



1968

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

## REPORT

relating to the proposed provision of

# ENGINEERING SERVICES TO NEIGHBOURHOOD UNIT No. 3 CASUARINA DISTRICT

## Darwin

BY AUTHORITY

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CANBERRA: 1968

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

ENGINEERING SERVICES FOR NEIGHBOURHOOD UNIT NO. 3  
CASUARINA DISTRICT (MOLL SUB-DIVISION), DARWIN,  
NORTHERN TERRITORY

R E P O R T

On 4 July 1968, His Excellency the Governor-General in Council, referred to the Parliamentary Standing Committee on Public Works for investigation and report to the House of Representatives, the proposal to provide engineering services to Neighbourhood Unit No. 3 in the Casuarina District of Darwin, Northern Territory. This neighbourhood unit or sub-division has been called Moll.

The Committee have the honour to report as follows:

THE COMMITTEE'S INVESTIGATION

1. The Committee received written submissions from the Northern Territory Administration of the Department of the Interior and from the Department of Works and took evidence at public hearings in Darwin from representatives of these departments. During a previous visit to Darwin, we inspected the area where the work in this reference is to take place and the sub-division at Alawa. On this occasion, we took the opportunity to examine houses under construction for the Northern Territory Administration and the Northern Territory Housing Commission.

THE REFERENCE

2. The Casuarina District is one of four areas on the north-eastern outskirts of Darwin being developed or planned for residential purposes. The development of the first district, Nightcliff, except for some minor areas, has been completed.

3. The other three districts named Casuarina, Dripstone and Sanderson respectively, are located east of Rapid Creek. Each is to comprise four neighbourhood units, all of about the same dimensions and providing comparable residential and other utility lots.

4. A previous Committee reported to Parliament in April 1965 on the provision of engineering services to the first neighbourhood unit in the Casuarina District, which is known as Alawa. The second, Jingili, was the subject of a report which the present Committee tabled on 17 May 1967.

5. It is relevant to a consideration of the present reference to note that the 1965 Committee concluded that "the designs proposed for the Alawa unit are satisfactory and set a standard which subsequent units in the Casuarina District might follow". We agree with this conclusion.

6. Both the Alawa and Jingili references involved the servicing of about 600 residential blocks besides the provision of part of the basic services to the district. The current proposal is designed to provide:

- 673 residential lots;
- a secondary school site;
- a primary school site;
- a central park and oval;
- a hotel site;

a district water reservoir site;  
six local parks;  
two pre-school sites;  
three commercial sites;  
one special site (child welfare clinic etc); and  
a regional shopping centre site.

7. These proposals include the engineering services for 35 residential lots in Jingili which could not be constructed as part of the previous reference due to sewerage difficulties. These lots are referred to in paragraph 13 of the report on the Jingili reference.

8. The services in this reference include -

- (a) roadwork and drainage around and within the sub-division, including roads, kerbs and gutters, footpaths and underground stormwater drains;
- (b) water supply, including reticulation mains, fire hydrants and house connections;
- (c) reticulation sewers;
- (d) electricity supply, including high tension distribution to the area, low tension reticulation and street lighting.

#### THE NEED

9. In 1966 an interdepartmental committee reporting on the growth of Darwin forecast that the rapid growth of Darwin in the previous ten years would continue and that the population in 1970 would probably be of the order of 27,000-28,000.

10. Recorded population figures for the greater Darwin area prior to that time included:

1961	-	14,753
1964	-	17,781
1966	-	20,767

These figures disclosed an annual growth rate of 7% per annum, a rate which was expected to produce a population of 23,700 in 1968, 25,400 in 1969 and 27,200 in 1970. A population count has not been made since 1966, but the Committee were told that there are clear signs that the annual increase since then has been closer to 9%.

11. The Committee noted that a growth rate of 7% per annum would produce a housing requirement of about 600 to 700 units annually. It was interesting to note that in 1967/68 only 408 new houses and 139 new flats were completed, showing that in theory at least, even at the lower growth rate, the demand for housing was not being satisfied.

12. The sustained growth in population and the demand for residential accommodation that this has created is evident in a number of ways. The number of applicants on the waiting list of the Northern Territory Housing Commission at 30 June 1968 was 916. This figure compared with 641 on the list at the time of the Committee's enquiry into the Jingili proposals, and occurred despite the fact that during 1967/68 225 houses and 57 flats were allocated. The average waiting time is 18 months for houses and 2 years for flats.

13. Employees now listed for the allocation of Northern Territory Administration houses have to wait 8 to 9 months. At the end of July there were 118 on the list.

14. Some residential lots serviced by the Government are auctioned for private housing development. At sales in the last financial year 193 lots were sold at premiums ranging from \$950 to \$3,800. The Committee were told that the active bidding at auctions suggests that there is a large unsatisfied demand among those wishing to build their own homes.

15. The latter factor has been instrumental in stimulating the sub-division of privately owned or leased land. It is estimated that this source of serviced residential land could supply up to 360 lots over the next three years or so but because of the demand it is not thought that it will significantly affect the need for the Government to continue to service land in the developing north-eastern areas.

16. The demand for serviced building lots for housing purposes in 1969/70 has been assessed as 150 for departmental purposes, 300 for the Housing Commission and 50 for auction. Of this total number, it is expected that 262 lots will result from the final stages of the Jingili sub-division and the balance from the first stage of Moil. At that time, apart from a small supply of privately serviced lots, there will be virtually no other areas in Darwin available for housing construction.

17. The Committee's Conclusions The Committee agree with the conclusions drawn in the previous reports that the north-eastern area of Darwin east of Rapid Creek, including the Casuarina District, is a suitable location for future residential development. We also agree that in the continuation of this development the next stage of construction should take place in the Moil sub-division.

18. Population pressures and the demand for housing are such that in order to meet the serviced land needs of the 1969/70 housing programme, there is a need to commence the provision of engineering services to the Moil sub-division during the current financial year.

#### DESIGN OF MOIL SUB-DIVISION

19. The Committee noted that design principles adopted for the road layout of this neighbourhood unit are similar to those followed for both Alawa and Jingili. The design submitted to the Committee will yield 638 residential lots (plus 35 carried over from Jingili) as well as a central park, six small parks, a primary school, two pre-school sites, three commercial sites and one special site. In addition, the reference also includes the servicing of secondary school and district water reservoir sites within Moil and services to a hotel site in Jingili and a regional shopping centre site in the Nakara sub-division of the Dripstone District.

20. Lot Dimensions The average lot dimensions of 70 ft by 110 ft found satisfactory in Alawa and Jingili are to be repeated in Moil. Lots of this size are found to be satisfactory for local requirements where a wide frontage allows each lot to contain its own sound buffer of trees and shrubs between houses. Darwin houses require large open spaces of window and louvred walls most of the year but these openings facilitate the passage of household and street noises unless sound protection measures are taken.

21. Larger lots are not desirable because of the high cost of continuous watering during the dry season and the need to keep growth under control during the wet. The depth of 110 ft provides sufficient space behind the house for lawns, tree planting and outdoor facilities.



22. Shopping Facilities The planning of urban growth east of Rapid Creek envisages a district shopping centre serving the major needs of the population of Casuarina and Dripstone, while the design of each neighbourhood unit, includes a small group of shops to provide minimum shopping facilities on the corner shop principle.

23. Apart from the small groups of shops being provided in Alawa and Jingili and now Moil, the nearest major shopping centre of any consequence to the Casuarina District is in Nightcliff. This area is becoming taxed and its location in relation to the new development is such that inconvenience will result unless a further major shopping area is established.

24. An area of 20 acres north of Alawa and adjoining the Nakara neighbourhood unit in Dripstone has been set aside on which to establish a regional shopping centre serving both Casuarina and Dripstone. It is planned that it will meet the needs of some 20,000 who will eventually reside in the two districts. As part of this reference, it is proposed to provide the regional shopping centre with perimeter roads and services to sites in order that it can be progressively developed as the demand grows. The Committee were told that the population of Alawa, Jingili and Moil, when they are completely developed, will be sufficient to support the first stage of the centre.

25. The provision of the services as proposed will also result in sites becoming available by minor extensions of these services at a later date for a police station, church, government offices, district library and other special services.

26. Schools Apart from providing for the erection of the Moil Primary School and two pre-school centres, the layout of the sub-division includes a

site for the Casuarina High School. Based on present trends and growth, it is thought that construction of the school will need to commence about 1971.

27. Water Supply As part of the works reviewed by the Committee in 1965 for augmenting Darwin's water supply, a 24-in. trunk main is now being constructed from Berrimah to a 6 million gallon ground storage in Moil. Future storage development will include a 1 million gallon elevated reservoir adjacent to the ground reservoir.

28. The area will be served initially by 15-in. and 21-in. mains which will run along the northern boundary. These mains will be connected later to the service reservoir within Moil and to the new trunk main. Internal reticulation within the neighbourhood will be by cast iron cement lined or asbestos cement pipes located in the footpath reservations. Water for fire protection purposes will be supplied through 2½-in. mill cocks on stand pipes at regular intervals.

29. Electricity The electricity supply for Moil will come initially from existing 11 kV feeder lines in Trower Road to the north and McMillan's Drive to the south. As development progresses, supply will be taken from the Casuarina zone substation to be constructed in Jingili. This substation is to serve the whole of the Casuarina District.

30. Normal Darwin standards for 11kV and low voltage reticulation will be employed to distribute electricity. Street lighting will comprise sodium lanterns on main traffic routes and twin 20w fluorescent lights in minor streets.

31. Roads and Footpaths The perimeter roads to Moil will include extensions of Trower Road to the north-west and Rothdale Road to the east which are already under construction as part of the Alawa and Jingili references.

These roads will have twin 36-ft carriageways. The road between Moil and the future neighbourhood unit of Wagaman to the north-east will be a single 36-ft carriageway. McMillan's Road to the south will be developed initially as a 36-ft carriageway as part of the Palmerston Freeway which will eventually have dual carriageways. Between this road and the residential lots, a 24-ft service road is proposed. Construction of Lee Point Road to the east will be undertaken in the same way.

32. Within the neighbourhood, distributor roads will be 34 ft wide and other roads 24 ft. Roads around the district shopping centre will include a 36-ft carriageway where it adjoins Trower Road. This will be the first stage of a dual carriageway road. Elsewhere in the centre the roads will be 24 ft wide.

33. Perimeter and distributor roads are to be sealed with 1 in. of bituminous concrete. This is slightly more expensive than the two-coat flush sealing to be used on minor roads but it is smoother, has better riding qualities and is more economical to maintain.

34. Footpaths will be gravel and surfaced with bituminous concrete also.

35. Arterial Roads The Committee when reporting on the Jingili reference in 1967 was critical of the state of the development of Darwin's arterial road system, particularly Bagot Road. This road is the only link between the districts of Nightcliff and Casuarina and the Darwin city area. We have now noted with some satisfaction that the dispute on whether the Northern Territory Administration or the Corporation of the City of Darwin is responsible for improvement of this access has been resolved, and furthermore, that work has progressed to the stage where the eastern carriageway has been

completed and is in use. Bagot Road will eventually be a two carriageway road with two lanes in each direction.

36. We also noted that studies of the capacity of this and other arterial roads show that the existing arterial road system, with improvements in progress and being planned, will meet needs up to the time the Moil neighbourhood unit is fully occupied. Beyond that time other arterial road links will be required if undue congestion is to be avoided.

37. The Committee were informed that plans for extending the arterial road system are being considered. In view of the evidence received about the capacity of existing and planned roads, we look forward to receiving details of the proposed new roads when the next sub-division proposal is referred to the Committee.

38. Sewerage Initially sewage from Moil will be discharged through the Rapid Creek Pumping Station and the outfall at Seabreeze Point. Within the sub-division, reticulation will be in rubber ring jointed pipes. Lines will be laid principally at the rear of blocks to shorten connections.

39. It has been evident for some time that major additional sewage disposal facilities would be required in Darwin. We were told that a proposal is to be referred to the Committee soon for the construction of a major treatment works in the Leanyer Swamp area and that when the initial part of this system is operating, sewage from Moil will be reticulated to it. The trunk sewer to Leanyer Swamp is to pass through Moil and will be capable of serving both the Casuarina and Dripstone Districts.

40. There was some conflict in the evidence given to the Committee about the time when the new system will need to be operating. It was apparent,

however, that plans for residential sub-divisions are ahead of those for sewage disposal and that the occupation of neighbourhood units after Moil can only proceed if the trunk sewer and the facility at Leanyer Swamp are available. It is therefore imperative that the Government come to an early decision about the provision of additional sewage disposal facilities in Darwin in order that there is no consequent delay in the provision of housing.

41. The Committee's Recommendation The Committee recommend the construction of the works in this reference.

#### PROGRAMME

42. The Committee noted that it is planned to construct the work in this reference in two stages. The first, which is to include 238 residential lots and sites for the hotel, a pre-school centre and three parks, is included in the 1968/69 civil works programme. Tenders for this part of the work are expected to be called four months after an approval to proceed is given. Documentation of the second stage in preparation for the invitation of tenders can be completed two months later if required.

43. Construction of both stages is expected to be completed two years after an approval to proceed is given.

#### ESTIMATES OF COST

44. The estimated cost of the works when referred to the Committee was \$2.25 million as follows:

	\$
Roads, footpaths and stormwater drainage	1,530,000
Water supply	250,000
Sewerage	285,000
Toilet and change block	20,000
Electricity supply	<u>165,000</u>
	<u>2,250,000</u>

45. Of the above amount, \$220,000 is expected to be the cost of servicing the district shopping centre. The bulk of this amount, \$190,000, is related to the provision of roads, footpaths and stormwater drainage.

46. Excluding the cost of servicing the district shopping centre but including costs in other references more appropriately apportioned to Moil, it has been estimated that the cost of servicing lots in Moil will be \$3,263 each. The comparable figure for Jingili is \$3,170. The Committee consider the Moil estimates to be favourable particularly because a greater area is reserved for public purposes in Moil including the district high school site.

#### RECOMMENDATIONS AND CONCLUSIONS

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

		<u>Paragraph</u>
1.	THE NORTH-EASTERN AREA OF DARWIN EAST OF RAPID CREEK, INCLUDING THE CASUARINA DISTRICT, IS A SUITABLE LOCATION FOR FUTURE RESIDENTIAL DEVELOPMENT.	17
2.	THE NEXT STAGE OF CONSTRUCTION SHOULD TAKE PLACE IN THE MOIL SUB-DIVISION.	17
3.	THERE IS A NEED TO COMMENCE THE PROVISION OF ENGINEERING SERVICES TO THE MOIL SUB-DIVISION DURING THE CURRENT FINANCIAL YEAR.	18

Paragraph

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|----|---|----|
| 4. | IT IS IMPERATIVE THAT THE GOVERNMENT MAKE AN EARLY<br>DECISION ABOUT THE PROVISION OF ADDITIONAL SEWAGE<br>DISPOSAL FACILITIES IN DARWIN. | 40 |
| 5. | THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE WORKS<br>IN THIS REFERENCE.   | 41 |
| 6. | THE ESTIMATED COST OF THE WORKS WHEN REFERRED TO THE<br>COMMITTEE WAS \$2.25 MILLION.   | 44 |



(F.C. CHANEY)  
Chairman

Parliamentary Standing Committee on Public Works,  
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22 August 1968.