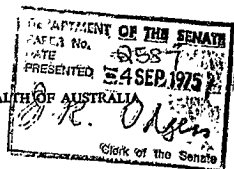


1975

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA



Parliamentary Standing Committee on Public Works

REPORT

relating to the proposed construction of a

NAVAL TRANSMITTER BUILDING AND POWER CENTRE

at

Humpty Doo
Northern Territory

(NINTH REPORT OF 1975)

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

NAVAL TRANSMITTER BUILDING AND
POWER CENTRE
HUMPTY DOO, NORTHERN TERRITORY

R E P O R T

On 8 July 1975, His Excellency the Governor-General in Council referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament the proposal to construct a new naval transmitter building and power centre for the Naval Communications Station, Darwin at Humpty Doo, Northern Territory.

The Committee have the honour to report as follows:

THE REFERENCE

1. The proposal submitted to the Committee is for the erection of new transmitting facilities for naval operational communications in the areas to the north of Australia and in the Indian Ocean. It will form part of the Naval Communications Station Darwin, the other elements being the Receiving Station at Shoal Bay now nearing completion and the modernised Communications Centre at Coonawarra (West).
2. The proposed transmitting station has been so designed as to allow for economical future expansion. In addition, the total design of the buildings and antenna farm allows for future collocation of other military transmission facilities.
3. The estimated cost of the proposal when referred to the Committee was \$4.5 million.

THE COMMITTEE'S INVESTIGATION

4. The Committee received written submissions and drawings from the Departments of Defence (Navy Office) and Housing and Construction and took evidence from their representatives at a public hearing in Darwin on 7 August 1975. Prior to the hearing, the Committee inspected the former transmitting station at Coonawarra (East) and the site for the new transmitting facilities.

5. The Committee's proceedings will be printed as Minutes of Evidence.

NAVAL COMMUNICATIONS STATION DARWIN

6. The Royal Australian Navy has two major communication stations, one in Canberra and the other in Darwin. The Naval Communications Station Darwin, is a major communications facility which operates in conjunction with its counterpart at Canberra to provide effective and reliable operational high frequency communications between the Fleet at sea and naval and other authorities ashore. The Station is integrated into the Australian Defence Communications Network and is linked via other stations to the British Commonwealth and United States network.

7. The Naval Communication Station at Darwin was established in 1939/40. It comprised three separate but integrated components, the receiving station with its associated antenna farm, the communications centre, both of which are located at Coonawarra (West), and the transmitting station located at Coonawarra (East) which was destroyed by Cyclone Tracy on 24/25 December 1974. The parent establishment and administrative centre, HMAS Coonawarra, is also located at Coonawarra (West). Both Coonawarra (West) and Coonawarra (East) are situated on the Stuart Highway the former 13 km and the latter 18 km from Darwin.

THE NEED

8. Because of the great area of the Australian continent and the need to support our Naval Forces from mainland Australia, it is necessary to have two major stations to provide communications coverage between ship and shore at the maximum practicable level of efficiency over the sea areas surrounding the continent. A single station cannot meet the requirement. It is also necessary to employ specialised antenna systems and higher powers in order to provide reliable signals at long ranges.

9. It became apparent in 1965 that for operational, technical and environmental reasons neither the Coonawarra (West) nor Coonawarra (East) sites would be suitable for their respective radio communication functions beyond the middle 1970s. Plans were made accordingly to redevelop and modernise the naval communications facilities at Darwin.

10. Two major projects were raised and submitted to the Government for approval. The first of these, the new Naval Receiving Station Project which includes provision for modernisation of the existing communications centre at Coonawarra (West), is nearing completion at Shoal Bay, 14 km north-east of Coonawarra (West), the second is the subject of this reference to the Committee.

11. The transmitting station building, of timber frame and asbestos-cement sheeting, was destroyed by Cyclone Tracy and considerable damage to equipment and antenna installations was sustained. The building and site were, in any event, inadequate because:

- the building had been declared unsafe and a fire hazard by the Department of Housing and Construction;
- the building could not accommodate the numbers of transmitters required for naval operational purposes;

4.

- the site cannot accommodate nor can it be extended to accommodate the antenna systems now required for naval operational purposes;
- the site is in the way of the development and town planning of the City of Darwin;
- the site is subject to severe height restrictions because of its relationship to the flight path of the existing Darwin Airport;
- the high power transmission facilities required for services to the Fleet would be located too close to the Naval Receiving Station at Shoal Bay.

12. Following Cyclone Tracy, emergency measures were taken to establish interim naval transmitting facilities in Darwin by installing naval equipment in the RAAF Transmitting Station near Coonawarra (East). These facilities are of minimal capacity only and as such are a stop-gap measure pending completion of the new transmitting facilities at Humpty Doo.

13. Committee's Conclusion There is a need to provide new transmitting facilities at the Naval Communications Station Darwin for naval operational communications in the area to the north of Australia and in the Indian Ocean.

THE PROPOSAL

14. The Site The proposed site is situated on Crown land at Humpty Doo on the Mount Bunday Road, 61 km from Darwin. It has an area of 788 hectares of which 542 hectares will have to be cleared for antenna farm purposes. Agreement has been reached between the Departments of Defence (Navy Office) and Northern Australia for the joint use of 397

hectares. While the entire site will be set aside for Defence purposes, the Department of Northern Australia will have a continuing and unrestricted right of access to the 'joint use' area for agricultural research.

15. The Department of Northern Australia has agreed that its right of access to the 'joint use' part of the site is conditional on its research activities being in no way incompatible with Defence installations or radio transmission requirements.

16. Committee's Conclusion The site selected is suitable.

17. Buildings The facilities will consist of a number of components. The transmitter building will house transmission equipment, administrative offices, electrical and other store rooms, electronics workshop, air conditioning and ventilation plant, messing facilities, sleeping accommodation, bathrooms and toilets.

18. A secondary building will house the electricity substation, emergency power generation machinery, pump house, antenna workshop, implement and fire fighting stores, toilets and garage. Other components will include a small building for flammable stores, a guard house, water supply facilities and the antenna farm.

19. Antenna systems and related structures have been designed or will be specified to withstand a base steady wind velocity of 69.0 metres/sec. (154 mph) rising to 85 metres/sec. (190 mph) at heights above 20 metres.

20. Provision for Future Expansion The proposed transmitting station has been so designed as to provide a small area for expansion within the initial buildings. The design also allows for simple, economical extension of the building, plant and services in the event of a future need for expansion beyond the initial capacity. The total design of buildings and antenna farm will allow for future collocation of other military transmission facilities and achieves optimum effectiveness in site utilisation.

21. Personnel The proposed station will be manned by 19 naval technicians, one civilian technician, two naval riggers and two civilian handyman/tractor drivers. Of the junior ranks one or two may be women if female technical personnel are available from the parent establishment, HMAS Coonawarra.

22. Staff Facilities Toilet facilities will be provided for men and women. Female bathroom and sleeping accommodation will not be provided because women will not be required to sleep in the station.

23. In the case of the men, bathroom and sleeping facilities will be provided for one N.C.O. and four junior ranks. The provision is necessary because the station is remote from assistance in case of emergency. A continuous round-the-clock watch will be kept but as a 'watch' comprises only three persons, it is necessary to require a small number of additional personnel to sleep in the station to be on call by duty staff out of working hours.

24. Messing facilities for four N.C.O.s and 16 junior ranks will be provided and will include a scaled entitlement for canteen and recreation area. The two messes will be separated by a folding partition which will enable the two areas to be combined on appropriate occasions. The station will be victualled on a semi-weekly basis from HMAS Coonawarra.

25. The Committee were informed that no decision has yet been made on the use of carpet in accommodation for junior ranks, although approval has been given for its use for officers and senior non-commissioned officers. The Committee last raised this issue in its report on the Naval Support Facility (HMAS Stirling) at Cockburn Sound (Seventh Report of 1972), having first raised the matter in 1970 in its report on proposed work at

HMAS Cerberus (Eighteenth Report of 1970). The Committee are concerned that this matter is taking an inordinate period of time to resolve and because of this, vinyl floor covering which the Department of Housing and Construction considers to be unsuitable continues to be used in some living and working areas.

CONSTRUCTION

26. Internal Design The materials and finishes have been selected to reduce maintenance to a minimum having regard for the functional requirements of each area. Simple detailing is proposed throughout with visual effect being gained from co-ordinated use of texture, colour, form and proportion instead of applied and costly finishes. Except where required structurally, all internal walls will be of non-load bearing construction to permit future changes and flexibility of future use.

27. Floors will vary in finish depending on the use of the particular area. Pending accurate determination of transmitter noise level, carpet is proposed in transmitter halls and control room principally for acoustic properties and secondly for minimum maintenance requirements. Vinyl tiles will be used in sleeping areas, messes and administration areas. Ceramic tiles are proposed in wet areas. Elsewhere concrete floor finish is considered appropriate.

28. Structural Design The building complex has been designed to comply with current cyclonic requirements, specified in the Building Manual of the Northern Territory and the user requirement that the complex, together with antenna systems and micro-wave tower must be operational under cyclonic conditions.

29. External Design Materials and finishes have been selected on availability and low maintenance costs. Walls will be reinforced concrete. Roofs will be metal roof decking. Windows will be aluminium framed with tinted glass to reduce glare.

30. Acoustics Acoustic treatment will be provided to reduce the general noise level to maintain speech intelligibility in the work areas. To achieve this, walls, floors and ceilings will be treated acoustically as necessary.

31. Engineering Services Air conditioning will be provided to all normally occupied areas to ensure environmental conditions appropriate for the electronic equipment and for the comfort of personnel. Equipment will be arranged to ensure a high reliability of supply.

32. Supply and exhaust ventilation systems will provide filtered cooling air to all transmitters. Equipment will be arranged to ensure a continuous controlled air supply in conditions of high winds. Exhaust ventilation will be provided to toilets, showers, galley and plant rooms.

33. Water supply will be drawn from the existing bore on the site. Sewerage will be connected to septic tanks. Provision will be made for a standby bore.

34. Roads and Site Treatment The access roads, internal roads and parking areas will be bitumen sealed. Concrete footpaths will be provided for pedestrian traffic within the site. For security reasons, the station precincts area will be enclosed by a mesh security fence. The whole site will be enclosed by normal stock fencing. Surface stormwater will be collected in kerbs and channels and drained from the building site together with roof drainage. The remaining area within the security fence will be cleared, graded away from the buildings and grassed.

35. Electrical Services Primary power supply to the site will be provided by the local electricity supply authority. Supply will enter the site via underground cables and will be distributed through the area at 11 kV. Within the buildings light and power services as necessary will be installed in conformity with Australian Standard Codes of Practice. External security lighting will be provided for roads, car parks and building surrounds.

36. Emergency Power Generation Three diesel generating sets of approximately 750 kW each will be provided as a standby to mains supply. These sets will be provided with separate radiator cooling systems, horizontally mounted outside the building in a protected enclosure. The emergency power system will be designed for fully automatic operation with optional manual control from the transmitter building.

37. Fire Protection The buildings will be equipped with a combination of thermal and smoke detectors. Transmitters will be protected by an automatic extinguishing system. Hose reels and portable fire extinguishers will be provided inside the building and fire hydrants outside.

38. Committee's Conclusion The Committee recommend the construction of the work in this reference.

ENVIRONMENTAL IMPACT

39. The Committee have been advised that the Department of the Environment decided that an environmental impact statement need not be provided for this proposal. The Committee were further advised that the Cities Commission raised no objection and that the CSIRD considers that it is unlikely the proposed facilities will have any effect on projects initiated by its Division of Wildlife Research in the adjacent area.

10.

ESTIMATE OF COST

40. The estimated cost of the work when referred to the Committee was \$4.5 million made up as follows:-

	\$
Building works	1,390,000
Mechanical services	500,000
Electrical services	1,960,000
Hydraulic services	300,000
Civil works	350,000
	4,500,000

PROGRAM

41. It was originally envisaged that the facilities would be in operation by 1 December 1978. However, as a consequence of the damage caused by Cyclone Tracy, there is an urgent need to complete the project in the shortest possible time and to have the facilities in operation by 1 December 1977.

42. In order to achieve this advanced target date, it is planned to parallel as many as possible of the various construction phases.

43. It is also planned to make contractual arrangements which will allow transmitting equipment contractors to have access to appropriate areas as soon as those areas have been completed.

44. Tenders for siteworks and long lead items are scheduled to be called in November 1975 and in February 1976 for buildings and remaining works.

RECOMMENDATIONS AND CONCLUSIONS

45. The summary of recommendations and conclusions of the Committee is set out below. Alongside each is shown the paragraph in the report to which it refers.

Paragraph

- | | | |
|----|---|----|
| 1. | THERE IS A NEED TO PROVIDE NEW TRANSMITTING FACILITIES AT THE NAVAL COMMUNICATIONS STATION DARWIN FOR NAVAL OPERATIONAL COMMUNICATIONS IN THE AREA TO THE NORTH OF AUSTRALIA AND IN THE INDIAN OCEAN. | 13 |
| 2. | THE SITE SELECTED IS SUITABLE. | 16 |
| 3. | THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE WORK IN THIS REFERENCE. | 38 |
| 4. | THE ESTIMATED COST OF THE WORK WHEN REFERRED TO THE COMMITTEE WAS \$4.5 MILLION. | 40 |


(L.K. JOHNSON)
Chairman

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

28 August 1975.



SCALE MODEL OF NAVAL TRANSMITTER BUILDING AND
POWER CENTRE, HUMPTY DOD, N.T.