

DEPARTMENT OF THE SENATE	
PAPER No.	365
DATE	27 MAR 1984
PRESENTED	1984
THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS <i>M. Cunningham</i> Clerk of the Senate	

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



SUPPLEMENTARY REPORT

relating to the proposal for

CONSTRUCTION OF FACILITIES FOR A TACTICAL FIGHTER SQUADRON, RAAF BASE DARWIN, NORTHERN TERRITORY

ENGINE RUNUP FACILITY

(First Report of 1984)



Parliamentary Standing Committee on Public Works

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MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE
ON PUBLIC WORKS

(Twenty-Seventh Committee)

Senator Dominic John Foreman (Chairman)

The Honourable Wallace Clyde Fife, M.P. (Vice-Chairman)

Senate

House of Representatives

Senator Gerry Norman Jones

David Bruce Cowan, Esq., M.P.

Senator Bernard Francis

Peter Hertford Drummond, Esq., M.P.

Kilgariff

Leonard Joseph Keogh, Esq., M.P.

Eamon John Lindsay, Esq., M.P.

John Saunderson, Esq., M.P.

PUBLIC WORKS COMMITTEE ACT 1969

ORDER UNDER SUB-SECTION 18(4)

I, SIR ZELMAN COWEN, the Governor-General of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, in pursuance of Sub-Section 18(4) of the Public Works Committee Act 1969, hereby, by this Order, declare that the public work described in the schedule be referred to the Parliamentary Standing Committee on Public Works for consideration and report.

SCHEDULE

CONSTRUCTION OF FACILITIES FOR A TACTICAL FIGHTER SQUADRON,
RAAF BASE DARWIN, NORTHERN TERRITORY - STAGE 1

L.S.

Given under my Hand and the
Great Seal of Australia on
21 December 1981

ZELMAN COWEN
Governor-General

By His Excellency's Command,
(Signed) D.T. McVEIGH
Minister of State for
Housing and Construction

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

CONSTRUCTION OF FACILITIES FOR A TACTICAL FIGHTER SQUADRON,
RAAF BASE DARWIN, NORTHERN TERRITORY
ENGINE RUNUP FACILITY

- SUPPLEMENTARY REPORT -

On 21 December 1981, His Excellency the Governor-General in Council referred to the Parliamentary Standing Committee on Public Works for investigation and report to Parliament the proposal to construct facilities for a tactical fighter squadron at the Royal Australian Air Force Base, Darwin, Northern Territory.

The Committee has the honour of presenting the following supplementary report:

THE INITIAL REFERENCE

1. The proposal, when initially referred to the Committee, was for the construction of buildings and engineering works as Stage 1 of a two-stage development to allow the permanent basing of a fighter squadron at RAAF Base, Darwin. New married quarters were also to be constructed in association with the base development. The components of the proposal were:

- an operations domestic support building;
- an engine runup facility;
- ground support equipment shelters;
- refurbishment of hangars and ordnance storage buildings;
- sleeping quarters for junior officers and other ranks;

- eighty-three new married quarters;
- a car park, security fencing and engineering services.

COMMITTEE'S THIRD REPORT OF 1982

2. The Committee's Third Report of 1982 (Parliamentary Paper 99/1982) recommended the construction of the work in the initial reference with the exception of the engine runup facility. This exception arose because the Committee was not satisfied that the design and siting of the facility would reduce noise emissions from aircraft engines to acceptable levels during testing. The Committee concluded that construction of the proposed engine runup facility should be delayed until problems with noise pollution have been completely resolved. The Committee undertook to report further on the engine runup facility when its siting and design had been reassessed by Department of Defence and the Department of Housing and Construction.

THE COMMITTEE'S INVESTIGATION

3. The Committee received a written supplementary submission from the Department of Defence in October 1983, and the Committee was briefed by Department of Defence Representatives on 10 November 1983. On the same date the Department of Defence advised by letter that the Department of Housing and Construction had not participated in the investigations described in the submission and, consequently, that design solutions and cost estimates were not yet available. A submission and drawings were received from Department of Housing and Construction in February 1984.

4. Because the Darwin City Council had provided the main body of evidence which alerted the Committee to the noise problems associated with the engine runup facility the Committee

circulated the Department of Defence submission to the Council in November 1983. The Council responded by letters in December 1983 agreeing the new site, with some reservations, discussed below, on hours of operation.

5. On 15 February 1984, whilst in Darwin on another reference, the Committee inspected the proposed new site for the engine runup facility.

BACKGROUND

6. Following a Government decision that RAAF Base, Darwin, would be the home of No. 75 Squadron when it returned from Malaysia in 1983, the Government proposed work, estimated at \$9.6m to provide facilities necessary for the permanent basing of the Squadron's Mirage aircraft at Darwin. Since it was planned for No. 75 Squadron to re-equip with F/A-18 aircraft in 1986/87 the work was described as Stage 1 of the redevelopment of RAAF Base, Darwin; Stage 2 being the additional facilities required to enable No. 75 Squadron to operate F/A-18 aircraft at Darwin. The Committee recommended the construction of the proposed work in its Report 3/82, excluding the engine runup facility pending reassessment of its siting and design. At the time of the Committee's investigation the Base's existing facilities were described as being adequate to maintain No. 75 Squadron on short term deployment in compliance with the stated role of the base to support transient and deployed aircraft on exercises.

7. In October 1982 the Minister for Housing and Construction informed the Committee that alternative sites, including the Tindal Base near Katherine, were being examined as a location for F/A-18 facilities. Accordingly, planning for Stage 2 works at Darwin had been curtailed and contracts and tendering for the Stage 1 work, which had been approved by Parliament, were not being proceeded with. In June 1983, the Minister sought the

agreement of the Committee to continue with the construction of interim work to support the relocation of No. 75 Squadron at Darwin at an estimated cost of \$1.9m. The scope of work for the engine runup facility was to be reduced from that specified in Stage 1 proposals, to provide interim facilities for the Mirage only. In agreeing to the interim works the Committee sought and received an assurance from the Minister that no decision would be made on the siting of the engine runup facility until the matter had been considered by the Committee.

THE NEED

8. Present Facility The present engine runup facility is located on the northern side of the aerodrome in the area proposed for the relocation of civil aviation activities at Darwin. This facility will have to be demolished to enable the civil aviation project to proceed. A two-bay facility to accommodate both installed and uninstalled engines will be required to adequately support proposed RAAF operations.

9. The present civil aviation facilities split the RAAF activities at Darwin, some being separated by up to 4km. This leads to inefficiencies and it is the RAAF's intention to use part of the present civil aviation area to site facilities for the resident squadron. The Department of Defence and the Department of Aviation have agreed that civil aviation activities should be located to the North of the aerodrome. Siting of the civil aviation facilities will be considered in the Committee's reference on Development of Facilities, Darwin International Airport, N.T.

10. Committee's Conclusion There is a need for an engine runup facility at RAAF Base Darwin when construction of new civil aviation facilities commences on the northern side of Darwin.

SITE SELECTION

11. Noise Consideration As originally proposed, the facility was to consist of a concrete apron enclosed by wind shelter walls of reinforced concrete blockwork and a test shelter building with attached annex in the uninstalled engine test bay. A sunshelter was to be erected over part of the installed engine test bay and a blast wall constructed to the rear of each bay. Provision was to be made for a future gunfiring stop butt and earth mound to the front of the wind shelter wall. The facility, then estimated to cost \$542,000, was to be located at the end of a taxiway connecting it with the eastern end of taxiway Alpha.

12. The Darwin City Council was concerned that operation of the facility would cause a noise nuisance to inhabited areas situated along the nearby Stuart Highway. Representatives of the Council proposed that either the facility be designed to reduce the noise to an acceptable level, or that it be sited to achieve a sufficient distance between the facility and populated areas to prevent noise nuisance. Tests conducted with a Mirage aircraft in March 1982 in the presence of community representatives and the media indicated to the Department of Defence that the proposed site was unsuitable.

13. Alternatives Investigated The Department of Defence investigated three alternative sites for the facility, illustrated at Drawing A:

- West of taxiway Golf (Site A)
- North of the main runway near the Marrara Swamp (Site B)
- North east of the new aircraft maintenance hangar (Site C)

14. Although all sites had various advantages and disadvantages, Site C was assessed as having the best potential for reducing the noise impact on the surrounding suburbs and on the RAAF Base. A natural ridge line running through the aerodrome effectively shields the adjacent suburbs from the effects of noise. Site B does not benefit from such shielding, while Site A is closer to residential development than Site C.

15. The Department conducted tests at the site using Mirage aircraft and involving representatives of local authorities and residents. The noise generated by the tests was monitored at several sites on and off the base by officers of the National Acoustic Laboratory (NAL). A copy of the NAL report was made available to the Committee.

16. Residential Areas The Committee agreed that the tests indicated that a facility at Site C would not have a significant impact on the level of noise experienced in most residential areas although it noted the following from the NAL report:

- some of the quieter areas of Millner with low background noise levels may experience some increase in noise levels from testing operations.
- tests conducted at night could have a greater impact.
- some residential areas, notably the on-base married quarters, experience higher background noise levels related to aircraft operations which reduces the impact of engine testing.

17. The Committee received correspondence from the Darwin City Council confirming that they had no objections to the runway facility being located at Site C. However, Council may have some

concern if the facility was to be used during those hours which are normally covered under noise pollution legislation. The Northern Territory Conservation Commission has also agreed to the site.

18. Working Areas Site C is located some 200 metres north-east of the RAAF aircraft maintenance hangar. As could be expected, the tests had a considerable noise impact in the hangar, particularly when the engine was being run at high power. The NAL report also indicated a significant impact on other working areas, such as the Department of Aviation fire station and terminal area. In considering this latter aspect the Committee noted that the background noise levels did not include flying activities, and that the background noise level in the married quarters area was considerably higher. In view of the proximity of the married quarters with the larger part of the working areas this seemed to be an anomalous situation. It was noted that the noise levels generated in each area by engine tests were not significantly different.

19. The Committee noted that the NAL report dealt with noise levels in the working areas from the point of view of hearing loss and communication and telephone usage. In areas other than the maintenance hangar difficulties were not expected on either count. In the hangar it was assessed that communications would be difficult during engine running but hearing loss would not be a problem. The Committee accepted the assessment but doubted that it was either safe, efficient or reasonable to expose people working in the hangar to the level of noise generated in this test program by engine runs at high power.

20. The Department of Defence acknowledged the impact of engine runs on personnel in the hangar. The following measures were envisaged:

- including the construction of a wall between the runup facility and the hangar in the scope of works.
- closing the hangar doors (noise measurements during the tests were taken with the doors open).
- making ear protection available to personnel in the hangar.
- conducting high power runups at times of minimum activity such as lunchtime.

21. In summary, the Committee recognised the necessity of providing a runup facility and the difficulty of siting the facility to eradicate noise nuisance. The Committee also recognised the interim nature of the facility now proposed and that the extent of the problem would be reduced when the fighter squadron moved to a permanent base other than Darwin. Under these circumstances the incorporation of more expensive sound suppression features than those proposed in the facility design is not justified. In accepting that Site C is suitable for the purpose the Committee requires assurance that the facility will be operated to minimise noise nuisance, and that should the need arise for longer-term and extensive use of the facility, the Department of Defence should again re-assess the design of the runup facility.

22. Committee's Conclusion Site C is the most suitable site for the engine runup facility. Hours of operation of the facility should be restricted to those permitted under noise pollution legislation and all practicable measures should be taken to minimise the impact of engine testing on personnel working in and around the RAAF maintenance hangar.

THE PROPOSAL

23. The work now proposed consists of two main elements:

- an interim engine runup facility for the period that 75 Squadron is based in Darwin.
- a noise barrier between the facility and the new maintenance hangar.

24. Interim Runup Facility 75 Squadron is expected to be located in Darwin for some 4-5 years and the design will allow structures to be relocated. It will be utilised for Mirage engine testing with provision to be made for an occasional test of F/A-18 aircraft with engines installed.

25. The facility will comprise two bays, one for testing installed and the other uninstalled engines. It will consist of a concrete apron, an enclosed demountable style shelter to cover the uninstalled engine bay, a removable framed structure over the installed engine bay to support a canvas covering, a paved area for an air-transportable cabin adjacent to the uninstalled engine shelter, a blast deflection wall to the rear of each bay, a taxiway access link to support a RAAF-supplied metal matting surface and some limited amenities. Pavements will be of sufficient strength to handle regular Mirage movements and occasional use by F/A-18 aircraft.

26. The Noise Barrier Based on the NAL report the Department of Housing and Construction, with acoustic specialists, evaluated the proposed runup location and predicted noise levels. It was assessed that a 16 dBA reduction in noise levels in the hangar was required to achieve acceptable speech communication during runup at military power. A barrier 7 metres high is required to achieve this reduction. This barrier will result in noise levels

of 71 dBA in the hangar, with doors open, during runups at military power. It will also result in a reduction of some 10 dBA in the noise level experienced by the Base Hospital, and some recreational and residential areas which are in the shadow of the noise barrier.

27. Committee's Conclusion The design of the engine runup facility is adequate for its planned use. The proposed noise barrier should reduce noise levels in the hangar to an acceptable level.

ESTIMATED COST

28. The preliminary estimate for constructing an engine runup facility to meet the reduced requirement, together with the noise barrier is \$380,000 at January 1984 prices, made up as follows:

Building Works	\$125,000
Sound Attenuation Wall	55,000
Electrical	30,000
Civil Engineering Works	<u>170,000</u>
TOTAL	\$380,000

PROGRAM

29. Subject to Parliamentary approval it is proposed to call tenders in early May 1984 and award contracts by the end of June 1984, with construction aimed to be completed by the end of November 1984.

30. Committee's Recommendation The Committee recommends construction of work proposed in this supplementary report at an estimated cost of \$380,000 at January 1984 prices.

RECOMMENDATIONS AND CONCLUSIONS

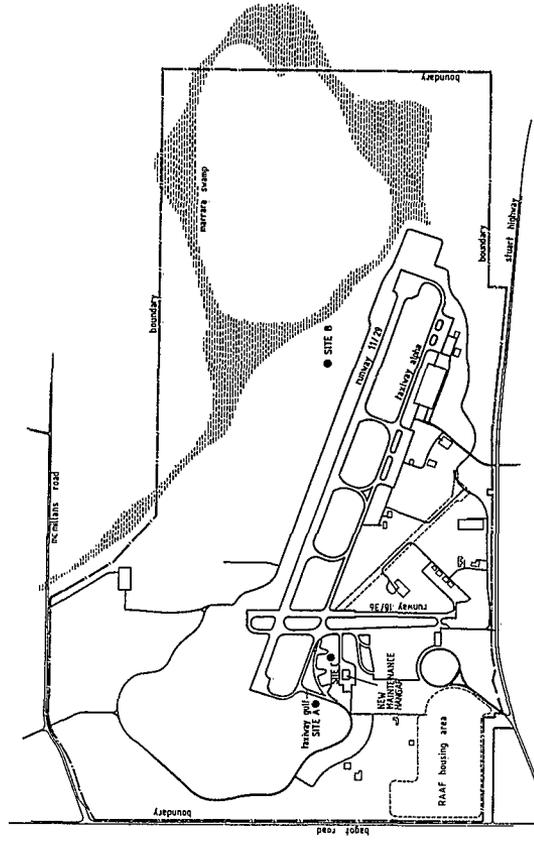
31. The recommendations and conclusions of the Committee and the paragraph in the report to which each refers is set out below:

- | | <u>Paragraph</u> |
|--|------------------|
| 1. THERE IS A NEED FOR AN ENGINE RUNUP FACILITY AT RAAF BASE DARWIN WHEN CONSTRUCTION OF NEW CIVIL AVIATION FACILITIES COMMENCES ON THE NORTHERN SIDE OF DARWIN. | 10 |
| 2. SITE C IS THE MOST SUITABLE SITE FOR THE ENGINE RUNUP FACILITY. HOURS OF OPERATION OF THE FACILITY SHOULD BE RESTRICTED TO THOSE PERMITTED UNDER NOISE POLLUTION LEGISLATION, AND ALL PRACTICABLE MEASURES SHOULD BE TAKEN TO MINIMISE THE IMPACT OF ENGINE TESTING ON PERSONNEL WORKING IN AND AROUND THE RAAF MAINTENANCE HANGAR. | 22 |
| 3. THE DESIGN OF THE ENGINE RUNUP FACILITY IS ADEQUATE FOR ITS PLANNED USE. THE PROPOSED NOISE BARRIER SHOULD REDUCE NOISE LEVELS IN THE HANGAR TO AN ACCEPTABLE LEVEL. | 27 |
| 4. THE COMMITTEE RECOMMENDS CONSTRUCTION OF WORK PROPOSED IN THIS SUPPLEMENTARY REPORT AT AN ESTIMATED COST OF \$380,000 AT JANUARY 1984 PRICES. | |

30
D. J. Foreman
(D. J. FOREMAN)
Chairman

Parliamentary Standing Committee
on Public Works,
Parliament House,
CANBERRA A.C.T. 2600

8 March 1984



ALTERNATIVE ENGINE RUN-UP SITES

