This could not be done as no photos of these islands are available.

Planning

3. All stores required for the completion of the project were pre-positioned on Thursday Island under Q Mov arrangement. Stores consisted of 27 concrete blocks and 1 box containing tools. All items arrived safely with no loss or breakages.

Manning

4. a. The detachment consisted of:
215628 S sgt H. Opdam
1202527 Cpl R.B. Smithwick.
- b. The boat crew consisted of the Master Ron Shipway and one crew member.
- c. Throughout the entire project all personnel involved gave their utmost to the successful and early completion of the project. The ships Captain Ron Shipway was invaluable throughout the trip, particularly in loading at the beginning and in finding accommodation for the detachment before and after the charter.

Movement and Accommodation

5. The survey party moved by air from Brisbane to Thursday Island, departing Brisbane 0930 hrs on 24 Jul 72, arriving Thursday Island 1800 hrs 24 Jul 72. The survey party was accommodated at the Federal Hotel until 0700 hrs 26 Jul 72 when they departed on the charter vessel for the first island. The survey party arrived back at Thursday Island at 1200 hrs 4 Aug 72, on completion of the task. The party stayed at the Federal Hotel until the first available flight out, which was 1600 hrs 8 Aug 72. This was not a through flight and involved an overnight stay at Cairns. The party arrived in Brisbane at 1030 hrs 9 Aug 72.

Rations and Quarters

6. During the period of the charter the survey party was accommodated on board the charter vessel but supplied their own food. Incidental and Meal Allowances for this period was \$ 6-60 per day. The remainder of the period was on Travelling Allowance.

Technical Aspects

7. All temporary marks with the aid of access diagrams were easily recovered and replaced by permanent marks. These consisted of 1 GM and 3 RM's. The GM's are a bronze triangulation plaque stamped with the appropriate number, set in a pre-cast concrete block. The RM's are a 7.62mm shell set in pre-cast concrete blocks. Wherever possible connections were made to clearly identifiable objects for ease of identification and positioning on photography when they become available. In only one instance was the ground mark badly positioned in loose sand. Here (Dalrymple) the RM's were placed some distance inland in more solid ground.

8. On most islands where star iron pickets were placed as Witness Posts, they have been taken by persons unknown.

Summary

9. a. The project was completed successfully and in shorter time than anticipated due to:
- (1) Captains good local knowledge.
 - (2) Good weather conditions during the trip.
 - (3) Shipping up of stores rather than attempting to cast blocks on site.
 - (4) Easy accessibility of 5 out of 6 points.
- b. Locality access and Station Diagrams have been compiled for each station and processed to records for compiling Station Summaries.
- c. Appendix 1 shows route taken and the dates marks placed.

Appendix: 1. Route taken and dates of marking

