

*Parliamentary Standing Committee on Public Works*

## REPORT

relating to the

# DEVELOPMENT OF R.A.A.F. BASE, TINDAL,

Northern Territory

(Twelfth Report of 1984)

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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA  
PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

R E P O R T

relating to the

DEVELOPMENT OF  
R.A.A.F. BASE TINDAL

Northern Territory

(Twelfth Report of 1984)

Australian Government Publishing Service  
Canberra 1984

MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS

(Twenty Seventh Committee)

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The Honorable Wallace Clyde Fife, MP (Vice Chairman)

Senate

House of Representatives

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EXTRACT FROM  
THE JOURNALS OF THE SENATE  
NO. 62 DATED 15 DECEMBER 1983

33 PUBLIC WORKS - JOINT STATUTORY COMMITTEE REFERENCE OF WORK:  
The Minister for Social Security (Senator Grimes), by  
leave, moved:-

That, in accordance with the provisions of the  
Public Works Committee Act 1969, the following  
proposed work be referred to the Parliamentary  
Standing Committee on Public Works for  
consideration and report:  
Development of RAAF Base, Tindal, Northern  
Territory.

Question - put and passed.

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

DEVELOPMENT OF RAAF BASE TINDAL  
NORTHERN TERRITORY

R E P O R T

By resolution on 15 December 1983 the Senate referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposal for the development of RAAF Base, Tindal, Northern Territory.

The Committee has the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee is for the construction of aircraft pavements, technical, administration and domestic facilities, together with associated engineering services to meet the needs of basing an F/A-18 equipped fighter squadron at RAAF Base Tindal, near Katherine in the Northern Territory. The proposal includes construction of housing in Katherine and development of an air-to-surface weapons range approximately 130 km south-west of the Base.
2. The estimated cost of the works proposed is \$167 million at December 1983 prices.

THE COMMITTEE'S INVESTIGATION

3. The Committee received submissions and plans from the Department of Defence (Defence) and the Department of Housing and Construction (DHC) and took evidence from their representatives at a public hearing in Katherine on 21 and 22 March 1984. The Committee also received written submissions from the Northern

Territory Government and Katherine Town Council representatives, private individuals, community groups and QANTAS. A list of witnesses is at Appendix A.

4. Prior to the public hearing the Committee inspected the site and existing facilities at RAAF Base Tindal from both the ground and the air.

5. The Committee's proceedings will be printed as Minutes of Evidence. A list of exhibits is at Appendix B.

#### BACKGROUND

6. Tactical Fighter Force The RAAF operates three squadrons of Mirage 111-0 fighters. No. 3 Squadron is based at Butterworth, Malaysia and is planned to be relocated at Williamstown, N.S.W. No. 77 Squadron is based at Williamstown. No. 75 Squadron is currently based at Darwin, N.T. The three Mirage squadrons are operational fighter squadrons which exercise air-to-air and air-to-ground roles.

7. In October 1981 the Commonwealth announced the decision to purchase 75 F/A-18 aircraft to replace the Mirage aircraft. It is proposed the first F/A-18's will enter service in 1985, with the balance entering service progressively until 1989. It is proposed to re-equip No. 75 Squadron with the new aircraft in late 1986 to April 1987.

8. History of Tindal RAAF Base Tindal is about 14 kilometres south of Katherine and approximately 330 kilometres by road south-east of Darwin. It is adjacent to the Stuart Highway which links Darwin and Alice Springs (see locality maps at Appendix C).

9. Tindal, originally known as Carson's Airfield, was planned during World War II as one of three airfields suitable for heavy bombers between Katherine and Daly Waters. Construction was begun in mid-1942 by an American engineer regiment. The Americans were replaced by an element of the Victorian Country Roads Board which completed the project at the end of 1944. Tindal was never used operationally and no aircraft squadrons were based there in the Second World War.

10. The airfield was renamed Tindal after Wing Commander A.R. Tindal who was killed in action in 1942 during the first Japanese air-raid on Darwin.

11. Re-construction and extension of Tindal was commenced in October 1963, to provide a back-up airfield to Darwin and conform with the principle of defence-in-depth. Tindal was planned as a 'bare base'. The works which upgraded the airfield to its present standard were completed in 1970.

#### THE NEED

12. Location It has been Government policy since 1981 to base a squadron of Mirage replacement fighters in Northern Australia, and to match this commitment with provision of capital infrastructure.

13. The main requirements for the site of a home base for a tactical fighter squadron are:

- a central location relative to the forward bases to which operational aircraft will be deployed;
- military infrastructure;
- civilian infrastructure;

- freedom from operational constraints; and
- protection in the event of war.

14. The three locations considered were Darwin, Tindal and a hypothetical completely new site in the general region.

15. Darwin has advantages of existing infrastructure, both military and civilian but suffers from operational constraints because of the relatively dense population nearby. Further, it has been stated by the Department of Aviation (Supplementary EIS, p.2-1) that the location of existing civil infrastructure in the midst of RAAF development is a major constraint to both present and future civil and military operations. Only the provision of new civil facilities on a site separate from RAAF development can satisfactorily provide for civil and military activity, both present and future. In addition Darwin is subject to cyclones and is potentially exposed to naval gunfire.

16. RAAF Base Tindal has advantages of modest civilian infrastructure (the town of Katherine, the Stuart Highway and the former Darwin to Larrimah Railway) together with military infrastructure in the form of the bare base of Tindal. Tindal is relatively free of operational constraints as the aerodrome area is out of noise range of Katherine, while substantial areas in the region are largely uninhabited. The Katherine area is not subject to cyclones. Its distance from the coast also gives some additional warning time in the event of penetration of coastal defences.

17. A completely new site in the area would have less civilian infrastructure and no military infrastructure. A site could be found with fewer design and operational constraints than Tindal, but the Tindal site is considered quite adequate from this point of view and thus the advantages gained would be minimal.

18. It was stated in the submission by Defence that the additional cost involved in the proposed development of Tindal to the minimum necessary to base an F/A-18 squadron rather than to continue to develop Darwin is about \$100 million. The further cost of moving or rebuilding at Tindal other RAAF facilities currently provided in Darwin, so as to reduce RAAF Darwin to a forward operational base only, would be \$140 million at current prices. The present investment in Tindal is valued at some \$30 million.

19. The Committee is satisfied that to continue development of Darwin would involve substantial community, defence and civil aviation costs.

20. Committee's Conclusion RAAF Base Tindal is the most suitable site for development of a home base for F/A-18s in Northern Australia. Alternative sites to Tindal have been adequately considered from both military and economic points of view.

21. Requirements for an F/A-18 Base The proposal is that Tindal become a central home base for a squadron of 16 F/A-18 tactical fighter aircraft which will be deployed to forward bases in Northern Australia or elsewhere as required.

22. It is proposed that the home base undertake operational and intermediate level maintenance of aircraft, though specialist workshop maintenance would be carried out at RAAF Base Williamstown.

23. The major facilities required for the base are thus:

- (a) runways, taxiways and parking areas for aircraft;
- (b) workshops and hangars for aircraft maintenance, including engine testing;

- (c) stores and store preparation areas associated with aircraft operation including fuel, safety equipment, ordnance, oxygen, batteries and spare parts;
- (d) air communications and navigation equipment;
- (e) aircrew support including briefing and messing;
- (f) information gathering, processing and dissemination including intelligence, flight planning, libraries, briefing, telephone and telex facilities;
- (g) administration, including personnel and stores records;
- (h) domestic facilities including married and single residential accommodation, messing, shops, banks and post office;
- (i) ground defence and safety including security fencing, medical treatment, fire control, guard dogs and police, and search and rescue;
- (j) ground transport operation, parking and maintenance;
- (k) training and fitness facilities including gymnasium, swimming pool, small arms range, flight simulator, classrooms, playing fields; and
- (l) engineering services including water, electricity sewerage, storm water, transport and communications.

24. Off-base facilities required include:
- (m) air combat range;
  - (n) electronic warfare range;
  - (o) land and sea weapons testing and practice range; and
  - (p) off base residential accommodation.

25. Committee's Conclusion The identified needs for the Base are satisfactory given the isolation of the area and the proposed level of maintenance to be undertaken.

#### PROPOSED WORKS

26. Proposed capital works to meet the needs identified above are to be sited according to the Master Plan for Tindal (see Appendix D).

27. This plan was developed taking consideration of the requirements and reflects proposed and possible future activities to be located at Tindal, and the environmental constraints of the site. The facilities proposed to be provided have been grouped into functional zones, each of which is capable of expansion or internal development in accordance with Defence requirements.

28. The Site The main characteristics of the site are:

- (a) location of the existing runway;
- (b) the existing civil aviation facilities;
- (c) an area south west of the runway which is subject to flooding and attractive for agriculture;
- (d) the existing military buildings; and



- (e) the Stuart Highway and disused railway running north of the runway.

29. Defence and DHC concluded that the most advantageous development would be to the north of the present runway. This would involve a 15 km deviation of the Stuart Highway at a cost of some \$4 million, though the existing highway structure would be incorporated as a Base road.

30. Master Plan The main features of the Master Plan are as follows:

- (a) adoption of a 'coathanger' arrangement for the taxiway system which enables each arm of the coathanger to be utilised as an emergency runway if required along the same principles as planned for the new RAAF Airfield at Derby - Committee's Ninth Report of 1982 (Parliamentary Paper No. 246/1982);
- (b) provision of separate aircraft dispersals incorporating ordnance and passive defence safety features;
- (c) direct links from the aircraft dispersals to explosive ordnance storage and preparation facilities to avoid traversing other manned facilities;
- (d) remote siting of an engine run-up facility to minimise noise impact on all other staffed facilities;
- (e) reservation of real estate for additional squadron complexes;

- (f) siting of an air movements section to utilise the existing concrete hardstand;

- (g) separation of navigational aids on the south west side of the airfield, away from sources of interference which may affect their performance;

- (h) central placement of the administration zone outside the projected 25NEF(noise exposure forecast) noise contour;

- (i) a domestic area, outside the projected 25NEF noise contour, linked to the administration zone, and close to the Stuart Highway access;

- (j) retention of civil aviation facilities in the present area, with room for future expansion;

- (k) separation of strategic assets; and

- (l) provision for future expansion of facilities.

31. Committee's Conclusion Development to the north of the existing runway is the most appropriate option given the known site constraints. The Master Plan is a sound basis for detailed planning and future development.

32. Details of Proposed Work Details of proposed individual work together with an indication of the identified need which each satisfies are given at Appendix E. The Committee makes the following observations on the proposed work.

33. Overall Design In addition to meeting their functional requirements, buildings have been designed to cope with the harsh climate. This has resulted in the provision of large roof overhangs for sun and rain protection, and for the direct discharge of rainwater to the ground.

34. A coordinated design will be created, which will be consistent in form, construction and use of materials, whilst recognising a variation in character between buildings in certain zones. This variation is particularly noticeable between residential and technical zones, where designs will recognise the need to differentiate between working and living environments.

35. Buildings have been categorised into six main functional types, within which there is a consistency of general form, construction and use of materials:

- large industrial workshops, constructed of insulated steel cladding on a steel frame;
- small industrial buildings for workshops and stores of insulated steel cladding on a steel frame and provided with verandahs;
- administrative buildings based on a steel frame with cavity brick walls, insulated steel roof and provided with verandahs;
- community facilities of lighter steel frame construction with insulated steel roofs and non load bearing cavity brick walls;
- residential buildings of load bearing cavity brick walls or insulated steel cladding on a light steel frame; and
- special purpose buildings of individual design including control tower, electronic data processing and communications buildings, hangars, and existing buildings made good to meet temporary requirements.

36. Committee's Conclusion The general approach to building design and siting is appropriate to the needs and the site.

37. Thermal comfort Thermal comfort has been a major consideration in building design, and buildings incorporate both passive and active thermal features. Smaller buildings have been oriented to minimise solar heat gain. Residential buildings have been designed to be of light, well insulated construction suitable for both air conditioning and natural ventilation, taking account of marked seasonal variations in Katherine's climate. Office, mess and where appropriate, workshop buildings are proposed to be air conditioned. Some spaces, such as open hangars cannot be air conditioned. In others, such as the battery workshop, full air conditioning is not economic because of the need for frequent air changes and less effective evaporative cooling is to be used.

38. Considerable evidence was presented to the Committee on the need for air conditioning and the Committee is satisfied that the extent of cooling proposed is both necessary and adequate for efficient operation of the base. The proposed use of air conditioning has been developed specifically for the climate of Katherine and it is not intended that it become standard in other tropical areas.

39. Residential Accommodation It is proposed that residential accommodation, both on and off the base, shall basically comply with Defence Scales and Standards which are currently being revised. However, it is noted that it is proposed houses be provided with air conditioning but that they should therefore be of temperate climate size and not the larger houses provided for in tropical climates. It is noted that recently approved housing in Saudi Arabia (Committee's Eighth Report of 1983, Parliamentary Paper No. 307/1983) is both large and air conditioned, to take account of climatic and social conditions in that country.

40. It was also suggested that in view of the isolation, users of single accommodation are likely to require space to house more than the usual level of household goods, including entertainment equipment. It is understood a final decision on size of living area, storage space and provision of car accommodation for single quarters is yet to be made.

41. Committee's Conclusion Design of residential accommodation should take account of the special conditions of Tindal and accordingly should allow for greater than current Scales and Standards provision for both living areas and storage space.

42. Officers' NCOs' Messes It was proposed in the Defence submission that Officers' and Senior NCOs' messes while separate, share a common kitchen in the one building. While it can be argued that a shared kitchen may not give the degree of separation expected under the traditions of the Services, the Committee is satisfied that the proposal is an economic and functional arrangement. In particular it conforms with an objective of the Master Plan, economy, as put to the Committee in the Defence submission at page 7. At the public hearing, however, Defence stated the arrangement is in fact only tentative and still under consideration. The Committee expresses concern that what are presented as well considered and firm proposals in submissions should be revealed in that way to be still the subject of negotiation by the responsible bodies.

43. Water and Electricity It is proposed that the base be a commercial user of water and electricity supplies provided by the Northern Territory Government. The Committee is satisfied that the charges for these services will include a component to cover interest on capital required for provision of additional infrastructure, including environment protection measures, by the Northern Territory Government and that no arrangements for the Department of Defence to provide capital are required.

44. Sewage and Stormwater Sewage will be collected and treated on base, and all effluent used for irrigation. Stormwater will be collected from facilities via underground pipes discharging to large open drains provided with concrete lining to reduce mosquito breeding within 2 km of human habitation. The Committee believes that these arrangements are adequate.

45. Civil Aviation Tindal is an alternate airfield for civil aviation flights into Darwin. Defence indicated that there would be no change to this arrangement as a result of Tindal being developed.

46. QANTAS Boeing 747 aircraft are also used on military exercises as troop transports. Unless the shoulders of the runway are sealed it will be necessary to close the aerodrome to high performance jet aircraft for some hours after use by wide body aircraft while loose stones are cleared.

47. The Committee believes the question of upgrading the runway and taxiways to reduce operational inconvenience following use by wide bodied aircraft can be determined at a later stage. Such upgrading is not included in the current proposal.

48. As development is proposed almost exclusively on the northern side of the runway there will be minimal effect on use of the civilian terminal on the southern side.

49. Committee's Conclusion Adequate arrangements have been made for continuing use of Tindal by civilian aircraft.

## SOCIAL EFFECTS

50. Comments on possible and likely social impacts of Tindal development formed a major element of submissions to the Committee. Social effects were also considered extensively in the Draft and Supplementary Environmental Impact Statements (EIS) prepared on the proposal. The Committee makes the following observations.

51. Katherine has a population of some 4 000 people, of whom some 16% are of Aboriginal or Torres Strait Islander descent and some 13% were born outside Australia. Aboriginal people form about 50% of the population in the region around Katherine.

52. The main employment in the Katherine region is in agriculture, while community services and public administration are the major employers in Katherine township. The Katherine abattoir is a major employer of labour in the dry season.

53. Katherine has a wide range of commercial, cultural and sporting facilities for a town of its population, perhaps attributable to its isolation.

54. The Northern Territory Government indicated that growth of the town was likely to make Katherine both more and less attractive to various Aborigines. It was suggested that the net effect was likely to be neutral. Under these circumstances the proportion of Aboriginal people resident in or near Katherine was likely to fall from 16% to about 10% if development of Tindal proceeded.

55. Benefits suggested from the operation of the proposed development of RAAF Base Tindal include: additional support and membership of community service and recreation bodies, and development of new groups and interests; justification for more specialised health, welfare and other services; and increased employment opportunities for local people both on and off Base.

56. Problems associated with operation of the Base could arise because of perception of RAAF personnel as a separate population responsible for loss of Katherine's small town atmosphere, who are economically advantaged by high incomes and access to housing and other facilities denied to the civilian population, and who are associated with a highly structured and externally controlled organisation.

57. On the basis of evidence presented by Defence, the Northern Territory Government, Katherine Town Council and RAAF wives, social effects on the non-Aboriginal community as a whole are manageable within normal limits of RAAF and community consultation and cooperation on this type of project.

58. The Committee has no doubt, however, that individual cases of considerable hardship and distress will arise, and in this connection it doubts that the proposal that the RAAF rely entirely on senior officers and military chaplains to provide welfare services would prove adequate, particularly for family members who are not employees of the RAAF.

59. Submissions by Aboriginal interests indicated a perception that Aboriginal communities would not share in social and economic benefits likely to arise from development of Tindal. On the other hand, disadvantages accruing to the non-Aboriginal community are likely to be more severe on Aboriginal communities. There will be additional disadvantages as a result of intensification of the economic and political minority status of Aborigines and because of their links with rural areas affected by the proposed development.

60. Consideration of benefits to be obtained by the Aboriginal community, both generally and as individuals through employment and training opportunities during Tindal development has been inadequate and requires further investigation.

61. The Committee believes that some impact on Aboriginal interests is inevitable in a project of this size, wherever it is located. The Committee is satisfied that adequate attention has been given to Aboriginal traditional uses of the land in development of the broad proposal. However, the Committee believes that some Aboriginal concerns are legitimate, and concludes that Aboriginal concerns should be given substantial weight in decisions on detailed location of facilities and operations. In particular, the Department of Housing and Construction should ensure that sand pits will be located so as to have minimum impact on Aboriginal interests.

62. Aboriginal witnesses at the public hearing stressed the view that consultation with Aboriginal groups had not been adequate during development of the proposal and that special efforts will be required to consult with Aborigines on means to minimise adverse impacts and maximise benefits to Aborigines from the proposed development. The Committee believes that the types of consultation with Aboriginal communities to date have been appropriate to early stages of development of this type of proposal. However, it is considered that development of the proposal has outpaced Aboriginal consultation. Substantially greater levels of effective consultation with Aboriginal groups are required.

63. On 29 March 1984 Aboriginal representatives met with Commonwealth Ministers and Departmental Officers to discuss consultative arrangements. It was agreed that two Aboriginal representatives will join the Joint Consultative Committee (JCC) which was established to coordinate consultation between the Commonwealth, the Northern Territory and local government on arrangements connected with proposed development of Tindal. The activities of the JCC will be expanded to encompass areas of Aboriginal concern.

64. Committee's Recommendations Social effects during development and operation of Tindal will be felt throughout the community and may be severe on some individuals. Adequate mechanisms to accommodate social impacts are not yet in place and should be kept under constant review. Special efforts will be required to ensure Aboriginal communities share in potential benefits. Substantially greater levels of effective consultation with Aboriginal groups are required. All measures proposed in the Environmental Impact Statement to protect the physical environment should be adopted.

LIMIT OF COST

65. The limit of cost of the proposed work is \$167 million at December 1983 prices. The limit of cost comprises the following:

<u>Purpose</u>	<u>Limit of Cost (\$M)</u>
. Building Works	66.22
. Civil Works	59.75
. Mechanical and Electrical Services	41.03
Total	<u>\$167.00 M</u>

66. In addition there will be direct costs for:

<u>Purpose</u>	<u>Approximate Cost (\$M)</u>
. Land Acquisition	7
. Furnishings	7
. Maintenance Facility	3
. RAAF Supplied and Installed Equipment	23
Total	<u>\$40 M</u>

67. The Committee has been advised that a proposal for runway repairs, maintenance and upgrading may be the subject of a separate reference, as that work is required whether or not the present proposal proceeds.

PROGRAM

68. It is proposed that tenders be called progressively from mid-1984, with completion of work commensurate with required completion dates, departmental priorities and funds availability.

69. Re-equipment of No. 75 Squadron with F/A-18 aircraft is planned to commence in mid-1988, and it is currently planned to complete the project by that date.

70. Committee's Recommendation The Committee recommends construction of the work in this reference with due regard to the conclusions drawn above.

RECOMMENDATIONS AND CONCLUSIONS

71. The recommendations and conclusions of the Committee and the paragraph in the report to which each refers is set out below.

	<u>Paragraph</u>
1. TINDAL IS THE MOST SUITABLE SITE FOR DEVELOPMENT OF A HOME BASE FOR F/A-18s IN NORTHERN AUSTRALIA.	20
2. ALTERNATIVE SITES TO TINDAL HAVE BEEN ADEQUATELY CONSIDERED FROM BOTH MILITARY AND ECONOMIC POINTS OF VIEW.	20
3. THE IDENTIFIED NEEDS ARE SATISFACTORY GIVEN THE ISOLATION OF THE AREA AND THE PROPOSED LEVEL OF MAINTENANCE TO BE UNDERTAKEN ON THE BASE.	25

Paragraph

4. DEVELOPMENT TO THE NORTH OF THE EXISTING RUNWAY IS THE MOST APPROPRIATE OPTION GIVEN THE KNOWN SITE CONSTRAINTS.	31
5. THE MASTER PLAN IS A SOUND BASIS FOR DETAILED PLANNING AND FUTURE DEVELOPMENT.	31
6. THE GENERAL APPROACH TO BUILDING DESIGN AND SITING IS APPROPRIATE TO THE NEEDS AND THE SITE.	36
7. DESIGN OF RESIDENTIAL ACCOMMODATION SHOULD TAKE ACCOUNT OF THE SPECIAL CONDITIONS OF TINDAL AND ACCORDINGLY SHOULD ALLOW FOR GREATER THAN CURRENT SCALES AND STANDARDS PROVISION FOR BOTH LIVING AREAS AND STORAGE SPACE.	41
8. ADEQUATE ARRANGEMENTS HAVE BEEN MADE FOR CONTINUING USE OF TINDAL BY CIVILIAN AIRCRAFT.	49
9. SOCIAL EFFECTS DURING DEVELOPMENT AND OPERATION OF TINDAL WILL BE FELT THROUGHOUT THE COMMUNITY AND MAY BE SEVERE ON SOME INDIVIDUALS.	64
10. ADEQUATE MECHANISMS TO ACCOMMODATE SOCIAL IMPACTS ARE NOT YET IN PLACE AND SHOULD BE KEPT UNDER CONSTANT REVIEW.	64

Paragraph

APPENDIX A

11. SPECIAL EFFORTS WILL BE REQUIRED TO ENSURE ABORIGINAL COMMUNITIES SHARE IN POTENTIAL BENEFITS. SUBSTANTIALLY GREATER LEVELS OF EFFECTIVE CONSULTATION WITH ABORIGINAL GROUPS ARE REQUIRED. 64
12. ALL MEASURES PROPOSED IN THE ENVIRONMENTAL IMPACT STATEMENT TO PROTECT THE PHYSICAL ENVIRONMENT SHOULD BE ADOPTED. 64
13. THE LIMIT OF COST OF THE PROPOSED WORK IS \$167 MILLION AT DECEMBER 1983 PRICES. 65
14. THE COMMITTEE RECOMMENDS CONSTRUCTION OF THE WORK IN THIS REFERENCE WITH DUE REGARD TO THE CONCLUSIONS DRAWN ABOVE. 70

*D.J.*  
+ (D.J. FOREMAN)  
Chairman

Parliamentary Standing Committee  
on Public Works  
Parliament House  
CANBERRA

3 May 1984

(20)

WITNESSES

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- Antella, J.P., Esq., Alderman, Darwin City Council, G.P.O. Box 4510, Darwin, Northern Territory
- Battersby, R.H., Esq., Project Manager, South Australia-Northern Territory Region, Department of Housing and Construction, Adelaide, South Australia
- Bindul, N., Mrs, Committee Member, Katherine Aboriginal Action Group, P.O. Box 1577, Katherine, Northern Territory
- Bowen, B., Esq., Manager Training, Yulngu Association Inc., P.O. Box 318, Katherine, Northern Territory
- Campbell, I., Esq., Director, Policy and Planning, Department of the Chief Minister, Darwin, Northern Territory
- Carmichael, Captain R.J., Superintendent Line Operations, Qantas Airways Ltd, Mall Qantas Jet Base, Mascot, New South Wales
- Davies, P.M., Mrs, Mayor, Katherine Town Council, Civic Centre, P.O. Box 1071, Katherine, Northern Territory
- Ellis, J.B., Ms, Officer-in-Charge, Projects, Department of Community Development, Darwin, Northern Territory
- Frederick, H.J., Esq., Committee Member, Katherine Aboriginal Action Group, P.O. Box 1577, Katherine, Northern Territory
- Gargan, E.G., Esq., Director, Planning Branch, Department of Lands, Darwin, Northern Territory
- Gurevitch, Air Commodore R.N., Director-General, Accommodation and Works - Air Force, Department of Defence, Canberra, Australian Capital Territory
- Hibbert, D.J., Esq., Chief Engineer, Planning, Water Division, Department of Transport and Works, Darwin, Northern Territory
- Home, R.L., Esq., Project Manager, Environmental Studies, Defence Facilities Division, Department of Defence, Canberra, Australian Capital Territory
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Miller, N.R., Esq., First Assistant Secretary, Defence Facilities Division, Department of Defence, Canberra, Australian Capital Territory

Neil, Group Captain G.W., Director, Air Force Plans, Air Force Office, Department of Defence, Canberra, Australian Capital Territory

Price, W.H., Esq., Senior Executive Officer, Office of the Co-ordinator-General, Department of the Chief Minister, Darwin, Northern Territory

Reeves, J.E., Esq., Member of the House of Representatives for the Northern Territory, 44 Thornton Crescent, Moil, Northern Territory

Thorne, G.K., Esq., Committee Member, Katherine Aboriginal Action Group, P.O. Box 1577, Katherine, Northern Territory

Wilcox, G., Esq., President, Katherine Skydivers Inc., P.O. Box 1704, Katherine, Northern Territory

Williams, M.B., Esq., Assistant Secretary, Defence and Defence Support, Department of Housing and Construction, Canberra, Australian Capital Territory

Woods, P., Esq., Committee Member, Katherine Aboriginal Action Group, P.O. Box 1577, Katherine, Northern Territory

## EXHIBITS

Defence, Department of: RAAF Base Tindal Draft Environmental Impact Statement. Prepared by Kinhill Stearns for the Department of Housing and Construction, November 1983.

Defence, Department of: RAAF Base Tindal Supplement to the Draft Environmental Impact Statement. Prepared by Kinhill Stearns for the Department of Housing and Construction, 1984.

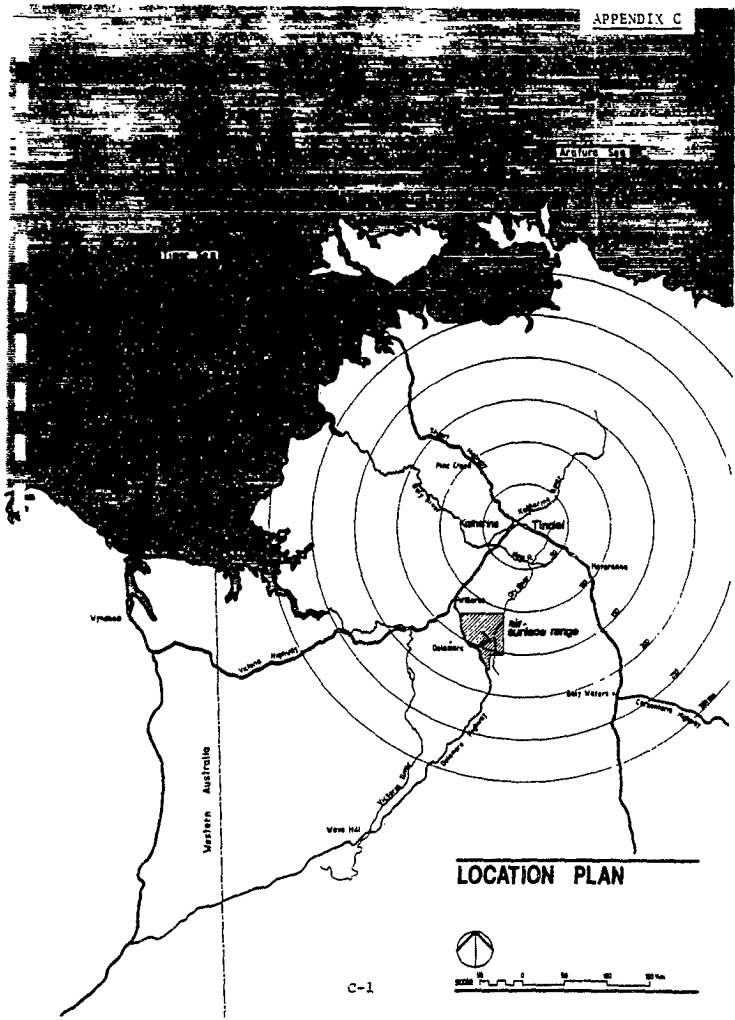
Housing and Construction, Department of: Tindal RAAF Base Environmental Control in Married and Single Quarters at Katherine, N.T. Department of Housing and Construction SA/NT Region, November 1983.

Housing and Construction, Department of: Report on a Social Survey at Katherine, Northern Territory. Prepared by Kinhill Stearns, March 1984.

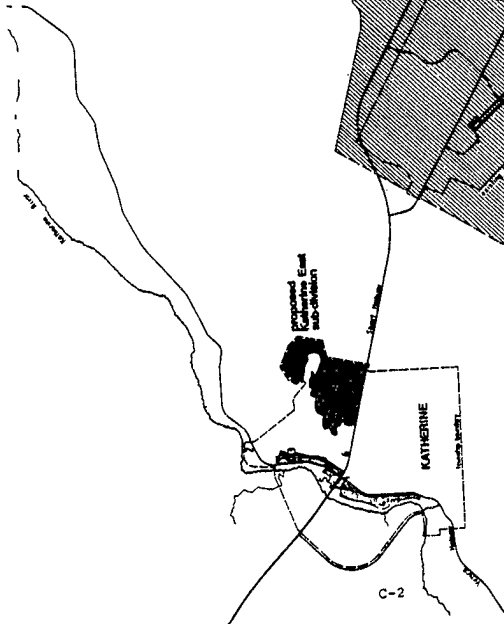
King, J. and C. Mackinolty: RAAF Base Tindal Environmental Impact Statement Public Awareness Programme Aboriginal Consultative Programme, Mimi Aboriginal Arts and Crafts, Katherine, 29 December 1983.



Latitude 5°S

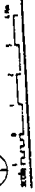


LOCATION PLAN



- Neighbourhood legend
- 1 main shopping centre
  - 2 general hospital
  - 3 primary school/hotel/health & sports recreation centre
  - 4 cinema/theatre
  - 5 high school

## TINDAL & ENVIRONS



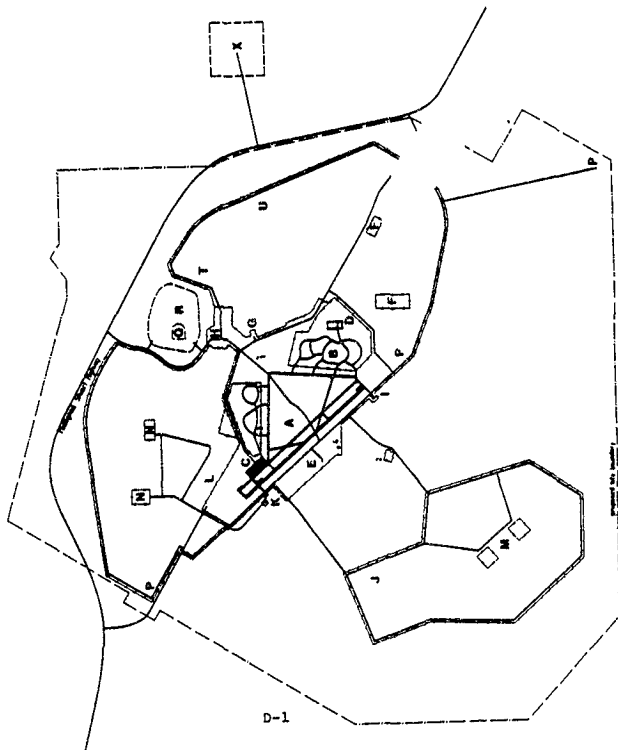
## Legend

- 1 central elec. power house 3 existing buildings to be used  
 2 sewerage treatment plant 4 fuel fire housing facility

---high security fence  
 ---inner perimeter fence

## schedule of zones

- A aircraft operations  
 B fighter aircraft support  
 C air movement & dispersal  
 D aircraft support  
 E fighter technical support  
 F repair/technical assistance facilities  
 G air defence control centre  
 H administration and support  
 I engine run-up  
 J communications  
 K civil facilities  
 L deployed aircraft dispersal  
 M bulk airbase  
 N general services  
 O aircraft support  
 P community & recreational facilities  
 Q residential  
 R mechanical target range  
 U army transit camp  
 X airfield surveillance radar

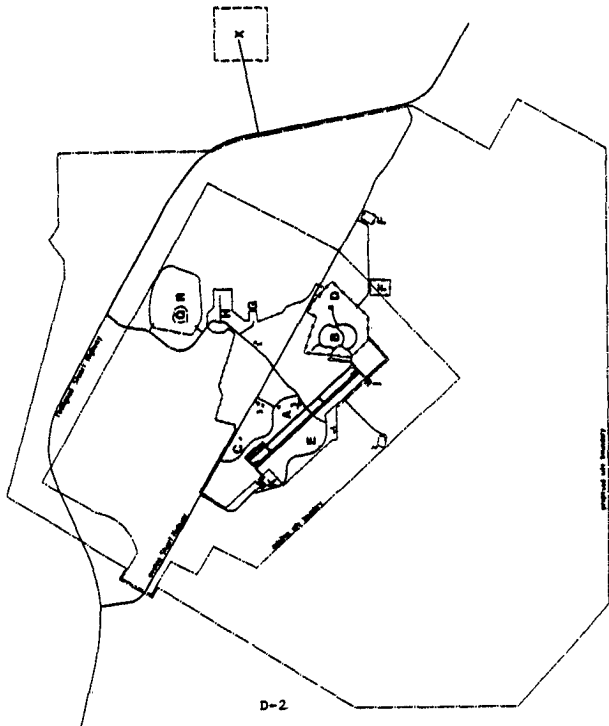


## DEVELOPMENT PLAN

(MASTER PLAN)



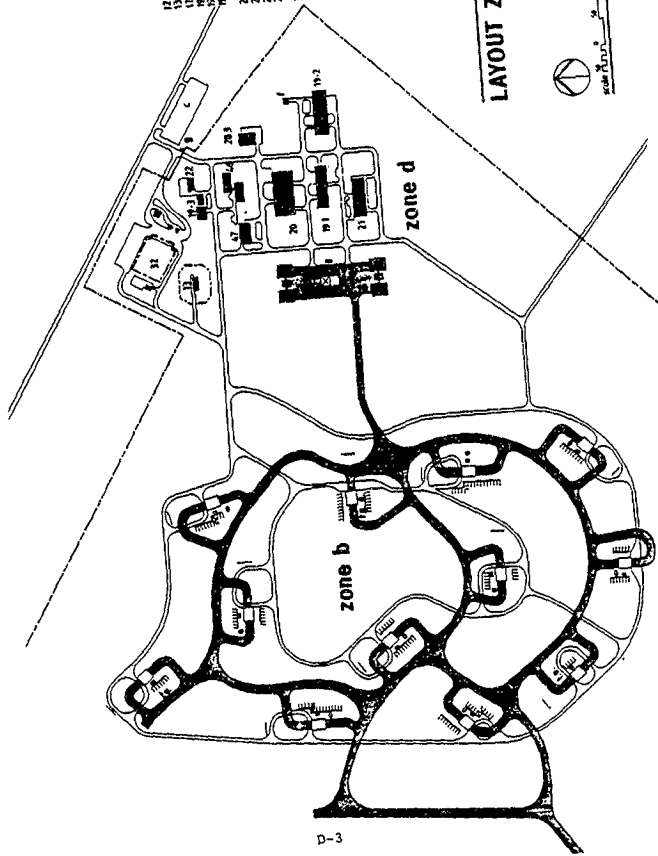
SCALE IN FEET

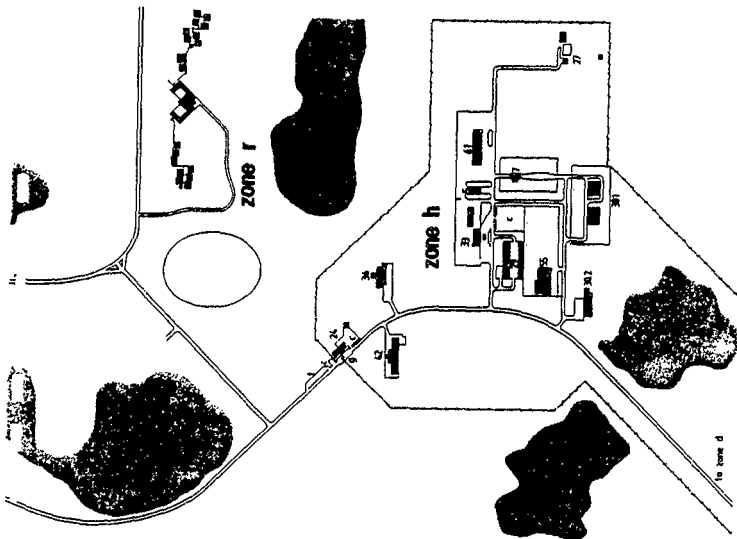


- 12 static air (wall) wash
- 13 1/2 b.s. shoe
- 14 maintenance hangars
- 15 technical support building
- 16 2nd class mail office
- 17 1st class mail office
- 18 1st class parking
- 19 engine maintenance
- 20 control
- 21 safety equipment
- 22 flight deck
- 23 flight deck
- 24 maintenance fuel store
- 25 75 sqm hangar
- 26 60 sqm hangar

- aircraft pathways
- disposal pads
- reusable goods store
- 1st posthouse
- 2nd office
- 1st office
- 2nd security fence
- 1st security fence
- 2nd security fence
- mobile barrier

# LAYOUT ZONES B & D



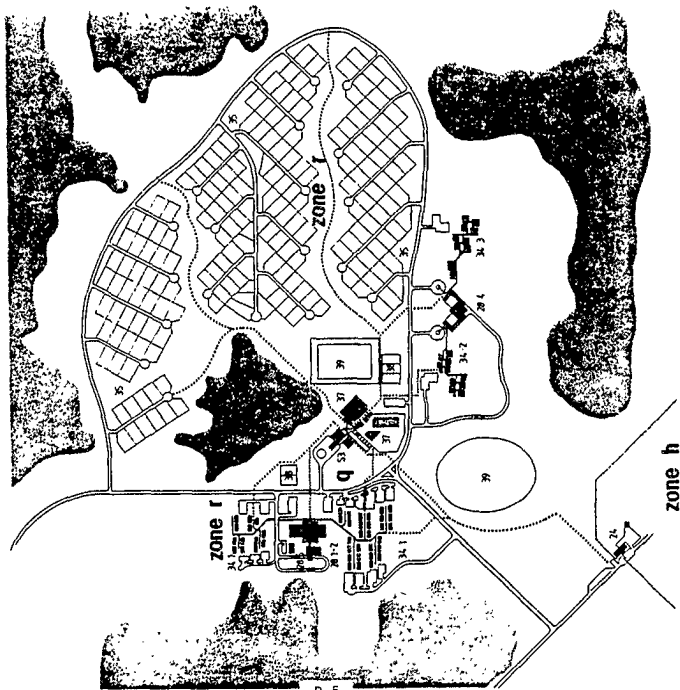


- 5 delivery vehicles
- 6.1 gate
- 7 boiler maintenance
- 24 base police services & armory
- 27 security guard dog complex
- 29 barracks stairs
- 30 barracks stairs
- 31 mess hall
- 32 mess hall
- 33 mess hall
- 34 medical dental facility
- 35 4th c. facility & compound

- 1 track layout
- 2 playground
- 3 parking
- 4 perimeter fence
- 5 truck outcrop

**LAYOUT ZONE H**





- 24 manned quarters
- 24 base police services
- 28.1 messes
- 28.2 messes & kitchen
- 28.3 recreation
- 28.4 messes & kitchen
- 28.5 bidding store
- 34.1 messes accommodation
- 34.2 sector mess accommodation
- 34.3 officers accommodation
- 34.4 messes & post
- 34.5 messes courts
- 34.6 playing fields
- 34.7 family store complex

□ rocky outcrops  
— pathways

**LAYOUT ZONE Q & R**



scale 0 5 10 15 20

## DETAILS OF PROPOSED WORK

NEED	PROPOSED FACILITY	LOCATION
To provide access from existing airfield pavements to fighter aircraft dispersal and maintenance areas.	About 400m of taxiway plus airfield lighting and pavement marking.	ZONE A
To provide accommodation for garaging RAAP fire vehicles, workshops for maintenance and storage of domestic fire fighting equipments, watch room for consoles, general office, domestic accommodation and amenities for shift personnel.	Airfield support complex comprising:  Fire station - industrial building of about 800m <sup>2</sup> .	ZONE A
To provide accommodation for personnel and equipment for the safer, orderly and expeditious flow of air traffic.	Air traffic control Tower - specialised building, rising to about 20m.	
To provide accommodation for air traffic control personnel involved with controlling all inbound, outbound and transiting air traffic within Tindal's controlled air space but outside the aerodrome traffic zone, i.e. local control.	Approach control section - air conditioned industrial building of about 430m <sup>2</sup> .	
To provide administration, training and storage facilities for ground defence personnel involved in all aspects of active and passive defence, weapon training and combat roles.	Ground defence section - refurbished and air-conditioned existing metal clad barracks buildings.	ZONE C
To provide accommodation for administration and maintenance activities in support of search and rescue helicopters.	Search and rescue - transportable building of about 140m <sup>2</sup> to be located adjacent to the existing apron.	ZONE C



NEED	PROPOSED FACILITY	LOCATION
To provide dispersed parking areas for F/A-18 aircraft based at Tindal and incorporating measures to enhance survivability of the aircraft.	Aircraft dispersal complex comprising: <ul style="list-style-type: none"> <li>12 individual traversed aircraft hardstands;</li> <li>interconnecting access taxiway; and</li> <li>technical support access road.</li> </ul> to comply with NATO Explosive Ordnance Safety principles.	ZONE B
To provide accommodation for receipt, storage and dispatch of road and air cargo in support of operations at Tindal and for processing of inward and outward passengers.	Air movements section - comprising:  Refurbished existing hangar for storage and a new metal clad building of 280m <sup>2</sup> with additional soundproofing for other facilities.	ZONE C
To provide accommodation for safe storage, dispensing and laboratory testing of liquid dry breathing oxygen used by F/A-18 and other aircraft.	Liquid dry breathing oxygen storage - small industrial building (15m <sup>2</sup> ) to house laboratory, with 200m <sup>2</sup> carport for storage of cylinders.	ZONE D
To provide dedicated hangar facilities for air-frame maintenance of F/A-18 aircraft.	Two maintenance hangars including adjacent aircraft apron, plus 70m <sup>2</sup> air conditioned office accommodation.	ZONE D

NEED	PROPOSED FACILITY	LOCATION
To provide a facility to enable hand washing of aircraft to remove corrosive materials and dirt.	Static aircraft wash - small industrial building to store chemicals and equipment. Pollutants will be treated and discharged to sewer.	ZONE D
To provide specialist workshop and administration facilities for inspection, repair and re-assembly of air-frame and aircraft components of F/A-18 aircraft, and maintenance of ground support equipment.	Technical support facility - air conditioned industrial building of 1290m <sup>2</sup> . Flammable goods will be stored in a separate building.	ZONE D
To provide workshop and storage accommodation for servicing and storage of armament equipment, ejection seats and external fuel tanks of F/A-18 aircraft.	Alternative mission equipment storage and maintenance - large industrial building, with 750m <sup>2</sup> air conditioned workshops and 1000m <sup>2</sup> for storage and maintenance of fuel tanks.	ZONE D
To provide accommodation for flight line coordination and maintenance control activities for F/A-18 aircraft, continuation training of maintenance technicians, and ground support equipment storage.	Flight line office and ground support equipment parking area - 290m <sup>2</sup> air conditioned industrial building and 220m <sup>2</sup> car-port.	ZONE D
To provide specialist workshop and administration facilities for inspection, maintenance and assembly of aircraft engines and engine modules.	Engine maintenance facility - 2560m <sup>2</sup> air conditioned industrial building with open plan workshop, storage, offices and specialised areas.	ZONE D

NEED	PROPOSED FACILITY	LOCATION
To provide specialist workshop and administration facilities for inspection, maintenance, repair and calibration of F/A-18 aircraft electronic, electrical and electro-mechanical systems and accessories.	Avionics workshop - 1400m <sup>2</sup> air conditioned industrial building with workshops, laboratories and offices. Special attention will be given to electrical isolation and screening.	ZONE D
To provide accommodation for maintenance, testing and storage of life support equipment and aircrew flying clothing.	Safety equipment section - 140m <sup>2</sup> air conditioned industrial building.	ZONE D
To provide aviation fuel storage facilities in support of all RAAF aircraft operations from Tindal. To provide laboratory facilities for testing aviation fuel for contamination and specification.	Aviation fuel storage and fuel quality control laboratory - 100m <sup>2</sup> air conditioned industrial building and 2 megalitre underground fuel storage.	ZONE D
To provide workshop accommodation for maintenance of aircraft refuelling tankers.	Fuel tanker maintenance facility - large shed with offices and testing room.	ZONE H
To provide accommodation for fighter squadron personnel administration, aircrew briefing, operational planning, intelligence briefing and technical publication storage activities.	Fighter squadron headquarters - 780m <sup>2</sup> administrative building.	ZONE D
To provide accommodation for continuation and limited operational training of pilots in flight operations and tactical fighter systems.	F/A-18 simulator facility - 800m <sup>2</sup> 2 storey industrial building.	ZONE D

NEED	PROPOSED FACILITY	LOCATION
To provide a site for mounting a Precision Approach Radar Head. This navigation aid will be used for air traffic controllers directing aircraft on an instrument landing approach to Tindal airfield. Control will be from the Approach Control Section.	Precision approach radar is to be mounted on the roof of the TACAN facility.	ZONE E
To provide accommodation for a TACAN navigation aid which is for use by aircraft flying to and from and transitting over Tindal airfield.	Tactical air navigation (TACAN) facility - specialised air conditioned building with concrete roof for equipment mounting.	ZONE E
To provide facilities for use by squadron armament personnel for safe storage of explosive ordnance.	Ordnance storage facilities - four concrete hardstands with carport shelters and earth traverses as required.	ZONE F
To provide facilities for use by squadron armament personnel for safe preparation of explosive ordnance, maintenance of explosive ordnance testing equipment, administration and ground support equipment.	Ordnance preparation facilities - four industrial buildings of about 200m <sup>2</sup> each with earth traverses. Small air conditioned office, and carport of about 150m <sup>2</sup> .	ZONE F
To provide accommodation for proposed activities involving centralised processing of base management data, e.g. pay, stores personnel particulars.	Computer and communications complex with a total area of 1600m <sup>2</sup> comprising: <ul style="list-style-type: none"> <li>. Electronic data processing;</li> <li>. Communications centre;</li> <li>. Private automatic branch exchange; and</li> </ul>	ZONE G
To provide accommodation for processing of all communications traffic.		

NEED	PROPOSED FACILITY	LOCATION
To provide accommodation for telephone exchange equipment.	. Flight plan office.	
To provide accommodation for flight planning activities which involve preparation and submission of aircraft flight plans and dissemination of weather and air traffic control data.	A special purpose building constructed to meet high security requirements and designed to be hardened later if required.	
To provide suitable accommodation for maintenance, repair and charging of aircraft and vehicle batteries.	Battery workshop - evaporatively cooled 150m <sup>2</sup> industrial building, with pollution controlled waste disposal system.	ZONE H
To provide workshop and administration facilities for personnel engaged in maintenance and repair of all ground support equipments and items of specialised motor transport.	Ground equipment maintenance facility and general engineering section - 1050m <sup>2</sup> industrial building incorporating offices, minor workshops and servicing bays.	ZONE H
To provide workshop facilities for general engineering support activities including welding, metal machining and general fitting.	Refurbished existing hangar, with office and domestic facilities in a transportable building.	ZONE C
To provide accommodation for all RAAF police activities, including entry/exit control to the Base and general security of assets.	Base police services and ground defence armoury - 300m <sup>2</sup> administrative building.	ZONE H
To provide secure storage for small arms to be held at Tindal.		

NEED	PROPOSED FACILITY	LOCATION
To provide administration, veterinary, kennels and training facilities for RAAF police dogs to be used for security of assets.	Security guard and police dog complex - 140m <sup>2</sup> industrial building, plus kennels for 13 dogs and an exercise yard.	ZONE H
To provide administration offices, specialist trade workshops and plant nursery facilities for administering and maintaining Tindal facilities, including RAAF owned married quarters.	Barracks complex - small industrial buildings totalling 940m <sup>2</sup> on either side of an enclosed compound of some 400m <sup>2</sup> .	ZONE H
To provide accommodation for management and storage of equipment required in support of all Tindal activities. This includes receipt, storage, issue, recovery and disposal of technical spares and other items, including domestic equipment, furniture and clothing. In particular, the Central Store will house the necessary inventory of F/A-18 spares.	Central equipment and flammable goods store - exposed (380m <sup>2</sup> ) covered (550m <sup>2</sup> ) and enclosed (720m <sup>2</sup> ) storage, as appropriate, with all weather access. In addition, an existing hangar in Zone C will be refurbished for use as a warehouse.	ZONE H
To provide accommodation for centralised administration and parking of the total fleet of motor vehicles, including motor transport, fuel storage and dispensing.	Motor transport section - 320m <sup>2</sup> air conditioned industrial building with parking compound and covered parking for 20 vehicles.	ZONE H
To provide accommodation for use by medical and dental staff for outpatient health care of RAAF personnel at Tindal and to enable medical personnel to provide emergency treatment in the event of an industrial or aircraft accident.	Medical and dental facilities - air conditioned and sound attenuated administrative building of 570m <sup>2</sup> . Transportable surgeries will be used initially.	ZONE H

NEED	PROPOSED FACILITY	LOCATION
To provide office accommodation for administrative personnel on the Formation and Base Squadron Headquarters' staffs.	Formation and Base Squadron Headquarters, education section and library - administrative building of 1200m <sup>2</sup> .	ZONE H
To provide facilities for testing installed and trolley mounted F/A-18 aircraft engines. There is also a need for the facility to be used by visiting F-111 aircraft in the event that an engine change is required.	Engine run-up facility - two testing bays, control cabin, office, tool store and banded fuel storage, with blast deflectors for noise control. The test stand area will be housed in an unlined metal building.	ZONE I
To provide accommodation for receipt, storage and distribution of dry and perishable foodstuffs.	Ration store included in airmen's mess building.	ZONE Q
To provide accommodation in accordance with Defence Scales and Standards entitlements to meet messing, recreational and social activities of the three rank groups in accordance with established Service practice.	Airmen's kitchen and dining room and recreation area - air conditioned community building totalling 2500m <sup>2</sup> .  Senior NCO's mess and officers mess with combined kitchen - air conditioned community building of 1300m <sup>2</sup> .	ZONE Q
Flight Line Dining and Amenities Facility. The RAAF flying program calls for flying activities throughout the day. Accommodation is required in the fighter squadron area to enable personnel to consume meals at their place of work as and when the flying program permits. The building should also provide centralised change and shower facilities.	Flight line dining and amenities facility - administrative style air conditioned building of 430m <sup>2</sup> with seating for 100 diners.	ZONE D

NEED	PROPOSED FACILITY	LOCATION
To provide accommodation for storage and distribution of bedding linen for single living-in personnel at Tindal.	180m <sup>2</sup> bedding and cleaning store - adjacent to the airmen's mess building.	ZONE Q
To provide facilities for use by RAAF personnel for physical fitness training needs and by dependants for general sporting and recreational purposes.	Sporting and recreational facilities comprising a gymnasium (2000m <sup>2</sup> ), 50m 9 lane swimming pool, 5 tennis courts and 2 playing fields. These will be essentially to Defence Scales and Standards.	ZONE Q
To provide facilities to cater for everyday shopping, banking and postal needs of Service personnel and their dependants.	Family store, post office, bank, and petrol station accommodated in a 720m <sup>2</sup> air conditioned building.	ZONE Q
To provide accommodation to house single and married personnel based at Tindal and for personnel visiting and transitting through the Base.	Single accommodation and married quarters - 200 houses in Katherine, 179 houses on base and single accommodation for 328 people on base. See Appendix F for details.	ZONE R and Katherine Township
To provide for live firing of small arms as part of continuation weapons training by Service personnel based at Tindal.	Basic 25m small arms range.	ZONE T
To provide engineering services to support all proposed development.	Roads, reticulated power, water and sewerage.	On Base
To provide physical and electronic security and fire detection to protect vital assets.	Security fencing, and central supervisory system, including approved intrusion detection devices.	On Base

NEED	PROPOSED FACILITY	LOCATION
To provide facilities and an environment in which operational training and exercising of tactical fighter and strike aircraft can be conducted. Weapons training includes air-to-ground firings of practice and live ordnance.	Air-to-surface weapons range - on 2200 km <sup>2</sup> about 130 km southwest of the Base. Includes observation and control tower with accommodation for 6 personnel, helicopter pad, fences, all weather access and warning flag poles and notices.	Off Base
To provide suitably isolated and located buildings to house radar equipment for surveillance of Tindal airspace and transmitting and receiving equipment for point-to-point communications with aircraft.	Approach surveillance radar and air traffic control transmitter and receiver buildings - complex of small industrial buildings on high ground 2km east of the Base enclosed by high security fence and with all weather access. Purpose designed buildings and towers, totalling 730m <sup>2</sup> and rising to 18m.	Off Base

Residential Accommodation

1. Residential accommodation will be provided on-base for all single personnel and some of the married personnel. The remaining married personnel will be housed off-base.
2. Three main categories of accommodation will be provided:
  - . married quarters;
  - . single quarters for officers/senior NCO's; and
  - . single quarters for other ranks (airmen).
3. Separate areas for each of these categories are planned for privacy and to facilitate access to the central recreation and community area (Zone Q).
4. The Married Quarters subdivision at East Katherine provides for 179 allotments and has been designed for possible future expansion.

Single Accommodation

5. All single accommodation is to be provided on-base and in accordance with the requirements of the Defence Force Scales and Standards of Accommodation and Services Sleeping Accommodation Design to Cost Targets.

Officers/Senior NCO's Single Accommodation

6. Air conditioned accommodation is provided in building modules of generally four occupants in each. The modules comprise two pairs of individual bedrooms with each pair sharing toilet and shower. Two modules are provided for eight senior officers and eight modules house 32 junior officers. Ten modules similar to the officers, but slightly smaller, house 40 senior NCO's.
7. Separate and smaller buildings house common facilities such as laundries, cleaners rooms, bathrooms and telephones.
8. Modules are linked to the mess by covered ways which are separated from vehicular access and servicing.

Airmen's Single Accommodation

9. The air conditioned accommodation for 248 Airmen will be provided in a combination of 22 single and 20 two storey buildings arranged close to the Mess. They are linked to the Mess and carparks by covered walkways.
10. Buildings are designed to accommodate groups of four people on each floor sharing a common room, shower, toilet, a tea making facility and box storage space.
11. Attached laundries and drying area will be shared by groups of eight airmen.

Married Accommodation

On Base

12. Of the total 379 married quarters to be provided in this proposal, 179 will be on base, distributed into three, four and five bedroomed houses catering for various ranks.
13. The houses will be located on separate allotments planned about cul-de-sacs wherever possible. The allotments will be fenced only to the rear gardens and the houses will be provided with enclosed secure car ports. The mixture of three, four and five bedroomed houses planned for different group categories will result in numerous house designs and a consequential varied streetscape. This variety will be enhanced by the introduction of both low set, high set and split level houses.
14. The houses will be designed in accordance with the provisions of the 'Interim Revisions to Services Scales and Standards of Accommodation for Low Density Houses - April 1982'. All habitable rooms will be air conditioned and the nominal gross areas comply with the scales for houses in a temperate zone.

Off Base

15. 200 married quarters will be provided off base in a new subdivision at Katherine East, which is to be developed by the Northern Territory Government.
16. The houses will be distributed into three, four and five bedroomed houses catering for various ranks.

17. As with the on-base houses, the off-base houses will be located on separate allotments of a similar area, which will be planned about cul-de-sacs wherever possible. The allotments will be fenced only to the rear gardens and the houses will be provided with enclosed secured car ports.
  
18. The introduction of three, four and five bedroomed building types, low set, high set and split level houses and the integration of civilian houses will result in a suitably varied streetscape.