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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REPORT

relating to the

**NORTHSIDE DEVELOPMENT OF CIVIL AVIATION FACILITIES,  
DARWIN AIRPORT, NORTHERN TERRITORY**

**(Seventeenth Report of 1989)**

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**TABLE OF CONTENTS**

	Page
Members of the Parliamentary Standing Committee on Public Works	iv
Extract from the Votes and Proceedings of the House of Representatives	v
	<b>Paragraph</b>
The Reference	1
The Committee's Investigation	3
Background	7
. Darwin Airport	7
. Federal Airports Corporation	10
Previous Redevelopment Proposal	14
. 1984 Public Works Committee Report	14
. Relocation of the Airport	16
The Need	20
. State of Existing Facilities	20
. Forecast Growth	29
. Committee's Conclusion	31
The Proposal	32
. The Terminal Building	35
. Layout of Facilities	40
. Provision for Expansion	41
. RPT Aircraft Apron and Taxiway	42
. General Aviation	46
. Roads and Car-parks	49
. Administration Building	54

Financing the Proposal	55
Concerns of the Domestic Airlines	62
. Funding of the Project	63
. Committee's Conclusion	69
. Provision of Aerobridges	70
. Committee's Recommendation	76
. Additional Taxiway	77
. Nature of the Surface Apron	84
. Size of the Terminal	87
. Functional Concerns	89
Concerns of the Northern Territory Government	94
. Redevelopment of Darwin Airport a Major Priority	94
. Tourism and the Northern Territory	97
Implications of the Development for the Department of Defence (RAAF)	101
. RAAF Base Darwin	101
. Attitude to the Redevelopment Proposal	105
Concerns of Darwin City Council	111
Darwin Airport Master Plan	115
Environmental Considerations	116
. Committee's Conclusion	122
Consultations	123
Construction Program	125

Cost Estimate	128
. Committee's Recommendation	130
Conclusions and Recommendations	131

	Page
Appendices	
. Appendix A - List of Witnesses	A1
. Appendix B - Construction Details	B1
. Appendix C - Project Drawings	C1

MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS

(Twenty-ninth Committee)

Mr Colin Hollis MP (Chairman)  
Mr Percival Clarence Millar MP (Vice-Chairman)

Senate

Senator Bryant Robert Burns  
Senator John Robert Devereux  
Senator Dr Glenister Sheil

House of Representatives

Mr George Gear MP  
Mr Robert George Halverson OBE MP  
Mr John Graham Mountford MP  
Mr William Leonard Taylor MP \*

\* Appointed on 29.9.88 following resignation of  
Mr Maxwell Arthur Burr MP

Inquiry Staff: Mr Peter Roberts (Secretary)  
Mr David Crawford (Senior Project Officer)  
Ms Helen Hutchins (Clerical Support)

EXTRACT FROM VOTES AND PROCEEDINGS OF  
THE HOUSE OF REPRESENTATIVES

NO. 126 DATED WEDNESDAY 31 MAY 1989

- 10 PUBLIC WORKS COMMITTEE - REFERENCE OF WORK - NORTHSIDE  
DEVELOPMENT OF CIVIL AVIATION FACILITIES, DARWIN  
AIRPORT: Mr West (Minister for Administrative  
Services), pursuant to notice, 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: Northside  
development of civil aviation facilities, Darwin  
airport.

Mr West presented plans in connection with the proposed work.

Debate ensued.

Question - put and passed.



## **PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS**

### **NORTHSIDE DEVELOPMENT OF CIVIL AVIATION FACILITIES, DARWIN AIRPORT, NORTHERN TERRITORY**

On 31 May 1989 the House of Representatives by resolution referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposal for the development of civil aviation facilities at Darwin Airport, Northern Territory.

#### **THE REFERENCE**

1. The proposal provides for the construction of new civil aviation facilities at Darwin airport for domestic, international and general aviation services and comprises:

- . a two-storey terminal building
- . an administration building and adjoining workshop
- . taxiways and aprons for regular public transport (RPT) and general aviation (GA) aircraft
- . a new access road and car-parks
- . associated engineering services.

2. The project has been referred to the Committee at the conceptual design stage and the cost estimate at this stage, is \$72m at May 1989 prices.

#### **THE COMMITTEE'S INVESTIGATION**

3. The Committee received written submissions from the Federal Airports Corporation (FAC), the Civil Aviation Authority (CAA), the Department of Defence (DOD), the Northern Territory Government, Darwin City Council, QANTAS, Ansett Transport Industries (Operations), Australian Airlines and the Master

Builders Association of the Northern Territory and took evidence from representatives of these organisations at a public hearing in Darwin on 27 July 1989.

4. Documentation was also provided by Australian Customs Service and a private individual and are incorporated in the Minutes of Evidence.

5. During the afternoon of 26 July the Committee inspected the existing terminal and the proposed site for the new facilities on the northern side of the airport. The inspection included an overflight of the site by RAAF helicopter.

6. A list of witnesses who appeared at the hearing is at Appendix A. The Committee's proceedings will be published as Minutes of Evidence.

#### BACKGROUND

##### Darwin Airport

7. The airport is located 6.5kms north-east of the Darwin central business district. It is bounded by three major arterial roads, these are: Bagot Road along the western boundary, the Stuart highway along the southern boundary and McMillans Road along the northern boundary.

8. The present airport was commissioned as a RAAF facility in July 1941. A joint user policy between the then Commonwealth Departments of Air and Civil Aviation enabled civil aviation to commence in 1945.

9. The civil facilities area was developed as a distinct entity separate from but in close proximity to the military facilities at the airport in the area south of the 11/29 main runway.

## **Federal Airports Corporation**

10. The Federal Airports Corporation is a government business enterprise established by, and incorporated under the Federal Airports Corporation Act 1986. The Act was proclaimed on 13 June 1986.

11. On 1 January 1988, the FAC assumed responsibility for the ownership, management and development of Australia's federal airports. On 1 April 1989 the FAC assumed responsibility for a further six airports, including Darwin and Alice Springs.

12. In its negotiations with the Commonwealth about the acquisition of Darwin Airport, the Corporation agreed that it would undertake the development of new civil aviation facilities on the northern side of the runway at an estimated cost of up to \$65 million.

13. When the FAC assumed responsibility for Darwin Airport on 1 April 1989, simultaneously land was ceded by the Commonwealth (DOD) on the northern side so that new facilities could be provided.

## **PREVIOUS REDEVELOPMENT PROPOSALS**

### **1984 Public Works Committee Report**

14. In 1984 the Committee examined a proposal for the redevelopment of Darwin Airport. The Committee considered five siting options for the further development of both RAAF and civil facilities. The Committee acknowledged the poor standard of facilities and recommended that redevelopment proceed with staged development on the north side of the airport at a cost of \$95m (Seventh report of 1984).

15. In 1985, after approximately \$7m had been spent in developing the northern option, the Minister for Aviation deferred work on the project while a reappraisal study was carried out. The study concluded that the proposed northern site was the optimum location for the redevelopment. However development works were not resumed. (The FAC advise that most of these works have been incorporated in the present proposal).

#### Relocation of the Airport

16. The case for airport relocation has been examined in a number of previous studies by Government Departments, interdepartmental committees and consultants. The most recent reviews followed Cyclone Tracy, but no over-riding justification to remove the RAAF Base and/or the civil facilities to a new airport site has been established.

17. The benefits of relocation cannot be rigorously quantified, as they related to the town planning advantages of being able to release inner city land for urban development. On the other hand, relocation of the airport would be extremely expensive exercise, estimated in May 1975 to cost \$100m (May 1975 prices) more than the continued development of the existing airport.

18. The present pattern of Darwin's development, extending south, means that the airport location is continually improving in relation to the centre of population and average travel time. Relocation of the airport site to a site well south of Darwin would in general disadvantage the population in this regard.

19. For these reasons the FAC state the option of airport relocation was not pursued by the Corporation.

## THE NEED

### State of Existing Facilities

20. There was common agreement amongst all those organisations that made submissions to the Committee that the existing facilities at the airport terminal are totally inadequate and substandard. Australian Airlines for example state that the existing passenger amenities rank along Alice Springs as the worst of any major terminal in Australia.

21. The existing terminal building is the same war-damaged hanger which the RAAF made available as a terminal on an interim basis in 1945. The terminal was severely damaged by Cyclone Tracy in 1974. Despite extensive restoration, the terminal remains substandard and is inadequate in terms of size and facilities. Severe congestion occurs in the existing building at peak periods. It is in need of extensive renovation, is costly to maintain and is structurally inadequate for high wind loadings. The building must be evacuated when winds in excess of 70 knots are forecast.

22. The terminal caters for both domestic and international passengers but because of its limited size is extremely crowded when several aircraft arrive at peak periods. The lounges for passengers are few and substandard and are of a 1950's "hard-seat" vintage.

23. Whilst considerable alterations have been carried out in recent years, processing facilities for incoming international passengers remain inadequate. The building is simply incapable of accommodating the passengers from wide bodies international flights. It is not unusual for passengers to have to queue on the apron, in the rain, awaiting entry to the terminal for health clearance.

24. The present airline parking area is inadequate at peak periods and there is insufficient space for further development as the apron area is constrained by the terminal building, a RAAF apron and taxiways. The apron is so shaped that limited aircraft parking is available in front of the terminal thus causing a potential safety hazard as passengers must walk through lines of parked aircraft on the apron.

25. Car-parking facilities close to the terminal are often overtaxed and there are no areas available for expansion of these facilities. Some remote car-parking is available but this provides a very poor level of service, particularly in view of the tropical Darwin climate.

26. The general aviation apron and building areas do not have sufficient capacity even for existing demand. The existing general aviation hardstand and unsealed apron areas are only able to satisfy aircraft parking requirements with substandard wing tip clearances causing concern regarding safety of the manoeuvring operation. In addition, serviced sites are very restricted for current building proposals in the area.

27. The existing civil aviation facilities are located almost entirely in the developed areas south of the 11/29 main runway. These areas also contain the bulk of RAAF installations at the aerodrome, including RAAF living quarters and secure areas. This south-western sector therefore has severe space limitations and is incapable of further expansion.

28. In addition, the location of existing civil infrastructure in the midst of RAAF facilities is a major constraint to both present and future civil and military operations.

## Forecast Growth

29. The long term forecasts for passenger and aircraft movements prepared by FAC are as follows:

### PASSENGER ACTIVITY FORECASTS

	International	Domestic	Commuter	Total
1987	78 000	372 000	32 000	482 000
1997	143 000	605 000	40 000	788 000
2007	241 000	985 000	40 000	1 266 000

### AIRCRAFT MOVEMENTS FORECAST

	International	Domestic	Commuter	Other	Total
1987	1 100	5 000	6 200	59 500	71 800
1997	1 950	7 500	8 000	65 700	83 150
2007	2 650	10 000	8 000	72 600	93 250

30. In preparing the projections the FAC state that:

- . forecasts have been prepared on the basis of continued tourist industry growth over the next ten years at least, with international visitors brought in on both international and domestic aircraft
- . little potential for growth is envisaged on commuter routes
- . 'other' activity includes general aviation and such items as training circuits and military aircraft. Only minimal growth is anticipated.

### Committee's Conclusion

31. The existing civil aviation facilities at Darwin airport, particularly the terminal building, are inadequate and substandard. The Committee accepts the need for the development of new facilities at Darwin airport to improve the standard of service to passengers, to overcome the existing problems of congestion and insufficient space and to meet likely future demands.

### THE PROPOSAL

32. The proposal provides for the development of civil aviation facilities in the northern sector of the Darwin airport, north of the existing runway. The development consists of a two-storey terminal building with a gross floor area, including baggage make-up, of 13,300m<sup>2</sup> and a further 3,100m<sup>2</sup> has been provided for a plant room, enclosed walkways and stairs together with unenclosed covered areas. The apron provides parking for eight aircraft in total, nominally for six domestic and two international positions.

33. A general aviation apron will provide 100 parking spaces for commuter, charter and private aircraft.

34. A new access road off McMillans Road will be constructed into the terminal building together with access roads to areas such as general aviation, light industrial sites and the administration building. Car-parking will be provided for 475 vehicles short term and a further 75 long term with dedicated areas for hire cars, taxis, staff and bus parking.



## The Terminal Building

35. The proposed two-storey building is of an architectural form which emphasises openness and natural light. It is a design that recognises the tropical environment of Darwin. A special feature is the curved portal frame structure over the entry area which in combination with sunscreens and overhangs is intended to create a sense of spaciousness and light in the building. The front of the building facing onto the access roadway has an extended roofline to the kerbside which provides protection to arriving passengers from the weather. A covered walkway is also to be provided on the airside of the building for passengers boarding and leaving the aeroplanes.

36. The main concourse airline offices, check-in facilities, baggage reclaim and international arrivals facilities are to be located on the ground floor. The main concession area, government offices, concourse and lounges are proposed to be located on the first floor. Direct access is provided from the gate lounges to the international aircraft by an aerobridge. A feature of the proposal is that aerobridges are not provided from the domestic lounges. This will necessitate passengers boarding a domestic plane to descend by stairs from the departure lounge on the first floor and walk out on the apron to the aircraft.

37. However, provision will be made for internal flexibility in the aerobridge/gate lounge arrangements, with the ability to locate aerobridges along the modular airside wall. Aircraft of sizes larger than currently envisaged may thus be accommodated.

38. The building proposal is designed to provide access and facilities for disabled persons.

39. Plant rooms are principally located at roof level. The building structure is designed in conformity with building codes to withstand cyclones. The FAC pointed out that the terminal may

not be immediately functional following a cyclone. The Committee raised the desirability of the building being immediately operational after a cyclone. FAC advised the additional cost ramifications of such a suggestion would be in the order of \$1.2m.

#### **Layout of Facilities**

40. The distribution of facilities within the terminal has been based on the separation of arriving and departing passengers and of passenger processing and waiting areas. Queue space and overflow space at processing points such as check-in, and gate lounges has been located to avoid interference with other passenger movements. It has been the express aim to avoid permanent obstructions in areas where future flexibility will be a requirement. The single multi-use gate lounge exhibits a degree of flexibility to enable airlines to cope with closer aircraft scheduling.

#### **Provision for Expansion**

41. With the international airline services and domestic service areas at either side of the building, the design permits easy expansion of both areas to accommodate future demand. The baggage reclaim areas and airline office spaces can be adjusted to accommodate additional carriers. FAC stated that it had not been approached by any new carriers for space in the proposed terminal, and whilst it had not specifically reserved space for new carriers, the design does permit expansion at the domestic end of the terminal.

#### **RPT Aircraft Apron and Taxiway**

42. The apron layout on the airside of the terminal was determined on the basis of the minimum extent commensurate with the required parking capacity of one B747, one B767, two B727's,

one A320, two B737's plus a stand-off position for one B747.

43. The limits of the RPT apron were determined by the following considerations:

- . relatively higher terrain to the west resulting in increased earth works
- . the convenience and economy of aligning the new taxiway connection with existing taxiway 'B'
- . the requirement to limit facilities such as the height of structures to accord with the RAAF limitations in order not to degrade the performance of the existing Air Traffic Control Surveillance Radar nor obstruct other communications systems
- . the desirable location of the terminal in relation to the apron, allowing for future expansion
- . the location of the existing earthworks platform for the terminal as completed for part of the works carried out in 1984
- . all positions nose-in/push-out with, initially, only one aerobridge being supplied to the B747 position, although the design allows for the future provision of aerobridges to the domestic positions
- . apron edge taxiway allowing for the clearance of a B767 behind parking positions.

44. A single taxiway links the apron to the runway on the alignment of taxiway 'B'. A second taxiway opposite taxiway 'E'

has not been included in the proposal at this stage, although this matter is receiving further consideration from both the Corporation and the CAA.

45. It is proposed that the pavements for both the taxiway and apron will be of flexible bituminous concrete (rather than rigid concrete) consisting of varying thicknesses of sub base and base to cater for the designed loads and surfaced with 50mm of bituminous concrete.

#### **General Aviation**

46. The proposal incorporates a general aviation apron for a minimum of 100 light aircraft parking positions. On special occasions, such as aeronautical events, there will be much larger numbers, however the proposed area is more than twice the present one and will be a significant improvement.

47. A single taxiway will be provided to the apron and owing to the taxiway length this will incorporate a passing bay to improve the flow.

48. Cost estimates provide for the area to be fully serviced with sites for hangers being provided on the eastern side of the apron.

#### **Roads and Car-parks**

49. The development will be serviced by a new access road from the northern boundary of the airport, off McMillans Road, near the crossing over Rapid Creek. It is anticipated that the Northern Territory Government will construct the section of the access road from McMillans Road to the airport boundary.

50. After the airport boundary the main road becomes a one way loop system servicing the car-park and terminal building. The

road will cater for an average daily traffic volume of 4 000 vehicles in one direction with a peak hour flow of 800 vehicles.

51. Secondary roads will access the serviced sites, the general aviation area and the airports administration building.

52. Car-parking has been designed to cater for 475 vehicles in the short-term area (defined as a stay of less than two hours), with an additional 75 vehicles in the long term area. The main car-park has the capability of being expanded relatively simply to cater for 600 short-term plus 100 long-term vehicles, which is the forecast demand for the year 2000. Parking is also being provided for staff cars, taxis, coaches and rental/hire cars.

53. Well designed and clearly defined access routes for pedestrians will be provided as well as adequate signage for all airport users.

#### **Administration Building**

54. Part of the 1984 development included an electrical and mechanical workshop building. The concrete floor slab and steel framework were completed at that time. The current proposal provides for the completion of this building for the use of the FAC administrative staff, combined with an electrical workshop.

#### **FINANCING THE PROPOSAL**

55. The preliminary cost estimate for the development works is \$72m at May 1989 prices. The project is to be funded however from non-Commonwealth budget sources.

56. The FAC in its submission state that because of other legally committed development and expansion works, insufficient funds will be generated internally to fund the development and thus external funding will be required.

57. The FAC Board is examining a broad range of financing approaches to fund the project. The submission points out that the FAC Board is highly desirous of keeping its funding options open in order to maximise its return on the project through minimising any debt servicing and funding obligations. Debt servicing costs are planned to be substantially met from incremental revenues. These revenues will result from the increased passenger throughput and spending rates and the improved ratio of commercial to total floor space.

58. The FAC stress that critical to the funding of the project is its completion within budget, both in terms of cost and time. Consequently a pre-determined Loan Council borrowing level guarantee of an amount equal to the preliminary estimated cost will be sought by the Corporation. This must ensure funds availability in line with annual budgeted project expenditure in order to eliminate time-related cost overruns through borrowing capacity constraints.

59. It is anticipated that the development and related expenditure will be spread over three years in line with the recommended pattern of development, with \$20.3m in the first year, \$51.5m in year two and \$0.2m in year three.

60. At the public hearing the FAC was questioned on its method of funding, particularly in light of the concerns of the airlines on this matter (these are discussed in paras 61-67). The FAC said that the project is expected to be cash-positive by the mid 1990's and to become "fully-profitable" some time after 2000AD. The project, FAC state, will be supported in its early loss-making period by profits from other parts of the Corporation's airport network of some 23 airports.

61. The FAC said the investment will be financed, over time, by a mixture of retained earnings and from a mix of commercial borrowings which will be undertaken by the Corporation over various terms.

#### CONCERNS OF THE DOMESTIC AIRLINES

62. Both Ansett and Australian Airlines expressed the same concerns about the development. These are:

- . funding of the project
- . provision of aerobridges
- . an additional taxiway
- . nature of the surface aprons
- . size of the terminal.

#### Funding of the Project

63. Both Ansett and Australian Airlines state that the means by which the FAC will recover its costs for the project is unclear. Their concern about funding, total cost and the recovery of costs stem from the admitted fact that the project cannot be self-supporting from Darwin activity for several years.

64. Australian Airlines in its submission point out that the end of construction costs are likely to be in excess of \$90m. Australian Airlines estimated that using conventional borrowing/cost of money assumptions with a pay back period of say, 20 years, Darwin airport would have to generate an additional \$22m of revenue each year so as to support this project (interest \$16.2m - capital recovery through depreciation \$4.5m) and increased operating costs of about \$1m.

65. Australian Airlines is concerned that because of the shortfall in revenue being generated from the proposed terminal the difference could be made up through aeronautical charges. If

this was to be the case, Australian Airlines believe that it would add an additional \$2000 to \$2500 dollars for each RPT aircraft movement, or alternatively if the shortfall was to be related to dollars per passenger movement, then an additional cost of \$30 for every passenger movement would occur. This cost, unless covered through other means, would need to be recovered through higher tariffs on Darwin passengers who already are paying a very high level of airfares that reflect the long distance from other main cities.

66. As a consequence of its concern about the estimated costs and recovery aspects, Ansett requested a site be nominated by the Corporation on which Ansett can investigate provision of its own passenger terminal needs. Ansett also argues that general aviation facilities are not fundamental to the development and suggest that these works costing \$7.5m could be excluded from the proposal or reduced in size.

67. The financing of the proposed project at this stage remains unclear and is very much a matter for resolution by the Board of the FAC. The FAC has indicated that the project is likely to be cross-subsidised by charges from the operations of other federal airports.

68. The FAC told the Committee that at this stage there is no intention to increase aeronautical charges to finance the project. However that does not preclude alterations to the system of charges at a future time.

#### **Committee's Conclusion**

69. The Committee is of the opinion that the Federal Airports Corporation should inform the airlines of the cost break-up for Darwin airport as it affects them.



## Provision of Aerobridges

70. The proposal provides for one aerobridge from the international lounge. No aerobridge is proposed from the domestic gates. This arrangement has been criticised by most of those who have made submissions. Without the aerobridges departing domestic passengers will be required to check-in at the ground level of the proposed terminal, ascend via escalators to the first floor departure lounge, then descend by stairwell to the ground level to walk out to the aircraft and then finally ascend the aircraft stairs to their seats.

71. Both airlines have requested two domestic aerobridges as well as access to the international aerobridge.

72. The provision of aerobridges was the subject of considerable discussion at the public hearing. In addition to the domestic airlines, the Northern Territory Government, the Darwin City Council, and the CAA strongly advocate that these facilities be provided during the initial phase of the project.

73. Conflicting evidence as to the likely cost of aerobridges arose during the hearing. The FAC advise that the cost is in the order of \$1m (maximum) for one. Ansett and Australian Airlines both suggest a maximum cost of \$0.5m.

74. The Committee is surprised that the proposal does not provide for domestic aerobridges particularly in light of the tropical nature of Darwin's climate. However the FAC state that allowance has been made in the project tender documents for the provision of optional features, such as aerobridges. If tenders are below the cost estimate a recommendation would be made to the FAC Board to include the desirable options with the works.

75. The Committee believes that aerobridges should be provided at the domestic gates. It is noted that FAC has kept the option open in the tendering process. The Committee suggest that the possibility of the domestic airlines contributing to the cost of the aerobridges should be explored.

#### **Committee's Recommendation**

76. The Committee recommends that two aerobridges should be provided at Darwin airport for the domestic section of the terminal. The FAC should explore with the airlines the possibility of the airlines making a financial contribution to the cost of the aerobridges.

#### **Additional Taxiway**

77. A single taxiway linking the airport apron to the runway is proposed in the project. Both domestic airlines and QANTAS urge that a second taxiway be provided and are supported by the CAA.

78. This matter was in fact the principal concern of the CAA. It stated that it is undesirable for aircraft to taxi on or across an active runway, as aerodromes with configurations similar to that in the FAC proposal are experiencing incident rates which are attributable in large part to the operating procedures and the additional workloads imposed.

79. The airlines and CAA stress that the provision of a single taxiway will cause congestion and delays due to its use by both arriving and departing aircraft.

80. The CAA also mention that the dimensions and intended aircraft parking arrangements shown in the FAC proposal will contribute to severe congestion. Should a B747 push back from either parking position near the entrance to the apron, other

aircraft will be denied entry or exit until the B747 has taxied onto the runway and is moving away from the access taxiway.

81. The CAA conclude that if a full length parallel taxiway is not immediately possible then the RPT apron should be served by a partial northern parallel taxiway with runway connections opposite existing taxiways 'Bravo' and 'Delta'. In addition, portions of the existing taxiway system serving 11/29 should be upgraded to the standard required for B747 operations.

82. The FAC advise that a second taxiway is of a cost of \$3.5m and maintains that the probability of an arriving aircraft trying to enter the RPT apron at a similar time to a departing aircraft leaving the apron is quite small.

83. The Committee note that as with the aerobridges, the FAC have included provision of a second taxiway as an option in the tender documents. The FAC advise that inclusion of an additional taxiway remains a decision for the FAC Board after possible discussions with the airlines about cost recovery. The Committee believes this is a matter for the FAC to resolve.

#### **Nature of the Surface Apron**

84. The pavement for both the taxiway and apron will be flexible bituminous concrete.

85. Australian Airlines particularly emphasize that at both Cairns and Townsville airports, despite the assurances of designers that the flexible pavements would not lose shape, the pavements lost shape under the continual aircraft wheel loadings. Australian Airlines advocate a rigid concrete pavement.

86. FAC believes that the problems in Townsville will not occur at Darwin and the flexible pavement will prove satisfactory.

### Size of the Terminal

87. Both Ansett and Australian Airlines argue that the proposed terminal is too large. In particular the general public areas could be reduced in size and thereby contributing to a reduction in costs.

88. The FAC replied that it is in the general public areas that it intends to locate its revenue earning facilities such as bars. The FAC was surprised about the airlines criticism on this matter as it believed that it had reached agreement with them about the size of the terminal. The FAC subsequently held discussions with both airlines about several possible cost saving alterations. The Committee was advised by the Corporation that the likely cost savings are not anticipated to be significant.

### Functional Concerns

89. The domestic airlines, QANTAS and the Australian Customs Service all expressed some concerns about functional matters.

90. The original proposal provided in the arrivals hall for a flexible check-in system with island check-in desks and underground baggage delivery. However the airlines were critical of the proposal.

91. At the hearing the FAC advised it had subsequently modified the design to meet the airlines concerns to provide a linear check-in desk arrangement and an overhead baggage system.

92. The Australian Customs Service had two particular concerns; that in the baggage hall the space between the baggage conveyor and marshalling rail will cause bottlenecks and a minimum of five metres is required between the rail and examination tables.

93. FAC said it has altered the area because of the concerns expressed by Customs and the area is being reviewed to see if additional improvements can be made.

#### CONCERNS OF THE NORTHERN TERRITORY GOVERNMENT

##### Redevelopment of Darwin Airport a Major Priority

94. The Northern Territory Government believes the redevelopment of Darwin airport is urgent because the present inadequate facilities are hindering the Territory's rapidly growing international and domestic tourism industry. The redevelopment is essential to enable the full potential of tourism to be achieved, to decrease existing passenger congestion and to cater for commercial and community needs.

95. A major objective of the Government's economic development strategy is the achievement of a more efficient and extensive transport network. The redevelopment of Darwin (and Alice Springs) airport is regarded by the Government as a major priority in the improvement of the Territory's transport network.

96. The Government supports the design proposal and particularly the northside location, the two-storey terminal, its design as a common-user facility and the need for the relocation of the GA area, which it sees as a pressing need. The Government also point out the need to take into account in the design for freight handling and storage facility requirements.

##### Tourism and the Northern Territory

97. The Northern Territory Government stresses that the existing terminal facilities are hindering the tourist industry. It mentions that tourism is now the second largest industry in the territory. In the 12 months period to July 1988 there were 868 000 visitors to the Northern Territory.

98. Tourism has been experiencing extremely rapid growth in recent years, with the number of visitors increasing by an average of 11.1% per annum since 1981-82. The number of international visitors increased by 44% in the 12 months to July 1988 to 167 000. It is forecast that by 2000AD the number of international visitors will increase fourfold to 670 000.

99. Interstate visitors constitute over 50% of the total visitors to the Territory. These visitors are estimated to have accounted for 441 000 trips in the 12 months to July 1988. by 2000AD it is forecast that interstate travellers will account for 1 million trips per annum.

100. With tourism playing a major part in the Northern Territory economy, Darwin airport is important to the industry as it is a major entry port for visitors as air services are the main mode of transport used by visitors (52% of all visitors use air services).

#### **IMPLICATIONS OF THE DEVELOPMENT FOR THE DEPARTMENT OF DEFENCE (RAAF)**

##### **RAAF Base Darwin**

101. The Darwin RAAF Base is located in the south-western section of the airport and surrounds the existing civil facilities; this has lead to a number of management and security problems for the RAAF.

102. RAAF Base Darwin is the logistic airhead for the Australian Defence Force in northern Australia. It is a deployment airfield used for the following operations; deployment for circuit training of Hornet aircraft from RAAF Williamtown, F1-11s from RAAF Base Amberley, Orion maritime patrol aircraft from RAAF Base

Edinburgh and 707s from RAAF Base Richmond. Darwin is also used for diversion training of Hornets from RAAF Base Tindal.

103. The RAAF has a long term intention to retain RAAF Base Darwin as a forward operating base.

104. The RAAF is also responsible for air traffic control services at Darwin airport. In particular RAAF is responsible for all surface movements on the aircraft pavements, and for air traffic movements of civil and military aircraft for a distance of 35 nautical miles from the airport.

#### Attitude to the Redevelopment Proposal

105. DOD fully supports the FAC proposal for relocation of civil aviation facilities to the northern side of RAAF Base Darwin. Existing civil facilities on the southern side of the base need to be relocated to allow development of this area for military purposes in accordance with Departmentally-endorsed concepts for the future of RAAF Base Darwin.

106. DOD and the then Department of Aviation have worked closely over the past decade in studying various alternatives for the mutual development of military and civil aviation facilities at Darwin. Since 1 April 1989 when the FAC accepted responsibility for the civil airport at Darwin, negotiations have been held on joint user issues including the terms of the leases for RAAF installations and a formal joint user agreement is currently being negotiated.

107. DOD is concerned that under the proposal the RAAF Air Traffic Control Surveillance Radar (ATCSR) will be partially surrounded by civil facilities (including the new terminal) and these are likely to cause radar interference. As a consequence DOD state it is possible that the ATCSR will need to be relocated.

108. Defence state that although degradation of the ATCSR is likely it cannot be accurately quantified, it prefers to retain the ATCSR at its present site and await completion of the new terminal building when flight tests will be conducted to determine the significance of any degradation and whether relocation or raising of the ATCSR is necessary.

109. The FAC advise that the new facilities have been designed to conform with RAAF radar siting criteria. It agrees with RAAF that the most sensible option is to await completion of the proposed terminal before considering whether to relocate or raise the radar.

110. DOD however insist that it should not pay the relocation costs if it is necessary. This remains the subject of negotiations between the Department and the FAC.

#### CONCERNS OF DARWIN CITY COUNCIL

111. The Darwin City Council's principal concerns relate to traffic movement and car-parking (environmental matters are discussed separately in paras 119). Council acknowledge that at present there are no problems with traffic movement around the airport as the peak arrival/departure time does not coincide with peak traffic flow. However it believes that any change in aircraft scheduling could create problems at the proposed airport access road and McMillans Road. The Council would be opposed to the installation of traffic signals at McMillans Road as it is an arterial road and signals would slow down traffic flows on the road.

112. The Council also emphasizes its desire to be involved in the development phase of the project. It also points out that existing car-parking facilities at the airport are inadequate and favour hire car firms at the expense of the locals.



113. The FAC state that it intends to develop the proposed external road system in cooperation with the Northern Territory Department of Transport and Works and the Darwin City Council. It is mentioned earlier in this report that it is anticipated that the Northern Territory Government will construct the section of the new access road from McMillans Road to the FAC airport boundary.

114. The proposal provides for car-parking for 550 private cars and separate facilities for rental/hire cars and coaches and taxis.

#### **DARWIN AIRPORT MASTER PLAN**

115. The proposed works are in accordance with the provisional master plan for Darwin airport. The document was produced by the Department of Aviation in 1983 and sets out proposals for the optimum future development of civil aviation facilities. It has been adopted by the FAC. The proposal is also in accordance with the RAAF master plan.

#### **ENVIRONMENTAL CONSIDERATIONS**

116. In 1983 the then Department of Home Affairs and Environment stated that, providing any future environmentally significant supplementary works not fully identified in the provisional masterplan were referred for assessment, no Environmental Impact Statement (EIS) would be required on the provisional masterplan.

117. The FAC consider that as the proposed redevelopment is in accordance with the provisional masterplan, there will be no adverse environmental impact from the development and therefore no requirement for an EIS. An independent re-assessment has been made in April 1989 by the Northern Territory Conservation

Commission (N.T.C.C.) which agrees with this approach and concludes that there will be no significant impact from the works.

118. The Department of the Arts, Sport, the Environment, Tourism and Territories (DASETT) has been advised that construction will soon commence and that N.T.C.C. had been consulted to reassess the environmental impact of the proposed works. DASETT agreed that the earlier advice that an EIS is not required is still valid. DASETT however requested that the Environmental Working Group (EWG), first established in 1984, be reconvened to monitor the impact of construction works, the operation of the new facilities, and specifically to monitor the water quality of Rapid Creek during construction.

119. The latter point was raised as a matter of concern by the Darwin City Council. It emphasizes the need to control soil erosion on Rapid Creek particularly during the construction period. The Council requested that it be consulted on the construction of stormwater drains and discharge points into the creek.

120. The Northern Territory Government noted that the airport development may have some environment impacts including the water quality of Rapid Creek. It believes that the necessary mechanisms are in place to minimise these impacts, particularly the EWG. It should be noted that the EWG consists of representatives of the Commonwealth, the N.T.C.C., the Northern Territory Departments of Health and Transport and Works and the Darwin City Council.

121. The first meeting of the EWG was held on 18 April 1989 and the FAC intend to convene further meetings of the group on an "as required" basis. Water quality monitoring will begin before the start of construction work and will continue throughout its duration.

### **Committee's Conclusion**

122. The Committee is satisfied that the environmental consequences of the proposed project have been assessed by the appropriate authorities. The Committee believes that the Federal Airports Corporation should inform the Darwin City Council of the details concerning the construction of stormwater drains and discharge points into Rapid Creek.

### **CONSULTATIONS**

123. The proposed works are of great interest to many organisations and people including Commonwealth and Territory departments, airlines, general aviation and business concessionaires.

124. The FAC consulted with the following organisations during the early phase of the project:

(a) Commonwealth and Territory Authorities:

- . Department of Transport and Communications
- . Department of Immigration, Local Government and Ethnic Affairs
- . Australian Customs Service
- . Department of Defence
- . Australian Federal Police
- . Northern Territory Agricultural Quarantine Service
- . Northern Territory Department of Transport and Works
- . Northern Territory Department of Health and Community Services
- . Northern Territory Conservation Commission
- . Northern Territory Power and Water Authority
- . Northern Territory Police
- . Darwin City Council

(b) Airlines and other tenants:

- . Qantas Airways
- . Ansett Airlines
- . Australian Airlines
- . Air North
- . Darwin Airport Users Group
- . Darwin Aero Club
- . Oil Company JAFS
- . Various concessionaires.

(c) Other bodies:

- . International Air Transport Association
- . Civil Aviation Authority.

**CONSTRUCTION PROGRAM**

125. Preliminary discussions were earlier in the year held between the FAC and the Committee and the Committee agreed to;

- . the early completion of various works which had been previously commenced
- . the calling of tenders for the work conjointly with the parliamentary review process by the Committee.

126. It is anticipated subject to parliamentary approval that the main contract will be signed later this year.

127. The duration of detailed design and construction will not be known until tenders are evaluated, however, it is anticipated that the works can be completed by late 1991.

## **COST ESTIMATE**

128. As has been emphasized in this report, the proposal has been referred to the Committee at the conceptual design stage, so a final limit of cost estimate is not available. The preliminary cost estimate at this particular stage is \$72m at May 1989 prices.

129. The estimate does not include for rise and fall or prolongation costs during construction.

### **Committee's Recommendation**

130. The Committee recommends the construction of new civil aviation facilities for domestic, international and general aviation services at the northern sector of Darwin airport at a preliminary cost estimate at the conceptual design stage of \$72m at May 1989 prices. As a consequence of the referral of the project at this stage, the Committee desires that for the life of the project it receive quarterly revised cost estimates and progress reports from the Federal Airports Corporation.

## CONCLUSIONS AND RECOMMENDATION

131. The conclusions and recommendation of the Committee are set out below with the paragraph in the report to which each refers:

### Paragraph

1. The existing civil aviation facilities at Darwin airport, particularly the terminal building, are inadequate and substandard. The Committee accepts the need for the development of new facilities at Darwin airport to improve the standard of service to passengers, to overcome the existing problems of congestion and insufficient space and to meet likely future demands. 31
  
2. The Committee is of the opinion that the Federal Airports Corporation should inform the airlines of the cost break-up for Darwin airport as it affects them. 69
  
3. The Committee recommends that two aerobridges should be provided at Darwin airport for the domestic section of the terminal. The FAC should explore with the airlines the possibility of the airlines making a financial contribution to the cost of the aerobridges. 76

4. The Committee is satisfied that the environmental consequences of the proposed project have been assessed by the appropriate authorities. The Committee believes that the Federal Airports Corporation should inform the Darwin City Council of the details concerning the construction of stormwater drains and discharge points into Rapid Creek.

122

5. The Committee recommends the construction of new civil aviation facilities for domestic, international and general aviation services at the northern sector of Darwin airport at a preliminary cost estimate at the conceptual design stage of \$72m at May 1989 prices. As a consequence of the referral of the project at this stage, the Committee desires that for the life of the project it receive quarterly revised cost estimates and progress reports from the Federal Airports Corporation.

131



Colin Hollis  
Chairman

26 October 1989.

## LIST OF WITNESSES

- ABERNETHY**, Mr Ian Leslie, Planning Officer, Darwin City Council, Darwin, NT
- BATES**, Mr Brian, Project Manager, Australian Construction Services, MLC Building, 81 Smith Street, Darwin, NT
- COX**, Mr Michael John Arthur, Property Director, Qantas Airways Limited, P O Box 489, Sydney, NSW
- DONAHOO**, Group Captain John Patrick, Director, Facilities Engineering and Services, Department of Defence (Air Force Office), Russell Offices, Canberra, ACT
- FANNING**, Mr Peter Gerard, Deputy Executive Director, Master Builders Association of the Northern Territory, P O Box 2604, Darwin, NT
- GORDON**, Mr Ian Donald, Secretary, Department of Transport and Works, G P O Box 2520, Darwin, NT
- GRAY**, Mr Alan, General Manager, Finance, Federal Airports Corporation, 77 Dunning Avenue, Rosebery, NSW
- HILLAS**, Mr Peter Alexander, Manager, Northern Territory, Ansett Airlines, 40 Smith Street Mall, Darwin, NT
- JACKA**, Mr Andrew, Deputy State Manager, Northern Division, Australian Construction Services and Consultant to Federal Airports Corporation, MLC Building, 81 Smith Street, Darwin, NT
- KROLKE**, Mr Ernst Jurgen, Manager Fleet Planning and Scheduling, Qantas Airways Limited, P O Box 489, Sydney, NSW
- LADE**, Mr John, Manager, Projects, Federal Airports Corporation, 77 Dunning Avenue, Rosebery, NSW
- MOORE**, Mr Kevin Charles, Manager, Facilities Section, Operations Branch Safety Regulation Group, Civil Aviation Authority, P O Box 367, Canberra, ACT
- RICHARDS**, Mr John Anthony, Airport Development Manager, Australian Airlines Limited, 50 Franklin Street, Hawthorn, VIC
- SANTALUCIA**, Mr Bruno, Airport General Manager, Darwin Airport, P O Box 36821, Winnellie, NT
- SHARP**, Mr Derek Richard Granville, Manager, Airports Development, Qantas Airways Limited, P O Box 489, Sydney, NSW



TILBROOK, Mr Bruce Wayne, Manager, Australian Airlines Limited,  
16 Bennett Street, Darwin, NT

UNSWORTH, Mr Ian, Manager, Airport Development, Ansett Airlines,  
501 Swanston Street, Melbourne, VIC

WARBURTON, Mr Robert Lawrence, Assistant Manager, Building  
Projects, Ansett Airlines, 501 Swanston Street,  
Melbourne, VIC

**CONSTRUCTION DETAILS****The Terminal Building**

The building will be a two-storey structure (with roof plant rooms), which can be designed as a structural steel frame or a reinforced concrete frame on pad footings, with concrete ground floor slab and suspended concrete floor slabs at first floor and plant room levels as applicable.

The buildings have a cyclonic design classification of 'Normal' and the design will allow for cyclonic wind levels on all structural elements.

The building envelopes comprise an insulated pre-finished galvanised steel deck roofing on a structural steel trussed roof framing. External walls are curtain walls to facilitate extensions. Glazing comprises laminated safety glass. Where required glazing includes integral sun control devices. Automatic opening doors are provided at all public access points. The choice of materials meets the sound transmission criteria necessary to alleviate aircraft noise nuisance within the building.

Internally, except walls around fixed elements such as stairs, toilets, etc., walls are steel framed dry wall (gypsum plasterboard) with painted finish. Floor coverings to most areas including public areas are carpet, and in toilets and wet areas are hard ceramic tiled.

**ENGINEERING SERVICES****Water Supply**

The site of the development is currently serviced by a 150 mm diameter dedicated water main from a Power and Water Authority (PAWA) main in McMillans Road. The partly constructed elevated water tank of 100 000 litres capacity will supply water for domestic purposes only, whilst a ground storage tank of 1 400 000 litres capacity will provide storage for one day's domestic supply and a reserve for fire fighting requirements.

A combined fire/domestic ring main reticulation system will be provided with two domestic pumps delivering a total of 25 litres/sec and two fire booster pumps delivering 70 litres/sec. The water system will be fully automatic and one set of the fire booster pumps will satisfy the requirements of the hydrant, sprinkler and deluge systems.

The length of water main already laid to the elevated tower will be used resulting in a considerable cost saving.

## **Sewerage**

The sewerage system is of conventional design utilising a gravity system to a pumping station which is already constructed and operational.

The airport sewerage will discharge via a rising main to the Northern Territory Government "Marrara Trunk Sewer". This sewer has been designed to receive the whole of the airport sewerage.

As with the water supply, reuse of the previously constructed drains and pumping station will result in minimising the costs.

## **Drainage**

Storm water drainage will be designed to cater for one in ten year storm on the landside and one in fifty year storm on the airside. All discharge will be channelled into Rapid Creek.

The main drainage system and all drains adjacent to the terminal will be constructed from reinforced concrete pipe or concrete box culverts. To accord with international health guidelines any open drains with 400 metres of the terminal will be lined with impervious material to prevent ponding and hence the breeding of mosquitoes.

The system will incorporate interceptor traps to prevent pollutants, such as fuel and oil, entering the creek. Settling sections will be provided to minimise any siltation and energy dissipation structures incorporated to reduce scouring.

## **Electrical Supply**

Electrical power will be provided to an intake station near McMillans Road from the Snell Street/Casuarina feeder at 11 kv.

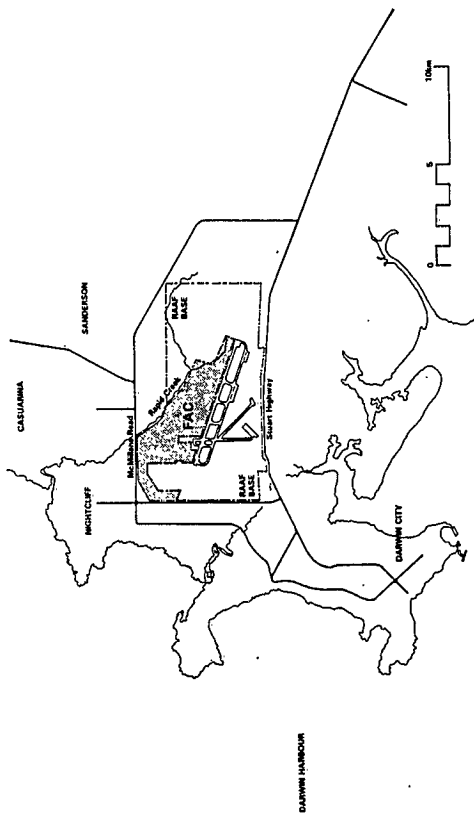
At the five substations within the site the voltage will be further reduced to three phase 415 volt and from there to the consumers main switchboards.

A high priority supply agreement with PAWA is currently being investigated. Such an arrangement would enable a relatively small emergency generator system to be installed to cater for essential services only.

PROJECT DRAWINGS

- Figure 1 - Locality Plan
- Figure 2 - Master Plan
- Figure 3 - Stage 1
- Figure 4 - Terminal - Ground Floor
- Figure 5 - Terminal - First Floor
- Figure 6 - Traverse Section and Elevation.

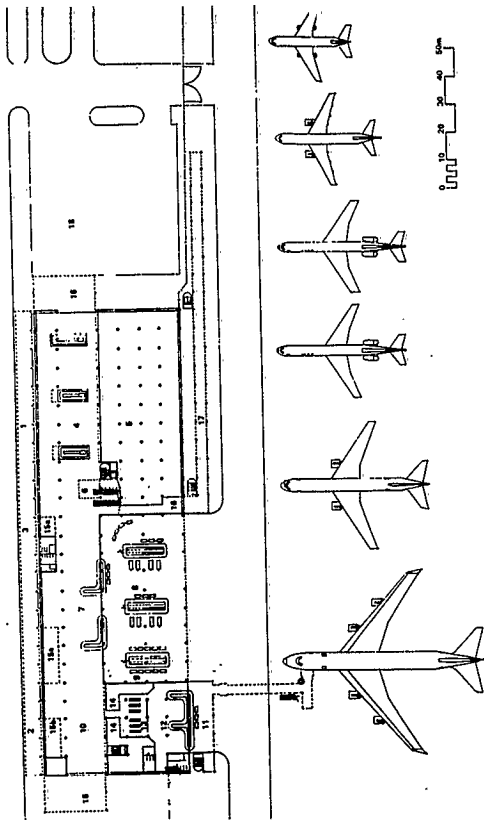
# 1 LOCALITY PLAN







# 4 TERMINAL - GROUND FLOOR



## LEGEND:

- 1 kerbside drop off
- 2 kerbside pick up
- 3 baggage check-in
- 4 check-in hall
- 5 airline offices
- 6 baggage check
- 7 domestic baggage claim

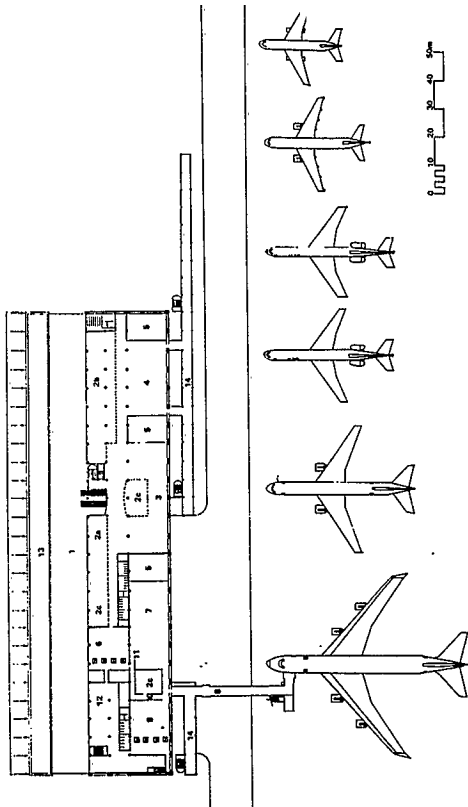
- 8 domestic baggage make-up and breakdown
- 9 international public arrivals
- 10 international baggage break down
- 11 international baggage break down
- 12 customs baggage check
- 13 customs baggage check
- 14 government offices

- 15a concessions (general)
- 15b concessions (food)
- 16 coaches
- 17 car park
- 18 car park
- 19 high security fence

**DARWIN AIRPORT**



5 TERMINAL - FIRST FLOOR



LEGEND:

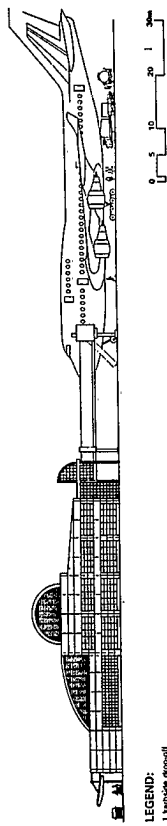
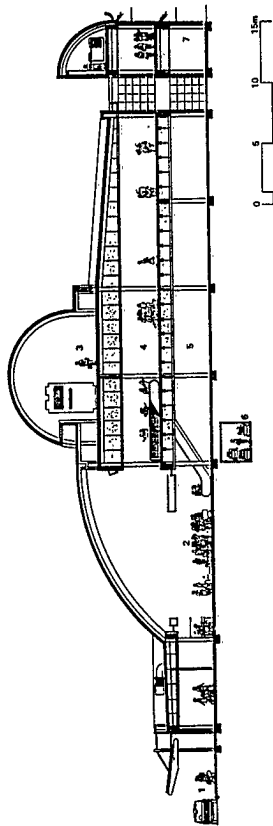
- 1 void
- 2a concessions (floor)
- 2b concessions (ceiling)
- 3 public lounge
- 4 domestic gate lounge
- 5 VIP lounge
- 6 departures/emigration check point
- 7 international gate lounge
- 8 arrivals lounge
- 9 international passenger arrivals
- 10 transit passengers
- 11 security
- 12 government offices

- 13 roof
- 14 walkway



**DARWIN AIRPORT**

## 6 TRANSVERSE SECTION AND ELEVATION



### LEGEND:

- 1 baggage apron
- 2 baggage hall
- 3 air conditioning plant
- 4 passport lounge
- 5 baggage check-in
- 6 baggage conveyor tunnel
- 7 walkway to aeroblasts

**DARWIN AIRPORT**