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OPERATION NERVOSE

NOT NOW CORPORAL, I'VE GOT PROBLEMS!



TENNANT CREEK / AUVERGNE

PROJECT REPORT

4 FIELD SURVEY SQUADRON

ROYAL AUSTRALIAN SURVEY CORPS

Box W-3

PROJECT REPORT
OPERATION NERVOSE
1988

- References:
- A. DGOP-A A86-575 dated 12 May 88
 - B. HQ Land Comd OPORD 8/88
 - C. 4 Fd Svy Sqn Mounting Instruction dated 10 Aug 88
 - D. Survey Bendigo SIC Z2Y dated 20 Jul 88

GENERAL

1. OP NERVOSE 88 was a field completion operation conducted by 4 Fd Svy Sqn in the Northern Territory over the period 23 Aug - 7 Oct 88. The Area of Operations is depicted in Annex A.
2. In accordance with Reference A, Det 4 Fd Svy Sqn was to field complete 32 x 1:50 000 map areas in the Auvergne area and 36 x 1:50 000 map areas in the Northern Corridor (Tennant Creek) area. Position integrity checks were conducted in the Auvergne area using GPS equipment. A report on the GPS tasks is included as Annex B.
3. Additional tasks were issued whilst in the AO as time and resources became available.

CONDUCT OF THE OPERATION

4. The operation was conducted in two phases as follows:
 - a. Phase One - Northern Corridor. This region was field checked from a main base established at Tennant Creek (23 Aug - 14 Sep).
 - b. Phase Two - Auvergne/Victoria River Downs. This area was field checked from a main base established at Auvergne Station (15 Sep - 7 Oct)
 - c. Annex C contains a detailed brief on the conduct of operations.
5. The 1:50 000 maps were field checked in 1:100 000 areas by two-man parties in 3/4 tonne GS Landrovers. In most cases it was possible to have parties air checking areas they had covered on the ground. This was not possible in a few cases due to medical reasons and operational requirements. Some members were already familiar with the area through compilation/plotting in Keswick prior to the Operation.
6. The following repromat was supplied for field annotation:

- a. cronoflex biro plots - Phase One, and
- b. film positives - Phase Two.

Tasks Completed

8. The following 1:100 000 maps were field checked for the production of OPM at 1:50 000 scale in Phase One:

- a. 5654 BARROW
- b. 5754 HOME OF BULLION
- c. 5655 CRAWFORD
- d. 5755 TAYLOR
- e. 5756 WAUCHOPE
- f. 5757 BONNEY
- g. 5758 TENNANT CREEK
- h. 5759 FLYNN
- i. 5859 BARKLY

9. Large scale aerial photography was taken of the following locations:

- a. Stirling Station,
- b. Barrow Creek,
- c. Neutral Junction,
- d. Ali-Cuming,
- e. Wycliffe Well,
- f. Wauchope,
- g. Singleton Station,
- h. Devils Marbles,
- i. McLaren Creek,
- j. Tennant Creek, and
- k. Phillip Creek.

10. During Phase Two the following 1:100 000 map areas were field checked to 1:50 000 RA Svy specifications:

- a. 4766 KEEP,
- b. 4767 LEGUNE,
- c. 4866 PINKERTON,
- d. 4867 VICTORIA RIVER,
- e. 4966 AUVERGNE,
- f. 4967 MILLIK MONMIR,
- g. 5064 MOUNT SANFORD, and
- h. 5065 NUMBERT.

11. Large scale aerial photography was taken of the following locations:

- a. Argyle Diamond Mine,
- b. Auvergne,
- c. Bradshaw,
- d. Bullo River,
- e. Kununurra,
- f. Legune,
- g. Mount Sanford,
- h. Newry,
- i. Ord River Dam,
- j. Spirit Hill, and
- k. Timber Creek.

12. Det 4 Fd Svy Sqn was additionally tasked with large scale photography for NORFORCE of the following areas:

- a. Beagle Bay,
- b. Cape Leveque,
- c. Kalumburu,
- d. Lombadina,
- e. One Arm Point,
- f. Oombulgari, and
- g. South Derby Airfield.

13. 1 Div Topo Svy Sect requested the following large scale aerial photography for EX KANGAROO 89:

- a. Tindal RAAF Air Base,
- b. Katherine,
- c. Kununurra,
- d. Wyndham, and
- e. Victoria Highway between Katherine and Wyndham.

ADMIN AND LOG

Vehicles

14. The following vehicles were used:

- a. One x Truck Cargo Med, 4 Tonne, Unimog,
- b. One x Truck Cargo Med Ford DL 913,
- c. Five x Series 3, 3/4 Tonne GS Landrover,
- d. One x Series 2, 3/4 Tonne GS Landrover,
- e. one x Series 3, FFR 3/4 Tonne GS Landrover,
- f. One x Landrover, Series 110,
- g. One x 3 Tonne flat bed trailer, and
- h. One x trailer - mounted fridge, 150 cubic ft.

15. The performance of the vehicles was as could be expected considering the age of the landrovers, the terrain and distance over which they were expected to travel, and their previous history. Continual preventative maintenance was required but could not keep pace with the problems that occurred. A Mechanical Report at Annex D details work done on the vehicles whilst in the AO.

16. The trailer-fridge was a great asset to the Operation. It was found to be very efficient in the environment and its capacity met all the requirements of the Det.

Aircraft

17. The following aircraft resources were utilized:

- a. Phase One.
 - (1) Pilatus Porter (173 Gen Spt Sqn) - 16.6 hr,
 - (2) LOH (162 Recce Sqn) - 30.8 hr.
- b. Phase Two.
 - (1) Pilatus Porter (173 Gen Spt Sqn) - 42.2 hr,
 - (2) LOH (171 Comd and Liaison Sqn) - 49.4 hr.

18. All aircraft arranged flight plans and details with Flight Service Centres and Tennant Creek (Phase One) and Kununurra (Phase Two) and maintained contact with these Centres whilst on Operation.

POL

19. AVTUR. A total of 20 644 litres of AVTUR was used:

- a. HQ 7 MD prepositioned the following quantities:
 - (1) 15 drums at Barrow Creek,
 - (2) 87 drums at Auvergne,
 - (3) 12 drums at victoria River Downs.
- b. HQ 7 MD pre-arranged 6000 litres of bulk AVTUR to be available at Tennant Creek. 3848 litres were used;
- c. Bulk AVTUR was made available at Kununurra, Derby and three drums were taken from Kalumburu.

20. 15% of the fuel dropped at Auvergne was not to be tested by the aircraft crew due to the severity of damage to the drums. The following drums were returned unused:

- a. 3 drums from Barrow Creek, and
- b. 37 drums from Auvergne.

21. MSP. A total of 11,772.3 litres of MSP was used for the Operation. 20 drums were prepositioned at Auvergne and three drums were prepositioned at Victoria River Downs. Two drums were returned unused from Auvergne. All other MSP was drawn from local contractors through - Shellcard facility.

22. Diesel. A quantity of 4537.5 litres were used. Six drums were pre-positioned at Auvergne and all other diesel was obtained through Shellcard from local contractors.

23. Oil. Approximately 20 litres of OMD 110 oil were used. This consumption is largely influenced by the performance of two landrovers which used significant amounts of oil. Sufficient oil was taken by the Det to provide the requirements of the Operation.

Contacts

24. All land owners/managers whose properties were covered by the AO were visited by a field party. In addition, permission was sought through correspondence prior to mounting the Operation. No problems were forthcoming from owners/managers.

25. An important contact was made with Mr Dave Roland, Transport and Works Department, Northern Territory at Tennant Creek. Mr Roland and his office were most helpful in providing information on new highway alignments.

Resupply

26. The majority of rations were obtained from Tennant Creek (Phase One) and Kununurra (Phase Two). Small quantities of rations were obtained from the following:

- a. Barrow Creek,
- b. Timber Creek,
- c. Victoria River Downs, and
- d. Katherine.

27. Forward Bases were provided with rations from Main Base prior to establishing bases. In two cases, Barrow Creek and Victoria River Downs, rations were obtained insitu.

28. Mail. Mail bags were held by the local Post Offices at Tennant Creek (Phase One) and Kununurra (Phase Two).

29. Pers. A nominal roll is attached as Annex E.

Finance

30. The following expenditure was incurred:

- a. T&S. \$6233.00;
- b. F&C. \$ 850.00;
- c. Survey Party Ration Allowance. \$5146.68 - Dry rations, equivalent to 350 meals were taken from Keswick Barracks;
- d. Petty Cash. \$332.16; and
- e. TGM. \$113.71.

31. All pers were paid a meal and incidental allowance, which covered the travel time to and from the AO, prior to departing Keswick Barracks.

TECHNICAL ASPECTSGeneral

32. Field parties carried out their work with use of the following resources:

- a. repromat from Keswick Barracks,
- b. material obtained in the AO, and
- c. local knowledge.

33. The NATMAP plotting (Phase One) proved to be largely inaccurate for vegetation. Boundaries in many cases had no relationship with the vegetation on the ground. Classifications appeared influenced by low scrub which tended to increase the density. Polaroid pictures were taken by some parties to aid in subsequent classification and verification of field queries.

34. Reports. Reports were compiled of 1:100 000 map areas by the IC of the field parties involved. In most cases only one party worked on a map area.

Photography

35. Supplementary photography was taken using a WILD RC10 camera with a SWA lens mounted by 2 Fd Svy Sqn at Mascot Airport, Sydney.

36. A total of 2020 line km of photography were flown at a nominal scale of 1:25 000. Annexes F and G show the supplementary photography coverage.

37. Film was developed in the X-Ray department of Tennant Creek Hospital (Phase One) and in a guest room at Auvergne Station (Phase Two). All film was dried and checked at the Main Bases.

38. The developed film, with A36 Photographic Reports, was despatched to CPE Laverton, Victoria in early November 1988.

Field Check

39. A lane for a proposed railway line in the Northern Corridor along the Stuart Highway was cleared about four years ago. The line was not constructed and the cleared lane has become revegetated in parts. The lane is visible from the air but is indistinct in places on the ground. It was subsequently decided to delete the lane unless it was incorporated in the station access.

40. Seismic lines in the north-west section of the Auvergne area posed a similar problem. Some lines were used as vehicle tracks and retained while the remainder were deleted.

41. It was necessary to fly supplementary photography over the Victoria and Keep Rivers at low tide to determine the extent of intertidal flats. The repromat was lacking detail on the flats due to the position of the tide at the time the plotting photography was flown.

Problems

42. Aircraft Refuelling. Following OP NERVOSE 87 it was intended to make use of an electric or otherwise motorized pump to expedite refuelling of aircraft on OP NERVOSE 88. No pump was found to be available when the Op departed Keswick Barracks but three became available during the Op.

43. Expense items. As on OP NERVOSE 87, a large quantity of expense items were unused in the field. These consisted of soaps, soap powders, kitchen wraps and paper towelling. Less quantities of these materials are required when forward bases are established.

44. Vehicles. As only the Army continues to use Landrovers in earnest, only small areas of the Army hold spare parts and have experience in repairing them. Consequently problems with the Landrovers resulted in excessive time delays while waiting for parts and difficulty in locating contractors confident in working on them.

45. The Landrover Series 110 was vastly superior to the outdated Series 3 in:

- a. comfort,
- b. efficiency, and
- c. practicality.

46. Medical. One member was RTU due to a stomach ailment. No other serious medical problems were incurred. Medical support was available through the District Hospitals in Tennant Creek (Phase One) and Kununurra (Phase Two).

47. Water. On contacting Auvergne prior to arriving in loc, it was discovered the Station was low on potable water. Although there was no shortage of water during Phase Two the problem was conceivable.

Communications

48. The following communication devices were used by the Det:

- a. AN PRC F3,
- b. AN/GRC 106, and
- c. TELECARD.

49. The Telecard proved the most reliable method of obtaining information and delivering messages. Although there were a few problems initially, the AN/GRC 106 proved to be very good in providing comms with Adelaide. The AN PRC F3 radios were unreliable as field parties were often not able to make contact with main base. From a safety aspect, more reliable comms should be available for field parties. An alternative means would be that used by the NT Police.

CONCLUSION

50. OP NERVOSE 88 was completed efficiently, within budget and just short of the estimated time frame. All pers worked well and produced good results.

RECOMMENDATIONS

51. In future Ops the following is recommended:

- a. an electric or other motorized pump be obtained for aircraft refuelling;

- b. in addition to written correspondence contact should also be made by phone with land owners/managers prior to dep from Keswick Barracks;
- c. polaroid cameras be issued to fd parties to aid marking up master fd sheets; and
- d. efforts be made to allow those pers going on op to become familiar with the AO through plotting/compilation.

23 Feb 89



(P.H. CATES)
Major
Officer Commanding

- Annexes:
- A. Area of Operations
 - B. GPS Report
 - C. Conduct of Operations
 - D. Mechanical Report
 - E. Nominal Roll
 - F. Aerial Photography Report

Distribution List:

- Dept of Defence (AO) - DGOP-A
- DSVY-A

- HQ Land Comd - Ops Br
- SOL (SVY)

HQ 4 MD
HQ 7 MD

Internal:

OC
2IC
File
Library

REPORT ON INTEGRITY CHECK

OPERATION NERVOSE 88

OCTOBER 1988

Reference:

- A. Army Survey Regiment SVY0910 dated 202233Z Jul 88
- B. DSVY-A SVY016000 dated 020410Z Aug 88
- C. DSVY-A Draft Technical Instruction 306

INTRODUCTION

1. The integrity check for OP NERVOSE 88 was conducted in conjunction with field checking operations in the area covered by map sheet SD52-1S AUVERGNE 1:250 000. The integrity check utilized the TI4100 Global Positioning System to examine procedures for future integrity checks, see Reference B para 4.

AIM

2. The aim of the integrity check was to examine procedures and suitability of the TI4100 for use in integrity checks.

POINT SELECTION AND OBSERVATION

Point Selection

3. Points were selected for observation after consultation with Field Check party Members and reconnaissance by vehicle of the area. In selecting the points every endeavour was made to satisfy the criteria specified in Reference C paras 8a, b, and c.

4. A total of 36 points over 8 x 1:50 000 Map sheets were observed. The majority of these points were cultural related ie road junctions, gates and fence intersections.

5. Some problems were encountered when selecting stream intersections and streams intersecting with tracks or fences, as the relevant feature portrayed on the Field Check Map was not readily identifiable on the ground.

6. Those stream related features selected for observation, were done so because of their easy identification on the ground. These streams had definite banks and/or a well defined watercourse.

7. One homestead was observed, however this was done with the antenna offset 20M from the building to avoid any interference to the satellite signal.

8. Also taken into consideration when selecting points were the following:

- a. Access to Points by Vehicle. With the equipment mounted in the vehicle and the antenna mounted on the vehicle it is necessary to be able to drive right onto the selected point.
- b. Easy Identification of The Points on The Ground. The points selected must be readily identifiable on the ground to allow for accurate positioning of points and acquisition of coordinates for the points.
- c. Distance Between Points to be Observed. In its current mode of operation the TI4100 requires maximum use of window timings, if the criteria in Reference C para 6 is to be achieved. Excessive distances between points reduces the available and acceptable window time.
- d. Time and Duration of Acceptable Satellite Windows. Although this may not be critical in the future, the present window only allows observation for restricted times. Due to the Position Dilution of Precision (PDOP) range, Reference C para 8C, observation time was reduced still further.
- e. Possible Obstructions to Satellite Signals. During the course of the operation it was noted that where dense vegetation canopies and deep stream beds where the banks of the streams were higher than the antenna occurred, observed navigation solution data began to fall outside the requirements specified in Reference C paras 8c and d. A possible cause may be the Multipath effect.

9. The number of points selected does not meet that required in Reference C para 6 because of the following:

- a. Of the total available window time a suitable PDOP range was only available for 1hr 50 min, refer Appendix 1.
- b. A 10 min wait was required at each point to allow the TI4100 to return to the navigation mode of operation.
- c. It was decided to observe each point for 10 min with recording of navigation solution data every 2 min.
- d. Only one equipment was used on the operation.

Observation

10. After selection and reconnaissance of points the observation and recording techniques used were as follows:

- a. Standard initialization procedures for the equipment as directed in the TI4100 User Manual were adhered to.
- b. The equipment was used in stationary mode with an observed constellation of 4 satellites using the Texas Instruments Navigator Operating System III.
- c. Each point was observed for a total of 10 min with the navigation solution data recorded every 2 min.
- d. With the exception of para 10.c above, all other observation requirements met those specified in Reference C para 8.
- e. The operation of the equipment was shared between the party IC SSGT and 2IC CPL.

11. During the observation of all points the navigation solution data requirements specified in Reference C para 8d were satisfied in all except 5 points. The summaries for these points were included in the relevant Field Check Reports with an appropriate note.

12. The reason that the specified navigation data for these points was not achieved may be due to the fact that they were observed towards the end of the window for the selected satellite constellation.

Feature Identifiers

13. Each feature was given a unique identifier. This identifier contained the following:

- a. Alphanumeric Prefix. The alpha character identifies operation NERVOSE and the numeric identifies the year 1988.
- b. Numeric. The numeric identifies the number of the point. For the purpose of the operation only three numeric characters were used.

EQUIPMENT

14. The TI4100 equipment was mounted in a Landrover Series 3, FFR for the duration of the operation. The TI4100 operated extremely well with no equipment problems or failures being encountered.

15. The antenna cable reel caused some problems. Despite attempts to secure this piece of equipment inside the landrover there were several occasions when it came loose. On two of these occasions it tripped the external power circuit breaker. If the warning signal had not been audible the systems internal batteries may have been drained of their power.

16. In the standby mode it was not necessary to have the antenna cable connected to the antenna while moving from point to point. In the future however, if the Waypoint Navigation Mode is used, the cable will be connected at all times during operation. A major concern would be movement through dense vegetation where the antenna and cable would come into contact with obstructions making them susceptible to wear and damage.

17. The modified mounting tray is a vast improvement on the initial concept, with no loosening of retaining screws or the equipment noticeable during the entire operation.

AFTER ACTION

18. A summary of the integrity checks was included in the relevant Field Check reports. A draft form was designed for the summaries, see Appendix 2. See Enclosure 1 for summaries of all points observed.

19. Conversion of co-ordinate values from WGS 84 to AGD 84 was performed using a conformal seven parameter transformation program. The input parameters used in the program were those specified in Annex A to Reference C.

20. Conversion of co-ordinate values from AGD 84 to AMG 84 was performed using the standard RASvy GEO to GRID program on the HP9815A computer.

21. Each individual point was identified and labelled on the Field Check Master correction overly for retention by 4 Fd Svy Sqn and duplicated on the Cultural Symbols overlay contained within the final compilation package for despatch to the Army Survey Regiment.

CONCLUSION

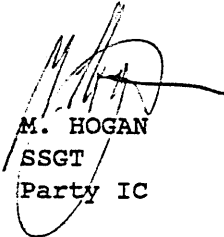
22. The integrity check of detail on OP NERVOSE 88 was most successful. Although the requirements specified in Reference C para 6 were not met there should be minimal problems encountered on future operations using current available equipments and procedures.

RECOMMENDATIONS

23. Recommendations are as follows:

- a. Until a 24 hour window is available, the time and duration of windows for observation be given prime importance when planning integrity checks.

- b. Another consideration for planing, if the Texas Instruments Navigator System III is to be used, is the requirement to wait 10min at each point for the equipment to return to Navigation mode. Coupled with the time required to travel between points these two factors can greatly reduce affective observation time.
- c. The antenna cable should be shortened, or a more effective method of securing the antenna reel inside the vehicle be designed to suit the equipment in its vehicle mounted configuration.
- d. As the equipment is quite easy to operate the rank of the party IC should be reduced to Corporal. At present the current policy of a Sergeant or above as party IC depletes the Field Squadrons operational ability within the squadron during field operations.
- e. Field Check parties and Integrity Check parties be kept separate entities within the operation to allow continuity of both field checking and GPS operation during integrity checks.



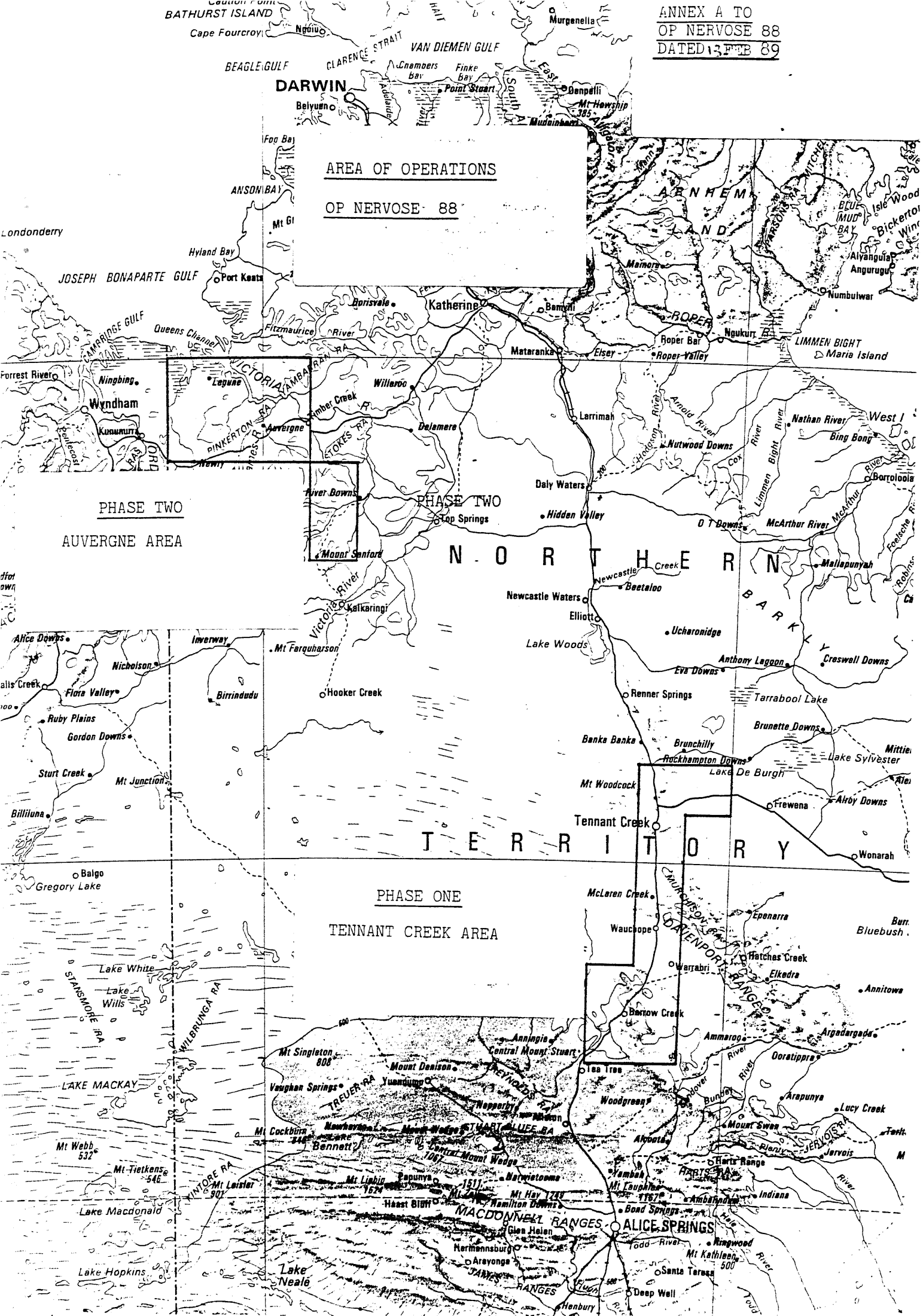
M. HOGAN
SSGT
Party IC

Appendix:

- 1. SATPLAN

Enclosure:

- 1. Summaries of All Points Observed



AREA OF OPERATIONS
OP NERVESE 88

PHASE TWO
AUVERGNE AREA

PHASE TWO

PHASE ONE
TENNANT CREEK AREA

MACDONNELL RANGES

PRECISE SV RISE AND SET TIMES

APPENDIX 1 TO
ANNEX B TO
OP NERVOSE 88
DATED 13 FEB 89

LOCATION : S 15:30:00
 E 129:45:00

DATE : 10/02/88

SV PRN ID

FIRST PASS

SECOND PASS

RISE

SET

RISE

SET

3	19:28:00	2:34:48
6	13:32:25	22:12:32
11	11:18:43	11:48:55
12	19:48:50	1:26:23
13	18:00:34	23:36:55

*****	*****
*****	*****
16:44:25	21:41:53
*****	*****
*****	*****

Subtract $\frac{1}{2}$ hr from Time

GEOMETRY TABLE

LOCATION : S 15:30:00
 E 129:45:00

DATE : 10/02/88

INTERVAL NO.	NAV MODE	SV PRN OF USE	TIME OF INT.	PDOP RANGE
1	TBR & ALT HOLD	3,12	00:00-01:20	14.0-3.8
2	STATIONARY	3	01:20-02:30	-----
3	STATIONARY	11	11:20-11:40	-----
4	STATIONARY	6	13:40-16:50	-----
5	TBR & ALT HOLD	6,11	16:50-18:10	325.8-6.0
6	ALT HOLD	6,11,13	18:10-19:30	78.6-3.4
7	FULL	3,6,11,13	19:30-19:50	14.7-8.7
8	FULL	3,6,12,13	19:50-21:10	3.7-2.8
9	FULL	3,6,11,13	21:10-21:40	4.6-4.2
10	FULL	3,6,12,13	21:40-22:10	26.6-8.2
11	ALT HOLD	3,12,13	22:10-23:30	6.0-3.0
12	TBR & ALT HOLD	3,12	23:30-*****	26.1-16.2

SV VISIBLIITY PROFILE

LOCATION : S 15:30:00
E 129:45:00

DATE
10/02/88

ELEVATION MASK : 10
SV ID : 3

LOCAL TIME	ELEVATION ANGLE	AZIMUTH ANGLE
0:00	30.5	173.1
0:10	28.0	168.8
0:20	25.8	164.6
0:30	23.7	160.4
0:40	21.8	156.2
0:50	20.1	152.0
1:00	18.5	147.7
1:10	17.2	143.4
1:20	16.0	139.0
1:30	14.9	134.6
1:40	13.9	130.2
1:50	13.1	125.7
2:00	12.3	121.1
2:10	11.6	116.5
2:20	11.0	111.9
2:30	10.3	107.3
2:40	9.7	102.6
2:50	9.0	97.9
3:00	8.2	93.2
3:10	7.4	88.6
3:20	6.5	84.0
3:30	5.4	79.4
3:40	4.2	74.9
3:50	2.9	70.5
4:00	1.4	66.2
19:10	2.3	341.3
19:20	6.5	341.4
19:30	10.9	341.1
19:40	15.3	340.5
19:50	19.9	339.5
20:00	24.5	338.1
20:10	29.2	336.2
20:20	34.0	333.7
20:30	38.7	330.7
20:40	43.3	326.9
20:50	47.8	322.1
21:00	52.0	316.2
21:10	55.8	308.9
21:20	59.1	299.9
21:30	61.6	289.2
21:40	63.2	277.0
21:50	63.7	264.0
22:00	63.1	251.1
22:10	61.6	239.3
22:20	59.3	228.9
22:30	56.6	219.9
22:40	53.5	212.2
22:50	50.3	205.5
23:00	47.1	199.6
23:10	43.8	194.1
23:20	40.7	189.1
23:30	37.6	184.4
23:40	34.7	179.9
23:50	32.0	175.6

SV VISIBLIITY PROFILE

LOCATION : S 15:30:00
E 129:45:00

DATE
10/02/88

ELEVATION MASK : 10
SV ID : 6

LOCAL TIME	ELEVATION ANGLE	AZIMUTH ANGLE
13:10	2.0	326.2
13:20	5.4	323.8
13:30	9.2	321.0
13:40	12.4	317.9
13:50	15.9	314.3
14:00	19.0	310.4
14:10	21.9	306.0
14:20	24.6	301.3
14:30	26.9	296.2
14:40	29.0	290.7
14:50	30.7	285.0
15:00	32.2	279.0
15:10	33.2	272.7
15:20	33.9	266.4
15:30	34.4	260.0
15:40	34.5	253.6
15:50	34.4	247.3
16:00	34.1	241.1
16:10	33.7	235.0
16:20	33.1	229.1
16:30	32.5	223.2
16:40	31.9	217.6
16:50	31.3	212.0
17:00	30.7	206.6
17:10	30.2	201.2
17:20	29.8	195.9
17:30	29.5	190.7
17:40	29.3	185.6
17:50	29.3	180.4
18:00	29.4	175.2
18:10	29.6	170.1
18:20	30.0	164.9
18:30	30.5	159.6
18:40	31.0	154.3
18:50	31.7	148.9
19:00	32.4	143.3
19:10	33.1	137.7
19:20	33.8	131.9
19:30	34.4	125.9
19:40	34.9	119.8
19:50	35.3	113.6
20:00	35.5	107.3
20:10	35.5	100.9
20:20	35.1	94.4
20:30	34.5	88.0
20:40	33.5	81.8
20:50	32.2	75.7
21:00	30.5	69.8
21:10	28.5	64.3
21:20	26.2	59.1
21:30	23.6	54.3
21:40	20.7	49.9
21:50	17.4	45.9
22:00	13.8	42.3
22:10	10.2	39.1
22:20	7.4	36.2
22:30	5.7	33.8

LOCATION : E 18130100
E 129145100

DATE
10/02/88

ELEVATION MASK : 10
EV ID : 11

LOCAL TIME	ELEVATION ANGLE	AZIMUTH ANGLE
10:20	0.9	214.6
10:30	3.2	218.0
10:40	5.3	221.6
10:50	7.0	225.6
11:00	8.4	229.7
11:10	9.4	234.1
11:20	10.1	238.6
11:30	10.4	243.2
11:40	10.3	247.9
11:50	10.0	252.6
12:00	9.3	257.2
12:10	8.3	261.8
12:20	7.2	266.4
12:30	5.8	270.8
12:40	4.4	275.2
12:50	2.8	279.5
13:00	1.2	283.7
14:10	0.2	356.7
14:20	1.7	359.8
14:30	3.3	2.7
14:40	3.6	5.6
14:50	11.8	8.4
17:00	15.2	11.1
17:10	19.0	13.8
17:20	23.0	16.5
17:30	27.1	19.2
17:40	31.4	22.1
17:50	35.8	25.1
18:00	40.4	28.3
18:10	45.0	32.3
18:20	49.6	36.8
18:30	54.2	42.3
18:40	58.5	48.2
18:50	62.3	53.1
19:00	65.4	59.8
19:10	67.3	66.6
19:20	67.7	79.0
19:30	66.3	113.7
19:40	63.9	126.0
19:50	60.3	135.3
20:00	56.1	142.2
20:10	51.5	147.1
20:20	46.7	150.5
20:30	41.9	152.9
20:40	37.1	154.4
20:50	32.4	155.3
21:00	27.6	155.6
21:10	23.3	155.5
21:20	18.9	155.0
21:30	14.7	154.1
21:40	10.7	152.9
21:50	6.9	151.5
22:00	3.2	149.8

LOCATION : S 15:30:00
E 129:45:00

DATE
10/02/88

ELEVATION MASK : 10
SV ID : 12

LOCAL TIME	ELEVATION ANGLE	AZIMUTH ANGLE
0:00	51.8	9.2
0:10	46.4	7.6
0:20	41.1	6.9
0:30	34.0	6.4
0:40	30.9	6.2
0:50	24.1	5.8
1:00	21.4	6.7
1:10	16.9	7.2
1:20	12.6	8.1
1:30	8.5	9.1
1:40	4.6	10.4
1:50	0.9	11.9
19:00	0.0	232.6
19:10	2.0	228.6
19:20	3.5	224.7
19:30	5.5	220.9
19:40	7.9	217.2
19:50	10.3	213.6
20:00	12.8	210.1
20:10	15.4	206.7
20:20	18.6	203.5
20:30	21.6	200.2
20:40	25.2	197.2
20:50	28.9	194.2
21:00	32.6	191.3
21:10	36.8	188.4
21:20	41.1	185.6
21:30	45.6	182.7
21:40	50.3	179.6
21:50	55.2	176.4
22:00	60.2	172.7
22:10	65.3	168.1
22:20	70.3	161.9
22:30	75.3	152.3
22:40	80.0	134.3
22:50	82.5	98.3
23:00	81.0	56.3
23:10	78.8	34.1
23:20	71.7	23.0
23:30	66.2	16.8
23:40	60.6	12.9
23:50	55.1	10.4

LOCATION : E 15:30:00
E 129:45:00

DATE
10/02/88

ELEVATION MASK : 10
SV ID : 13

LOCAL TIME	ELEVATION ANGLE	AZIMUTH ANGLE
0:00	5.2	139.8
0:10	5.2	136.2
0:20	1.3	132.4
17:40	2.2	349.5
17:50	5.9	351.2
18:00	9.6	352.7
18:10	13.8	354.0
18:20	18.1	355.1
18:30	22.6	356.0
18:40	27.2	356.7
18:50	32.0	357.2
19:00	37.0	357.4
19:10	42.1	357.4
19:20	47.4	357.2
19:30	52.8	356.7
19:40	58.3	355.7
19:50	63.9	354.2
20:00	69.5	351.8
20:10	75.2	347.6
20:20	80.7	338.5
20:30	85.5	308.1
20:40	89.4	228.5
20:50	80.7	200.4
21:00	75.3	191.3
21:10	69.9	186.4
21:20	64.6	182.0
21:30	59.4	180.3
21:40	54.2	177.8
21:50	49.5	175.5
22:00	44.9	173.2
22:10	40.4	170.9
22:20	36.1	168.5
22:30	32.0	166.0
22:40	28.1	163.4
22:50	24.4	160.7
23:00	21.0	157.9
23:10	17.7	154.9
23:20	14.7	151.9
23:30	11.9	148.7
23:40	9.2	145.4
23:50	6.7	141.9

SUMMARY OF INTEGRITY CHECK

SHEET: A767 3 KNEEBONE

Page 1 of 16

Point Identifier: N88-001

Description: Gate in fence located 800 metres from the southern end
of a disused landing ground at GR 209885

CO- ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat 15° 29' 05.42" S
Long 129° 12' 07.66" E
Ht 37.86 m

Lat 15° 29' 10.596" S
Long 129° 12' 03.19" E
Ht 12.24 m

E 521545.505
N 8287872.503
Ht 37.86 m

Point Identifier: N88-002

Description: Track intersection approximately 5 km east along
track from point N88 - 001

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 28' 40.75" S
Long 129° 14' 00.25" E
Ht 37.86 m

Lat 15° 28' 45.927
Long 129° 13' 55.778" E
Ht 19.08 m

E 524902.663
N 8288627.073
Ht 37.86 m

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____
Long _____
Ht _____

Lat _____
Long _____
Ht _____

E _____
N _____
Ht _____

SUMMARY OF INTEGRITY CHECK

SHEET: 4766 4 BUCKET SPRINGS

Page 2 of 16

Point Identifier: N88 - 003

Description: Fence corner identified at field check at the southern
most corner of the paddock.

NOTE: Accuracy of co ordinates may be degraded due to PDOP of satellites being outside allowable range.

CO - ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat <u>15° 30' 52.09" S</u>
Long <u>129° 12' 55.28" E</u>
Ht <u>28.06 m</u>

Lat <u>15° 30' 57.266" S</u>
Long <u>129° 12' 50.806" E</u>
Ht <u>9.411 m</u>

E <u>522962.733</u>
N <u>8284593.681</u>
Ht <u>28.06 m</u>

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____
Long _____
Ht _____

Lat _____
Long _____
Ht _____

E _____
N _____
Ht _____

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____
Long _____
Ht _____

Lat _____
Long _____
Ht _____

E _____
N _____
Ht _____

SUMMARY OF INTEGRITY CHECK

SHEET: 4767 2 OSMAN BORE

Page 3 of 16

Point Identifier: N88 - 004

Description: Fence corner located 1 km south east of disused windpump
at GR 415084, Alligator Springs Waterhole.

CO- ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat 15° 18' 11.26" S
Long 129° 23' 47.08" E
Ht 18.02 m

Lat 15° 18' 16.441" S
Long 129° 23' 42.615" E
Ht -1.543 m

E 542423.529
N 8307942.647
Ht 18.02 m

Point Identifier: N88 - 005

Description: Gate in fence 2.1 km north east of disused windpump at
GR 415084, Alligator Springs Waterhole.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 17' 13.33" S
Long 129° 24' 09.52" E
Ht 14.92 m

Lat 15° 17' 18.511" S
Long 129° 24' 05.056" E
Ht -4.697 m

E 543096.037
N 8309721.320
Ht 14.92 m

Point Identifier: N88 - 006

Description: Track crossing creek 800 m west of point N88 - 005.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 17' 20.98" S
Long 129° 23' 44.17" E
Ht 6.68 m

Lat 15° 17' 26.161" S
Long 129° 23' 39.706" E
Ht -12.911 m

E 542339.585
N 8309487.658
Ht 6.68 m

SUMMARY OF INTEGRITY CHECK

SHEET: 4767 2 OSMAN BORE

Page 4 of 16

Point Identifier: N88 - 007

Description: Tank and yards (disused) 1.1 km north west of disused windpump at GR 415084, Alligator Springs Waterhole.

NOTE: Accuracy of co ordinates may be degraded due to PDOP of satellites being outside allowable range.

CO - ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat 15° 17' 30.57" S
Long 129° 22' 51.90" E
Ht 16.36 m

Lat 15° 17' 35.750" S
Long 129° 22' 47.435" E
Ht -3.195 m

E 540780.183
N 8309195.814
Ht 16.36 m

Point Identifier: N88 - 008

Description: Disused windpump at Alligator Springs Waterhole.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 17' 58.65" S
Long 129° 23' 15.73" E
Ht -19.76 m

Lat 15° 18' 03.830" S
Long 129° 23' 11.265" E
Ht -35.268 m

E 541489.324
N 8308331.804
Ht -19.76 m

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____
Long _____
Ht _____

Lat _____
Long _____
Ht _____

E _____
N _____
Ht _____

SUMMARY OF INTEGRITY CHECK

SHEET: 4967 3 KARFACUMBY

Page 5 of 16

Point Identifier: N88 - 009

Description: Gate in fence 800 m south east of the feature Elbow

Waterhole.

CO-ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat 15° 26' 01.65" S
Long 130° 13' 13.44" E
Ht 13.72 m

Lat 15° 26' 06.848" S
Long 130° 13' 08.99" E
Ht -7.189 m

E 630809.351
N 8293157.769
Ht 13.72 m

Point Identifier: N88 - 010

Description: Track junction 900 m south of the feature Elbow Water-
hole.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 26' 21.63" S
Long 130° 13' 01.54" E
Ht 12.50 m

Lat 15° 26' 26.828" S
Long 130° 12' 57.09" E
Ht -8.388 m

E 630451.168
N 8292545.775
Ht 12.50 m

Point Identifier: N88 - 011

Description: Track ends, centre of southern bank of Elbow Waterhole.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 25' 49.46" S
Long 130° 12' 54.35" E
Ht 15.66 m

Lat 15° 25' 54.658" S
Long 130° 12' 49.90" E
Ht -5.248 m

E 630242.431
N 8293535.592
Ht 15.66 m

SUMMARY OF INTEGRITY CHECK

SHEET: 4967 3 KARRACUMBY

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Point Identifier: N88 - 012

Description: Track and fence intersection.

CO-ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat 15° 27' 26.54" S
Long 130° 13' 09.64" E
Ht 13.86 m

Lat 15° 27' 31.738" S
Long 130° 13' 05.19" E
Ht -6.986 m

E 630681.306
N 8290549.674
Ht 13.86 m

Point Identifier: N88 - 013

Description: Track crossing mainly dry waterhole.

NOTE: Accuracy of co ordinates may be degraded due to PDOP of satellites being out of range.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 27' 20.43" S
Long 130° 12' 58.43" E
Ht 10.58 m

Lat 15° 27' 25.628" S
Long 130° 12' 53.98" E
Ht -10.265 m

E 630348.260
N 8290739.330
Ht 10.58 m

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____
Long _____
Ht _____

Lat _____
Long _____
Ht _____

E _____
N _____
Ht _____

SUMMARY OF INTEGRITY CHECK

SHEET: 4966 4 AUVERGNE

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Point Identifier: N88 - 014

Description: Fence corner added at Feild check 2.1 km south of tank
at Auvergne Lagoon.

CO- ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat <u>15° 36' 52.06" S</u>
Long <u>130° 06' 16.15" E</u>
Ht <u>16.56 m</u>

Lat <u>15° 36' 57.255" S</u>
Long <u>130° 06' 11.69" E</u>
Ht <u>3.648 m</u>

E <u>618267.726</u>
N <u>8273237.921</u>
Ht <u>16.56 m</u>

Point Identifier: N88 - 015

Description: Gate in fence 700 m north of tank at Auvergne Lagoon.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15° 35' 13.43" S</u>
Long <u>130° 06' 11.50" E</u>
Ht <u>21.36 m</u>

Lat <u>15° 35' 18.625" S</u>
Long <u>130° 06' 07.045" E</u>
Ht <u>1.084 m</u>

E <u>618145.074</u>
N <u>8276269.548</u>
Ht <u>21.36 m</u>

Point Identifier: N88 - 016

Description: Fence intersection (four way) 1.2 km north of tank at
Auvergne Lagoon.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15° 34' 58.38" S</u>
Long <u>130° 06' 10.20" E</u>
Ht <u>30.38 m</u>

Lat <u>15° 35' 03.575" S</u>
Long <u>130° 06' 05.835" E</u>
Ht <u>10.095 m</u>

E <u>618111.423</u>
N <u>8276732.222</u>
Ht <u>30.38 m</u>

SUMMARY OF INTEGRITY CHECK

SHEET: 4966 4 AUVERGNE

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Point Identifier: N88 - 017

Description: Gate in southern side of fence intersection in the south west corner of Wayne Paddock.

CO-ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat 15° 34' 46.59" S
Long 130° 04' 46.22" E
Ht 31.80 m

Lat 15° 34' 51.785" S
Long 130° 04' 41.76" E
Ht 11.554 m

E 615609.057
N 8277107.327
Ht 31.80 m

Point Identifier: N88 - 018

Description: Southern wall of tank located at Auvergne Lagoon.

NOTE: Accuracy of co ordinates may be degraded due to PDOP of satellites being outside allowable range.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 35' 29.14" S
Long 130° 06' 17.02" E
Ht 34.80 m

Lat 15° 35' 34.335" S
Long 130° 06' 12.565" E
Ht 14.529 m

E 618306.986
N 8275785.928
Ht 34.80 m

Point Identifier: N88 - 023

Description: Northern end of airstrip at Auvergne Homestead.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 41' 06.82" S
Long 130° 00' 28.74" E
Ht 43.84 m

Lat 15° 41' 12.013" S
Long 130° 00' 24.28" E
Ht 24.007 m

E 607884.586
N 8265460.641
Ht 43.84 m

SUMMARY OF INTEGRITY CHECK

SHEET: 4966 4 AUVERGNE

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Point Identifier: N88 - 024

Description: Southern end of airstrip at Auvergne Homestead.

NOTE: Accuracy of co ordinates may be degraded due to PDOP of satellites
being out of allowable range.

CO- ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat <u>15° 41' 45.76" S</u>
Long <u>130° 00' 35.15" E</u>
Ht <u>49.32 m</u>

Lat <u>15° 41' 50.953" S</u>
Long <u>130° 00' 30.69" E</u>
Ht <u>29.515 m</u>

E <u>608069.713</u>
N <u>8264263.124</u>
Ht <u>49.32 m</u>

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____
Long _____
Ht _____

Lat _____
Long _____
Ht _____

E _____
N _____
Ht _____

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____
Long _____
Ht _____

Lat _____
Long _____
Ht _____

E _____
N _____
Ht _____

SUMMARY OF INTEGRITY CHECK

SHEET: 4866 1 EASTON

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Point Identifier: N88 - 019

Description: Track junction 600 m south south east of No 1 tank.

CO- ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat <u>15° 42' 44.28" S</u>
Long <u>129° 57' 21.08" E</u>
Ht <u>17.08 m</u>

Lat <u>15° 42' 49.472" S</u>
Long <u>129° 57' 16.618" E</u>
Ht <u>-2.578 m</u>

E <u>602284.457</u>
N <u>8262491.664</u>
Ht <u>17.08 m</u>

Point Identifier: N88 - 020

Description: Track crossing 2 km north west of No 1 tank.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15° 42' 08.89" S</u>
Long <u>129° 56' 31.31" E</u>
Ht <u>8.76 m</u>

Lat <u>15° 42' 14.082" S</u>
Long <u>129° 56' 26.685" E</u>
Ht <u>-10.895 m</u>

E <u>600803.015</u>
N <u>8263585.825</u>
Ht <u>8.76 m</u>

Point Identifier: N88 - 021

Description: Gate in fence 4.1 km north west of No 1 tank.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15° 41' 34.72" S</u>
Long <u>129° 55' 34.88" E</u>
Ht <u>8.96 m</u>

Lat <u>15° 41' 39.911" S</u>
Long <u>129° 55' 30.418" E</u>
Ht <u>-10.688 m</u>

E <u>599132.717</u>
N <u>8264643.245</u>
Ht <u>8.96 m</u>

SUMMARY OF INTEGRITY CHECK

SHEET: 4866 1 EASTON

Page 11 of 16

Point Identifier: N88 - 022

Description: Track crossing creek 6.8 km north west of No. 1 tank.

CO- ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat 15° 40' 31.85" S

Lat 15° 40' 37.041" S

E 597211.753

Long 129° 54' 30.07" E

Long 129° 54' 25.609" E

N 8266583.507

Ht 8.20 m

Ht -11.449 m

Ht 8.20 m

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____

Lat _____

E _____

Long _____

Long _____

N _____

Ht _____

Ht _____

Ht _____

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____

Lat _____

E _____

Long _____

Long _____

N _____

Ht _____

Ht _____

Ht _____

SUMMARY OF INTEGRITY CHECK

SHEET: 4867 4 PAPERBARK CREEK

Page 12 of 16

Point Identifier: N88 - 025

Description: Track intersection south east of ford.

CO- ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat <u>15° 29' 49.43" S</u>
Long <u>129° 41' 44.00" E</u>
Ht <u>19.08 m</u>

Lat <u>15° 29' 54.617" S</u>
Long <u>129° 41' 40.528" E</u>
Ht <u>-0.595 m</u>

E <u>574400.764</u>
N <u>828640.375</u>
Ht <u>19.08 m</u>

Point Identifier: N88 - 026

Description: Track intersection 200 m east of ford.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15° 29' 47.44" S</u>
Long <u>129° 41' 55.18" E</u>
Ht <u>12.86 m</u>

Lat <u>15° 29' 52.627" S</u>
Long <u>129° 41' 50.718" E</u>
Ht <u>-6.823 m</u>

E <u>574803.573</u>
N <u>8286469.535</u>
Ht <u>12.86 m</u>

Point Identifier: N88 - 027

Description: East bank of track crossing stream at 2.2 km east along track from ford.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15° 29' 46.04" S</u>
Long <u>129° 42' 55.17" E</u>
Ht <u>28.68 m</u>

Lat <u>15° 29' 51.227" S</u>
Long <u>129° 42' 50.708" E</u>
Ht <u>8.96 m</u>

E <u>576591.119</u>
N <u>8286506.670</u>
Ht <u>28.68 m</u>

SUMMARY OF INTEGRITY CHECK

SHEET: 4867 4 PAPERBARK CREEK

Page 13 of 16

Point Identifier: N88 - 028

Description: Gate in fence 2.3 km east along track from ford.

CO- ORDINATES

WGS84 (Real Time)

AGL 84

AMG 84

Lat <u>15° 29' 44.66" S</u>
Long <u>129° 42' 58.43" E</u>
Ht <u>14.12 m</u>

Lat <u>15° 29' 49.847" S</u>
Long <u>129° 42' 53.969" E</u>
Ht <u>-5.602 m</u>

E <u>576688.422</u>
N <u>8286548.749</u>
Ht <u>14.12 m</u>

Point Identifier: N88 - 029

Description: Intersection of three fences, track and two gates, 5.1
km east along track from ford.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15° 29' 08.42" S</u>
Long <u>129° 44' 18.61" E</u>
Ht <u>19.04 m</u>

Lat <u>15° 29' 13.608" S</u>
Long <u>129° 44' 14.149" E</u>
Ht <u>-0.754 m</u>

E <u>579081.232</u>
N <u>8287654.179</u>
Ht <u>19.04 m</u>

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____
Long _____
Ht _____

Lat _____
Long _____
Ht _____

E _____
N _____
Ht _____

SUMMARY OF INTEGRITY CHECK

SHEET: 4867 1 BULLO RIVER

Page 14 of 16

Point Identifier: N88 - 030

Description: Gate in fence 4.9 km east along track from homestead.

CO- ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat 15° 27' 34.81" S
Long 129° 48' 30.68" E
Ht 10.90 m

Lat 15° 27' 39.999" S
Long 129° 48' 26.221" E
Ht -9.105 m

E 586603.023
N 8290503.513
Ht 10.90 m

Point Identifier: N88 - 031

Description: Gate in fence 3.7 km east along track from homestead.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 27' 39.98" S
Long 129° 47' 51.08" E
Ht 10.24 m

Lat 15° 27' 45.169" S
Long 129° 47' 46.621" E
Ht -9.736 m

E 585422.320
N 8290349.056
Ht 10.24 m

Point Identifier: N88 - 032

Description: Track and creek intersection 300 m east along track from homestead.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat 15° 27' 58.87" S
Long 129° 46' 14.01" E
Ht 11.84 m

Lat 15° 28' 04.050" S
Long 129° 46' 09.550" E
Ht -8.068 m

E 582527.475
N 8289779.156
Ht 11.84 m

SUMMARY OF INTEGRITY CHECK

SHEET: 4867 1 BULLO RIVER

Page 15 of 16

Point Identifier: N88 - 033

Description: Front gate of Bullo River Homestead. 20 m from house.

CO-ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat. 15° 28' 00.50" S

Lat. 15° 28' 05.689" S

E 582323.764

Long. 129° 46' 07.18" E

Long. 129° 46' 02.720" E

N 8289729.798

Ht 20.24 m

Ht 0.337 m

Ht 20.24 m

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____

Lat _____

E _____

Long _____

Long _____

N _____

Ht _____

Ht _____

Ht _____

Point Identifier: _____

Description: _____

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat _____

Lat _____

E _____

Long _____

Long _____

N _____

Ht _____

Ht _____

Ht _____

SUMMARY OF INTEGRITY CHECK

SHEET: 4866 4 LLOYD CREEK

Page 16 of 16

Point Identifier: N88 - 034

Description: Trigonometric Station - U889.

NOTE: Values below do not replace those values supplied in
the Trig Data List of the P.D. Folder.

CO-ORDINATES

WGS84 (Real Time)

AGD 84

AMG 84

Lat <u>15 32' 17.69" S</u>
Long <u>129 38' 26.85" E</u>
Ht <u>32.08 m</u>

Lat <u>15 32' 22.876" S</u>
Long <u>129 38' 22.386" E</u>
Ht <u>12.621 m</u>

E <u>568582.571</u>
N <u>8281872.242</u>
Ht <u>32.08 m</u>

Point Identifier: N88 - 035

Description: Track intersection 4.3 km south along track from Trig
Station U889.

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15 33' 31.54" S</u>
Long <u>129 37' 53.23" E</u>
Ht <u>26.74 m</u>

Lat <u>15 33' 36.725" S</u>
Long <u>129 37' 48.764" E</u>
Ht <u>7.349 m</u>

E <u>567574.326</u>
N <u>8279606.081</u>
Ht <u>26.74 m</u>

Point Identifier: N88 - 036

Description: Track and creek intersection 8.3 km south along track
from Trig Station U 889

CO - ORDINATES

WGS84 (Real Time)

AGD84

AMG84

Lat <u>15 35' 18.52" S</u>
Long <u>129 38' 25.52" E</u>
Ht <u>28.66 m</u>

Lat <u>15 35' 23.706" S</u>
Long <u>129 38' 21.054" E</u>
Ht <u>9.333 m</u>

E <u>568526.260</u>
N <u>8276316.040</u>
Ht <u>28.66 m</u>

CONDUCT OF OPERATIONS

OP NERVOSE 88

Date (a)	Occurrence (b)	Remarks (c)
23 Aug 88	Adv party dep ADELAIDE	1. One x Unimog with 3 tonne trailer, 2. One x Ford CL with trailer fridge, 3. Four x pers.
25 Aug	Adv party arr ALICE SPRINGS Det (-) dep ADELAIDE via rail	1. Six x landrovers mov as freight
26 Aug	Det (-) arr ALICE SPRINGS. Det mov via road to BARROW CREEK. Base party mov to TENNANT CREEK.	1. Fwd base est Four x Fd parties. 2. Main base est.
5 Sep	LOH (162 Recce Sqn) arr TENNANT CREEK. Pilatus Porter (173 Gen Spt Sqn) arr TENNANT CREEK	1. Air crew mov by road.
10 Sep	LOH dep for TOWNSVILLE	1. Air crew dep by road.
12 Sep	GPS Party dep ADELAIDE via rail Pilatus Porter dep for DARWIN	1. Four x pers. 2. One x Landrover Series 110. 3. One x 3/4 tonne GS L/Rover.
13 Sep	GPS Party arr ALICE SPRINGS, mov by road to FINKE	
14 Sep	Det dep TENNANT CREEK	1. Overnight MATARANKA.
15 Sep	Det arr AUVERGNE area	1. Base party est Main Base at AUVERGNE STN. 2. Two x fd parties est fwd base at VRD. 3. Two x fd parties est fwd base at LEGUNE.

<i>Date</i>	<i>Occurrence</i>	<i>Remarks</i>
<i>(a)</i>	<i>(b)</i>	<i>(c)</i>
16 Sep	GPS party dep FINKE	
19 Sep	GPS party arr AUVERGNE	
22 Sep	LOH (171 Comd out Liaison Sqn) arr AUVERGNE	
25 Sep	Pilatus Porter (173 Gen Spt Sqn) arr AUVERGNE ex DARWIN	
2 Oct	LOH dep for OAKY	1. RTU.
4 Oct	Det dep AUVERGNE and AO	1. RTU.
5 Oct	Pilatus Porter dep AUVERGNE	1. RTU.
7 Oct	Det arr ADELAIDE	

Appendix: 1. Forward Bases

FORWARD BASES

1. The following forward bases were est to decrease travel time:

a. Phase One.

- (1) Barrow Creek. Four x Fd parties; and
- (2) Wauchope. Two x fd parties.

b. Phase Two.

- (1) Victoria River Downs. Two x fd parties;
- (2) Legune. Two x fd parties;
- (3) Bradshaw. One x fd party; and
- (4) Bullo River. One x fd party.

2. The fd parties at Barrow Creek and Victoria River Downs were resupplied from local resources. All remaining fwd bases were resupplied from main base prior to est base.

ANNEX D TO
OP NERVOSE 88
DATED: 3 FEB 89

VEHICLE MECHANIC REPORT
OP NERVOSE 88

Serial	Vehicle	ARN	Unit/Loan	Repairs	Method
1.	Land Rover Ser III	29284	Unit	Door locks - tighten Rear Exhaust - tighten Manifold & Flange - tighten Carby - repair Gearbox Housing - tighten Horn Switch - repair Front Shockies - Replace Steering Relay Arm- Repair Headlights - Replace Clutch Master Cylinder - Replace Tail Lights - Repair Brake Lights - Repair Fan Belt - Replace	RAEME " " " " " " " " " " " "
2.	Land Rover Ser III	29664	Unit	Exhaust Valves - Replace (4) Valve Guides - Replace (2) Reseat Other Valves Clutch - Adjust Carby - Adjust Fuel Tank - Repair Distributor - Repair Front Brakes - Replace Rear Backing Plates - Tighten Wheel Bearings - ILA	Contracto " " RAEME " " " " " " "
3.	Landrover Ser III	29670	Unit	Front & Rear Brake Shoes - Replace Wheel Bearings - ILA Front Prop Shaft VJ - Replace Rear Prop Shaft - VJ - Replace Radiator Cap - Replace Tail Lights - Repair Drag Link - Repair Steering Box - Tighten & Adjust Tune Engine Replace Points	RAEME " " " " " " " " "
4.	Landrover Ser III	29700	Unit	Lights - Repair Exhaust - Repair Rocker Gasket - Replace Clutch Slave Cylinder - Replace L/H/F Lights - Rewire	RAEME " RAEME " "

Serial	Vehicle	ARN	Unit/Loan	Repairs	Method
4 (Contd)				Indicator Control - Repair Clutch - Adjust Engine - Tune	RAEME " "
5.	Landrover Ser III	29701	Unit	Clutch - Adjust Warning Lights - Repair Fan Belt - Adjust Gearbox Housings - Tighten Dash Panel - Secure Front Hub Seals - Replace Rear Brakes - Adjust Engine - Tune	RAEME " " " " RAEME " "
6.	Landrover Ser III FFR	33803	Loan	Rocker Gasket - Replace Lights - Repair Speedo - Inspect R/H/R Brake Line - Repair	RAEME " " "
7.	Ford Cargo D913	35530	Loan	Clearance Lights - Repair Temp Gauge - Inspect Speedo - Inspect Fuel Filter Bleeder - Repair	RAEME RAEME RAEME Contractor
8.	Landrover 2A Wksp	113824	AWC	Charging Circuit - Repair Bottom Rad. Hose - Repair Fan Belt - Adjust Fuel Gauge - Inspect	RAEME RAEME " "

1. In addition to the above a Unimog, a 3 ton Junior Steco trailer and a 150 cub ft trailer mounted fridge were also taken on the operation.

2. All vehicles were regularly greased and all oils checked. This practice is necessary to reduce vehicle breakdowns due to the conditions in the area of operations.

3. The main repair parts used are hub seals and brake shoes due to the ingress of dust. These parts along with universal joints are essential items.

4. The Landrover Series 110 received a 10 000 km minor service from a local contractor in Kununurra. On RTU this vehicle sustained serious damage when a con rod ejected through the block nullifying the fuel pump. The vehicle was left in Elliott for recovery to Darwin courtesy Workshop 7 MD.

NOMINAL ROLL

1. The Nominal Roll for OP NERVOSE 88 was as fol:

Regt No	Rank	Name	Unit
46541	MAJ	P.H. Cates	4 Fd Svy Sqn
513635	LT	G.T. Ford	4 Fd Svy Sqn
55880	WO2	R.C. Rogister	4 Fd Svy Sqn
58448	WO2	P. Symmans	4 Fd Svy Sqn
318928	SSGT	M.J. Hogan	4 Fd Svy Sqn
316287	SSGT	D. Learmonth	4 Fd Svy Sqn
313841	SGT	S.P. Symonds	4 Fd Svy Sqn
2790227	CPL	R.D. Graf	4 Fd Svy Sqn
4401491	CPL	P. Langeberg	4 Fd Svy Sqn
453672	CPL	A.D. Rawcliffe	4 Fd Svy Sqn
416476	CPL	P.R. Tuddenham	4 Fd Svy Sqn
324032	LCPL	J. Humphrey	4 Fd Svy Sqn
554355	SPR	J. Keely	4 Fd Svy Sqn
321355	SPR	S.A. Nokes	4 Fd Svy Sqn
222178	CPL	R. Gourley	Adelaide Wksp Coy
49433	CPL	J. Michailescu	HQ 4 MD Pool
182579	LT	D.S. Perron	162 Recce Sqn
328645	LT	M.J. Glynn	" " "
1204824	CPL	R.E. Unsworth	" " "
555200	CFN	G.J. Carey	" " "
231669	LT	G.J. Lawlor	173 Gen Spt Sqn
180596	LCPL	I. McKay	" " " "
222272	LT	R. Gunthorpe	171 Comd and Liaison
182662	LT	D.J. Wilson	" " " "
225086	LCPL	G.C. Hastings	" " " "
221431	CFN	P.J. Smith	" " " "

2. The fol pers visited the Det in the AO.

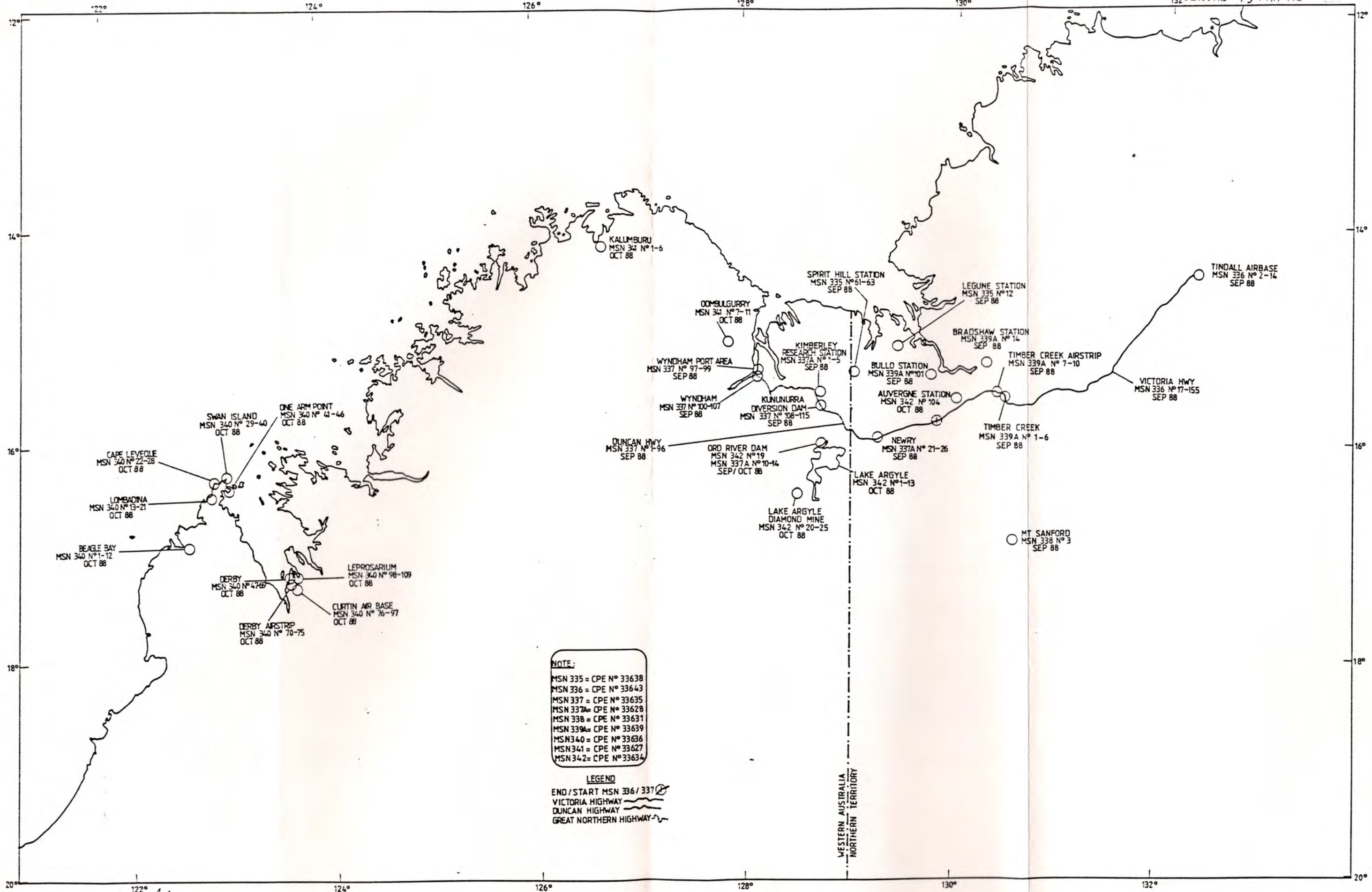
- a. BRIG R. Boxall; COMD 4 MD;
- b. LTCOL H. Hansen, SOL (SVY);
- c. SGT P. Rice, EX LONGLOOK;
- d. LCPL C. Graham, EX LONGLOOK.

AERIAL PHOTOGRAPHY REPORT

1. General. Supplementary and Identification photography was conducted during the period 23 Aug to 4 Oct 88. Photography was acquired using a WILD RC 10 Camera Number 1270, with a SAG II lens Number 2012. The camera was mounted in a Pilatus Porter acft Number A14652.
2. Results. The fol results were achieved:
 - a. Identification Photography. Scale of 1:10 000 mainly of homesteads and Aboriginal Communities in the area of operation including some oblique and vertical photography of additional strategic vital assets.
 - b. Supplementary Photography. Scale of 1:25 000 of line photography totalling 2020 km photo ground coverage of both phases of the operation, with a sixty percent forward overlap.
3. Personnel. The following personnel were involved:
 - a. Phase One. 5 Sep - 12 Sep 88.
 - (1) Porter Pilot - LT D. Wilson
 - (2) Porter Mech - CFN P. Smith
 - (3) RC 10 Operator - CPL R. Graf
 - b. Phase Two. 25 Sep - 5 Oct 88.
 - (1) Porter Pilot - LT Gunthorpe
 - (2) Porter Mech - LCPL G. Hastings
 - (3) RC10 Operator - CPL R. Graf
4. Processing. Processing in phase one was carried out in the X Ray department at Tennant Creek Hospital. Processing in phase two was carried out in the accommodation quarters of Auvergne Homestead. Use was made of B5 tanks. Drying of film was done using the Zeiss film dryer. After acceptance of the photography, bromides were produced of phase one on arrival at the squadron.
5. Dispatch. Developed RC10 film and accompanying A36 phtographic reports were dispatched by safe hand to CPE Laverton for remedial processing as necessary.
6. Equipment Problems. The following equipment problems were encountered.

- a. Fiducial Illimination Faulty. One mark intermittently missing on exposure.
 - b. Transportation. Several occasions there were double exposures.
 - c. Oil Overflow on Aircraft. After servicing at Darwin, and at the commencement of Phase Two, a film of oil began appearing on the Navigation sight. This situation worsened towards the end of this phase and was a problem as inflight remedial action was not possible.
 - d. Extreme Temperatures. As a consequence of the high temperatures during any 24 hour period the Film drying unit was operated at above recommended specified temperatures. The effect on the film quality should be scrutinized.
7. Recommendations. As a result of the work load placed on the camera operator, it is recommended that two operators be allocated for field checking operations. It is envisaged, one dedicated operator and one dual role operator/field checker. Their purpose is to maintain flexibility for flying sorties and for the continual maintenance of records associated with aerial photography, whilst in the AO.
- Appendices:
1. Key Point Photography
 2. Supplementary Photography Overlay - Tennant Creek
 3. Supplementary Photography Overlay - Bonney Well
 4. Supplementary Photography Overlay - Barrow Creek
 5. Supplementary Photography Overlay - Auvergne
 6. Supplementary Photography Overlay - Victoria River Downs

KEY POINT PHOTOGRAPHY

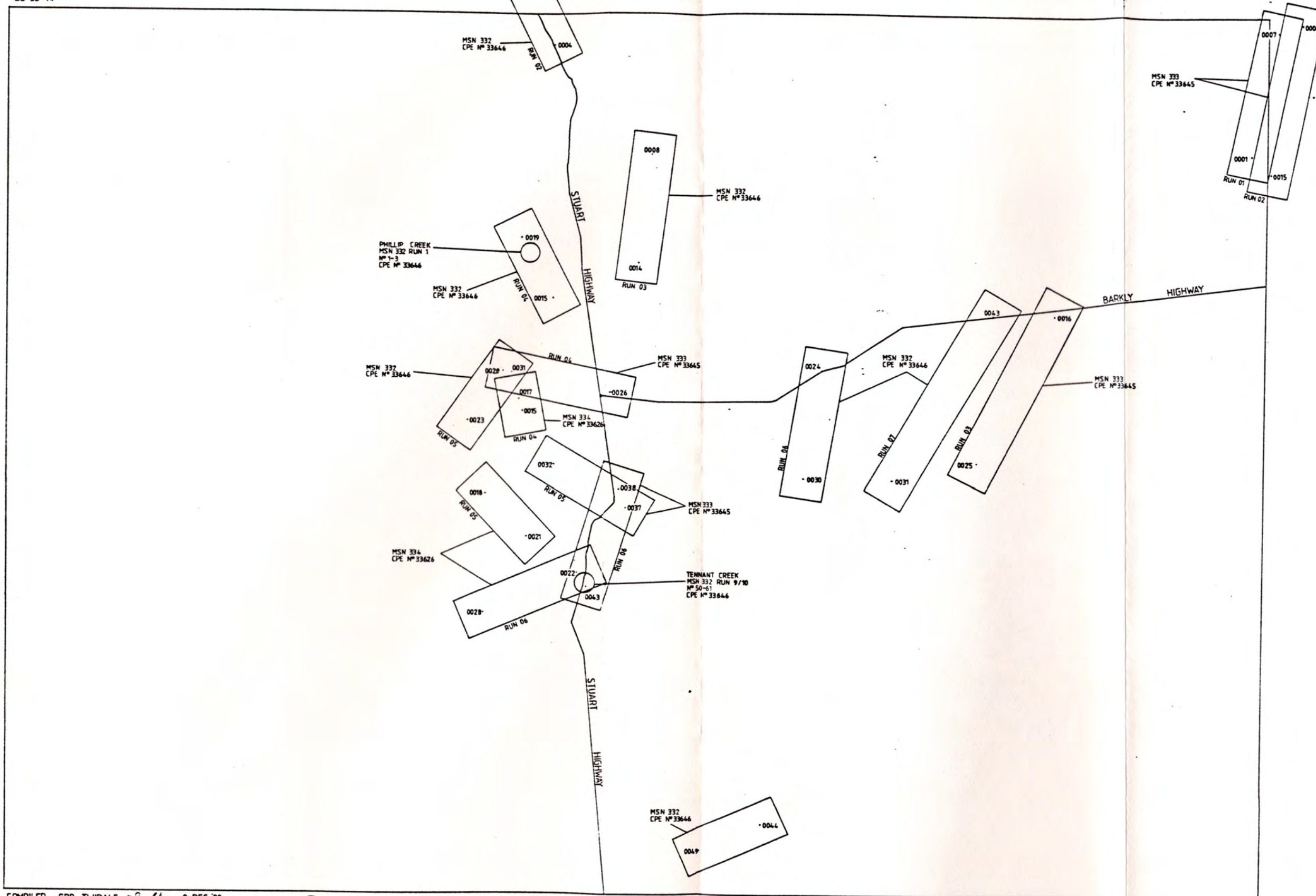


NOTE:
 MSN 335 = CPE No 33638
 MSN 336 = CPE No 33643
 MSN 337 = CPE No 33635
 MSN 337A = CPE No 33628
 MSN 338 = CPE No 33631
 MSN 339A = CPE No 33639
 MSN 340 = CPE No 33636
 MSN 341 = CPE No 33627
 MSN 342 = CPE No 33634

LEGEND
 END / START MSN 336 / 337
 VICTORIA HIGHWAY
 DUNCAN HIGHWAY
 GREAT NORTHERN HIGHWAY

1: 250 000
SE 53-14

SUPPLEMENTARY PHOTOGRAPHY OVERLAY
TENNANT CREEK

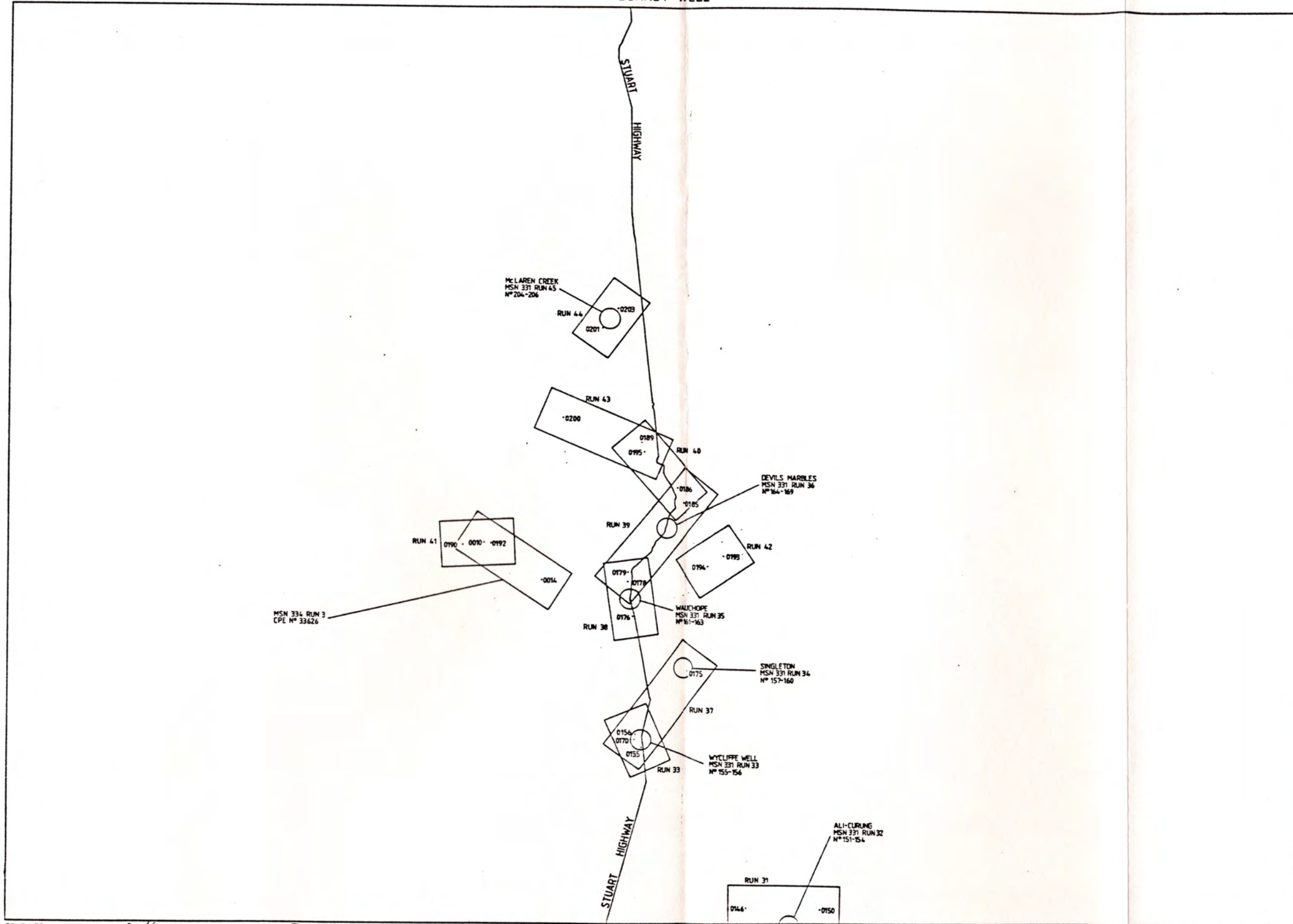


COMPILED SPR TWIDALE 8 DEC '88
CHECKED CPL GRAF

○ KEY POINT PHOTOGRAPHY
PHOTOGRAPHY FLOWN IN SEP '88

1:250 000
SF 53-2

SUPPLEMENTARY PHOTOGRAPHY OVERLAY
BONNEY WELL

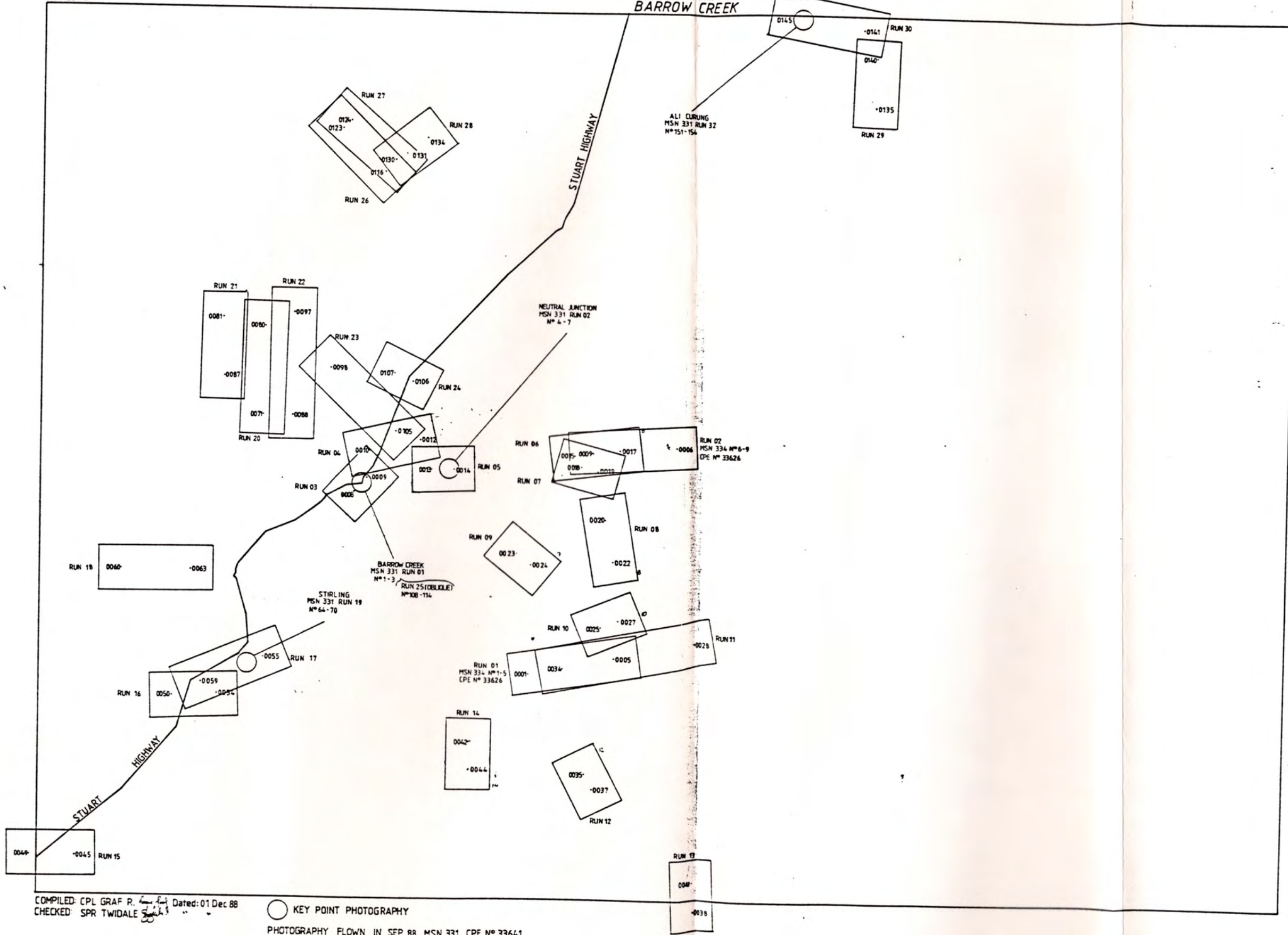


COMPILED: SPR TWIDALE
CHECKED: CPL GRAF
Dated: 02 DEC 88

○ KEY POINT PHOTOGRAPHY
PHOTOGRAPHY FLOWN IN SEP 88 MSN 331 CPE N° 33641

1:250 000
SF 53-6

SUPPLEMENTARY PHOTOGRAPHY OVERLAY
BARROW CREEK

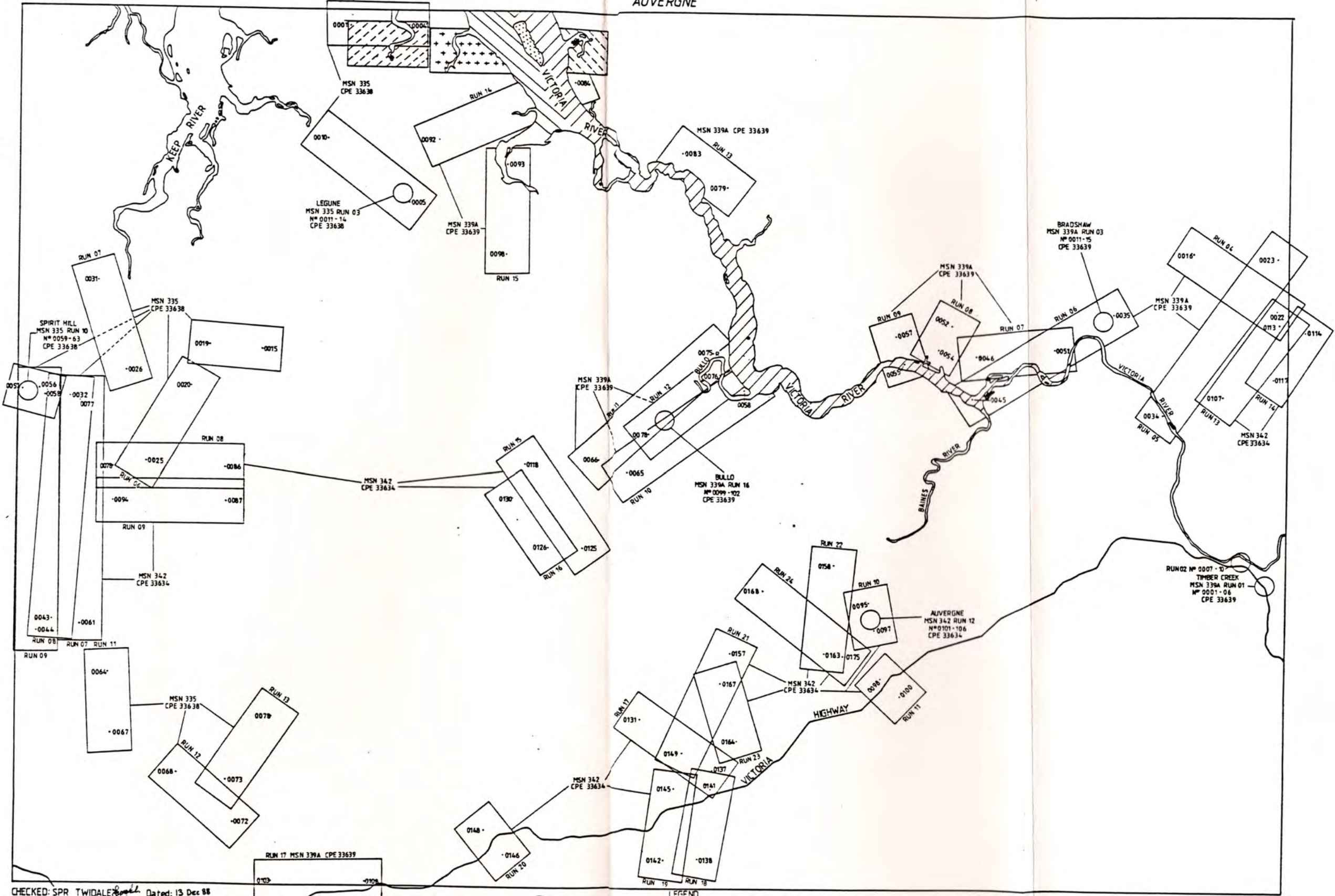


COMPILED: CPL GRAF R. *[Signature]* Dated: 01 Dec 88
CHECKED: SPR TWIDALE *[Signature]*

○ KEY POINT PHOTOGRAPHY
PHOTOGRAPHY FLOWN IN SEP 88 MSN 331 CPE N° 33641

1:250 000
SD 52-15

SUPPLEMENTARY PHOTOGRAPHY OVERLAY
AUVERGNE



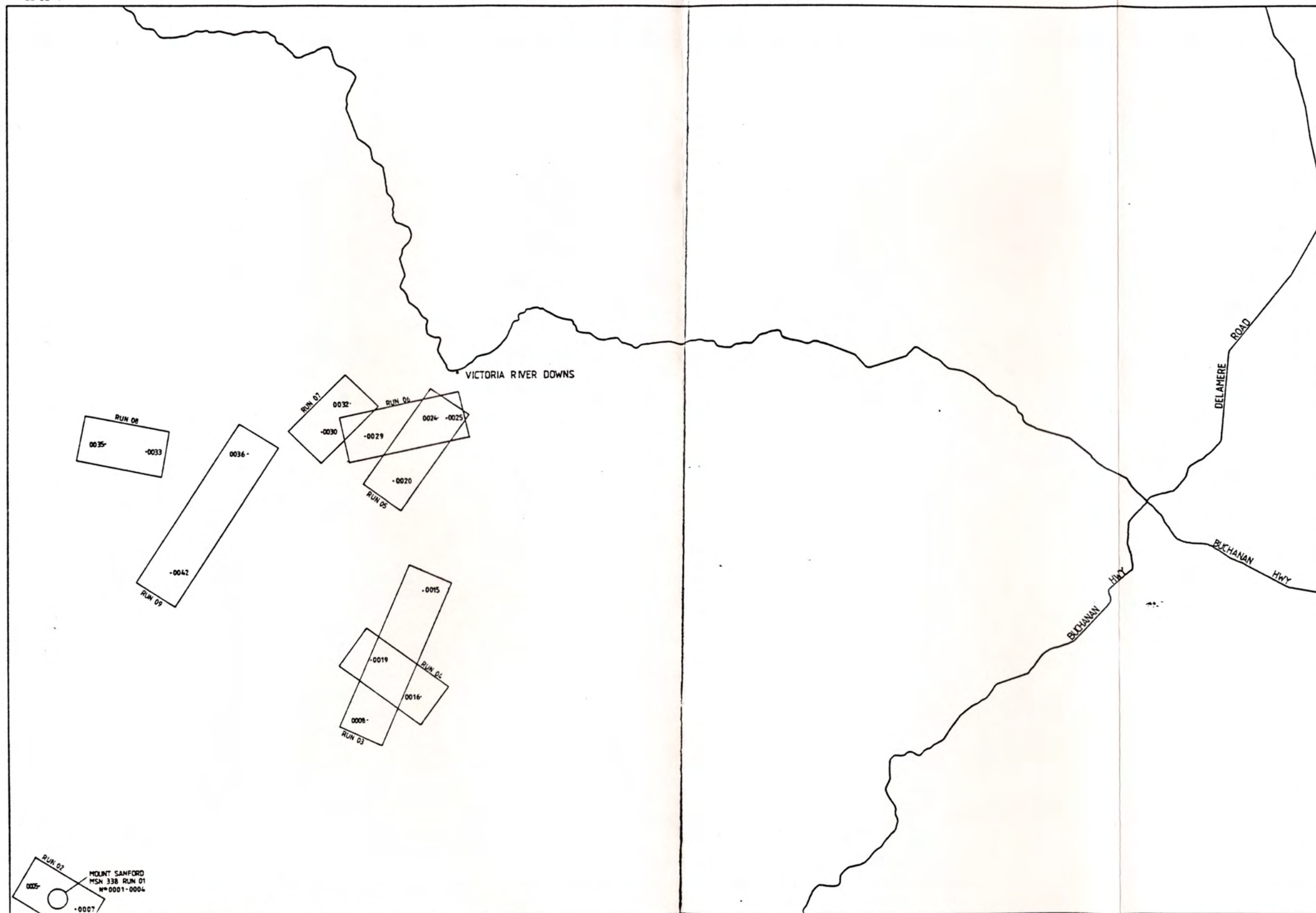
CHECKED: SPR TWIDALE
COMPILED: CPL GRAF
Dated: 13 Dec 88
NEWRY
MSN 337A
RUN 05 and 06
CPE 33628
N° 0021-24
N° 0025-24

KEY POINT PHOTOGRAPHY
PHOTOGRAPHY FLOWN IN SEP & OCT 88

LEGEND
SUPPLEMENTARY PHOTOGRAPHY SHOWING
TIDAL INFLUENCE MSN 339 CPE 33637
RUN 01 N° 0001-58
RUN 02 N° 0057-64
RUN 03 N° 0065-67
RUN 04 N° 0068-69
RUN 05 N° 0070-73
RUN 06 N° 0076-77

SUPPLEMENTARY PHOTOGRAPHY OVERLAY
VICTORIA RIVER DOWNS

1:250 000
SE 52-4



COMPILED BY CPL GRAF Dated: 06 DEC 88
CHECKED BY SPR TWIDALE 08 DEC 88

○ KEY POINT PHOTOGRAPHY
PHOTOGRAPHY FLOWN IN SEP 88 MSN 338 CPE N° 33631

OPERATION NERVOSE 88
FIELD CHECK REPORT
5065 1 to 4

Project

1. Details of the project are as follows:
 - a. The corners of the project area are as follows:
 - (1) NW Corner 130°30'E and 16°00'S
 - (2) NE Corner 131°00'E and 16°00'S,
 - (3) SE Corner 131°00'E and 16°30'S, and
 - (4) SW Corner 130°30'E and 16°41'S.
 - b. There are four maps contained in the area as follows:
 - (1) 5065 1 KIDMAN SPRINGS,
 - (2) 5065 2 WICKHAM RIVER,
 - (3) 5065 3 HUMBERT RIVER, and
 - (4) 5065 4 JASPER CREEK.
 - c. The project area covers an area of 2905 km².
 - d. The project area is situated approximately 210km east of Kunnunurra and is accessed by a two lane unsealed road between Timber Creek and Victoria River Downs Station. The only populated place is the Yarralin Aboriginal Community situated on the Victoria River Downs Station to Humbert River Station access road. The most significant hydrographic features consist of the Humbert and Wickham Rivers and Jasper Creek, all of these contain scattered large perennial waterholes. Vegetation on the plateau country is either scattered density with an average height of three metres or clear. On the lower undulating areas the density of vegetaion increases with an average height of between four and five metres. Along the main hydrographic features the vegetation consists of tall eucalypts of up to 20 metres high with a thick canopy. Topography consists of high plateau type terrain surrounded by undulating natural pasture country.

Task

2. It was required to field check the area to allow compilation to 1:50 000 specifications.

Duration

3. The project area was commenced on 16 Sep 88 and was completed on 28 Sep 88.

Method

4.
 - a. Both ground and air methods were used to field check the area;
 - b. Time spent on these activities as follows:
 - (1) Ground check - 4 days.
 - (2) Office corrections - 3 1/2 days.
 - (3) Air check - 4 hours.
 - c. A 3/4 tonne, GS Landrover was used to traverse the area for the ground check and a LOH was used to conduct the air check. A forward base at Victoria River Downs Station was used for the area which was logistically supported by a main base at Auvergne Station.

Personnel

5. The field party consisted of the following:
 - a. 453672 CPL A. Rawcliffe; and
 - b. 321355 SPR S. Nokes.

Contacts

6. The following contact was made during the field check of this area:

Mr Dennis Twine
Manager
Victoria River Downs Station
VICTORIA RIVER DOWNS NT 0852

Enclosures

7. Enclosures are as follows:
 - a. Nomenclature List, and
 - b. Supplementary photography diagram.

Amendments

8. Amendment details are as follows:
 - a. Cultural - Boomerang, Top Riley and Bobs yards were not located and have been deleted. Also new fences have been added as these have been erected for the control of livestock diseases.
 - b. Drainage - some perennial waterholes have been reclassified to intermittent or mainly dry.
 - c. Relief - no significant changes.

- d. Vegetation - Some clear lanes on 5065 2 have been deleted due to overgrowth.

- e. Nomenclature - Eugene, Slatey and Six Mile Creeks along with Lingura Aboriginal Camp have been labelled. Old Gordon Creek has been changed to Yarralin.

Conclusions and Recommendations

9. Overall, the plotting was good with small changes as described. To assist in the preparation of colour guides a separate colour pull of hydrography, vegetation and cultural detail is required on future field checking operations.

P. B. Register
for (A. RAWCLIFFE)
CPL

27 Sep 88

- Enclosures:
- 1. Nomenclature List
 - 2. Supplementary Photography Diagram

SUPPLEMENTARY PHOTOGRAPHY OVERLAY
VICTORIA RIVER DOWNS

1:250 000
SE 52-4



COMPILED / CPL GRAF *[Signature]* Dated: 06 DEC 88
 CHECKED / SPR TWIDALE *[Signature]* 08 DEC 88

○ KEY POINT PHOTOGRAPHY
 PHOTOGRAPHY FLOWN IN SEP 88 MSN 338 CPE N° 33631

OPERATION NERVOSE 88
FIELD CHECK REPORT
5064 SHEETS 1 TO 4

Project

1. Details of the project area are as follows.
 - a. The corners of this project area are as follows:
 - (1) NE corner 16 30'00" N 131 00'00" E
 - (2) NW corner 16 30'00" N 130 30'00" E
 - (3) SE corner 17 00'00" N 131 00'00" E
 - (4) SW corner 17 00'00" N 130 30'00" E
 - b. There are a total of 4 (four) maps in the area.
 - (1) 5064 1 MOUNT WARBURTON
 - (2) 5064 2 GORDON CREEK
 - (3) 5064 3 MOUNT SANFORD
 - (4) 5064 4 INVERETZ
 - c. The project area covers 2905 sq km.
 - d. The project area is situated approximately 230 Km ESE of Kununurra on the pastoral leases of Victoria River Downs and Humbert River Station.

The main cultural features in the area are a one lane unsealed from Humbert River Homestead, a vehicle track from Victoria River Downs (VRD) Homestead to Mount Sanford at the southern edge of the area. Another vehicle track enters the area in the north and leaves on the east, linking VRD Homestead to Pigeon Hole Homestead. Other tracks in the area are for stock management. New Humbert Station Homestead is abandoned but still used on an outstation. There are landing grounds at Mt Sanford and New Humbert Station. There are a small number of bores and yards also in the area.

The main Hydrographic feature is the Wickham River running North Westerley across the area with Depot and Gibbie Creeks running into it. The Gordon Creek is the main stream on the Eastern edge. There are many perennial waterholes associated with these and other streams in the area. Small amount of bores, dams and tanks are also located in this area.

The topography varies from gently undulating terrain to steep hills with distorted surface and rocky outcrops, some with escarpments.

The vegetation in the area is mainly scattered with some clear and medium areas. Average height of vegetation varied from 3 metres to 10 metres along the Wickham River. It consists of small scrub to large eucalypts. The major streams have predominantly medium veg along their lengths.

Task

2. It was required to field check the area to allow compilation to 1:50 000 specifications.

Duration

3. The project commenced on 16 Sep 88 and was completed on 28 Sep 88.

Method

4. Details as follows:
 - a. Air and Ground methods were used to check the area.
 - b. Time spent as follows:
 - (1) Ground check 4 days,
 - (2) Air check 4.5 hours,
 - (3) Office corrections 4 days
 - c. A Landrover 3/4 tonne GS was used during the ground check and a LOH was used for the air check. A forward base was established at Victoria River Downs Homestead for the duration of the ground check.

Personnel

5. Personnel involved were:
 - a. 313841 SGT S.P. Symonds,
 - b. 324032 LCPL J.S. Humphrey,
 - c. 453672 CPL A. Rawcliffe,
 - d. 321355 SPR S. Nokes.

Contacts

6. Dennis and Julie Twine,
c/- Victoria River Downs Station

Enclosures

7. Enclosures are as follows:
- a. Nomenclature list,
 - b. Supplementary photography diagram.

Amendments

8. Amendments were mainly confined to the cultural, some tracks were not found and, track and fence alignments changed. No names were added nor deleted however the spelling of Mount Sanford Station was corrected. A vehicle track on the Eastern edge at GR 131366 is only shown as a fence on adjoining sheet 51643; must be amended. Distorted surfaces on some hills is in fact round clumps of grass giving the impression on the photography, of distorted surface.

Conclusion and Recommendations

9. Plotting was very good with very old disused tracks etc picked up which is better than under plotting detail.

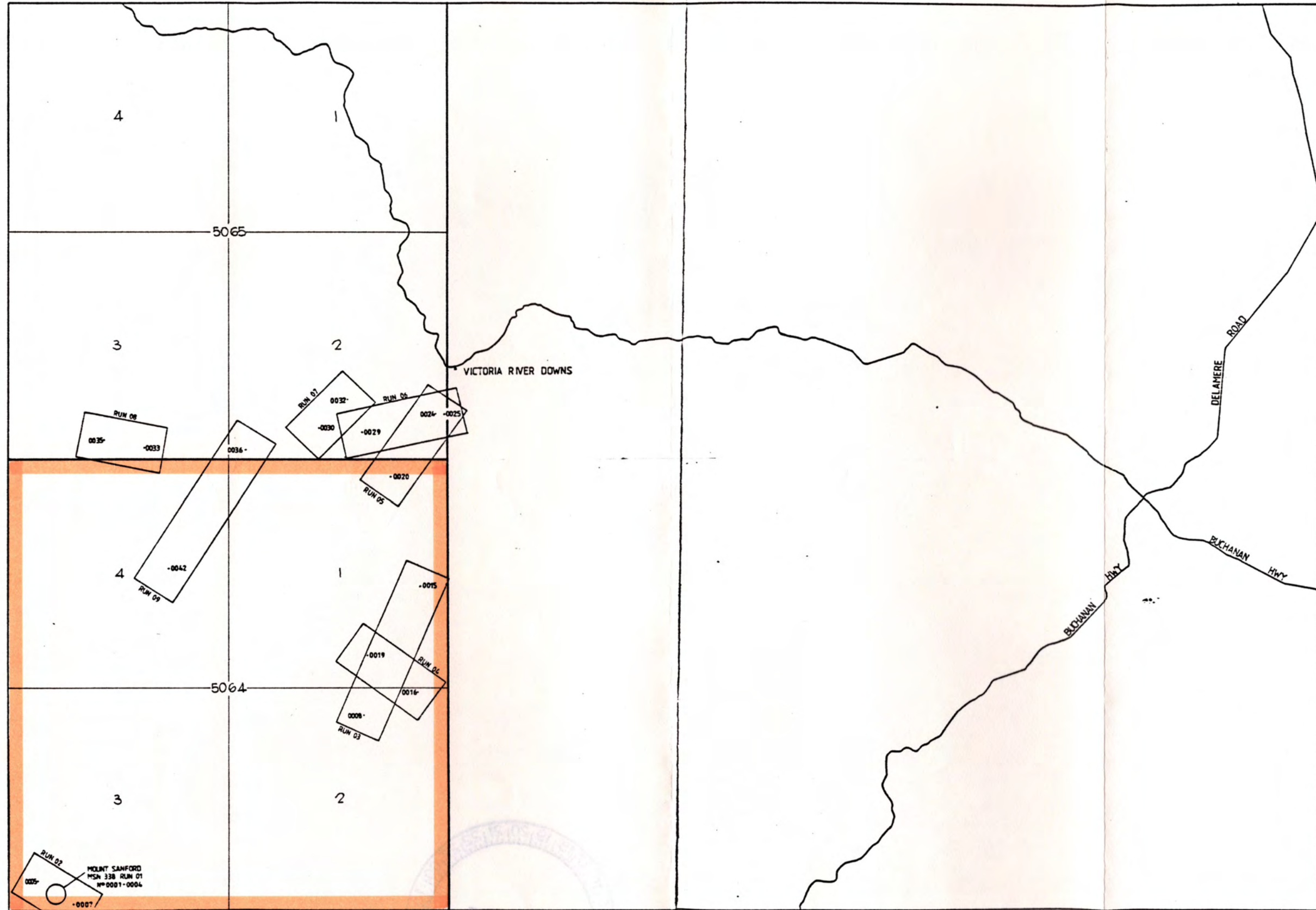
R.B. Register
for (S. SYMONDS)
SGT

Sep 88

Enclosures: 1. Nomenclature List
2. Supplementary Photography Diagram.

SUPPLEMENTARY PHOTOGRAPHY OVERLAY
VICTORIA RIVER DOWNS

1:250 000
SE 52-4



COMPILED BY CPL GRAF *[Signature]* Dated: 06 DEC 88
CHECKED BY SPR TWIDALE *[Signature]* 08 DEC 88

○ KEY POINT PHOTOGRAPHY
PHOTOGRAPHY FLOWN IN SEP 88 MSN 338 CPE N° 33631