



THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

R E P O R T

relating to the proposed provision of

ADDITIONAL MAINS, SERVICE RESERVOIR AND PUMPING STATIONS

for the

DARWIN WATER SUPPLY,

NORTHERN TERRITORY

For Senator Anderson.

I present the Report of the Parliamentary Standing Committee on Public Works, relating to the following proposed work :-

To provide additional mains, a service reservoir and pumping stations for the Darwin Water Supply.

24 AUG 1963

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THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS
DARWIN WATER SUPPLY - PROVISION OF ADDITIONAL INSTALLATIONS

REPORT

By resolution on 22nd May, 1963, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report, a proposal to provide additional mains, a service reservoir and pumping stations for the Darwin Water Supply.

The Committee have the honour to report as follows : -

GENERAL

1. The Committee visited Darwin at the end of May, 1963 to inquire into three proposed works, one of which is the subject of this report. Evidence was taken in Darwin and an inspection made of existing installation including the Manton Dam which is the source of the water supply, and other sites which may be developed as additional water sources when, in a few years' time, the supply will need to be augmented.

EXISTING WATER SUPPLY AND RETICULATION

2. Darwin water is obtained from a reservoir on the Manton River, 42 miles from Darwin. The reservoir impounds 3,500 million gallons of good quality soft water. The catchment is uninhabited and treatment has not been necessary. In some parts of the reticulation however, dirty water occurs, and as the cause is not known a consultant chemist and bacteriologist has been employed to conduct investigations which will take a year to complete. When the cause is known, remedial action, which may have to be in the form of treatment works, will be taken.

3. The safe draft is calculated to be 3,800,000 gallons per day for a drought lasting 18 months and having a frequency of recurrence of once in 40 years. If average daily consumption of water during a year does not exceed 3,800,000 gallons restrictions would be required only one year in forty.

4. Service reservoirs in Darwin cannot be gravity fed and the water is pumped to them through one 12 inch diameter and one 15 inch diameter rising main by variable speed electric pumps at the dam and a booster station at Noonamah, 27 miles from Darwin.

5. Seven elevated steel service reservoirs in Darwin with a total capacity of 1,550,000 gallons provide the storage required to balance the hourly variations in demand during a day. In addition there are two surface reservoirs with a capacity of 5,500,000 gallons. From these reservoirs water is reticulated throughout Darwin.

THE NEED FOR ADDITIONAL INSTALLATIONS

6. In recent years the population of Darwin has grown rapidly and to meet the expansion a number of new residential sub-divisions have developed to provide serviced residential building blocks.

7. Population. The population of Darwin increased at the rate of almost 7% per annum during the ten years before the 1961 census. It is not possible to make a reliable estimate of the future rate of growth of the population and for the purpose of planning the water supply, a rate of increase per annum of 9% has been used. This is not expected to be exceeded. This basis of planning is expected to keep the growth of the water supply ahead of the expanding population so that it will not be necessary to impose frequent or severe restrictions.

8. Estimated requirements. On the basis of the rate of growth used for planning it will be 1965 before the population will reach 21,000 and need all of the 3,800,000 gallons per day safe draft. The figures used in predicting the future demand for water are based on a daily average consumption of 180 gallons per head and 270 gallons per head on a day of maximum consumption. These figures are, necessarily, liberal in comparison with other Australian cities.

9. In the meantime it is necessary to increase the capacity of the existing system to enable Darwin to draw a larger quantity of water from the Manton supply and to increase the capacity of mains leading to developing residential areas. Some of this work is now going on.

10. The quantity of water available from the existing reticulation system is already, or will shortly be, inadequate in certain areas. The most rapid expansion has taken place in the Nightcliff Rapid Creek suburbs and it is for this area that most of the work proposed in the reference to the Committee is required.

11. The Committee are satisfied that it is necessary to provide additional installations to guarantee an adequate water supply to the developing areas of Darwin.

THE WORK PROPOSED

12. The work proposed consists of the enlargement or installation of pipe lines and the provision of an elevated service reservoir and diesel driven pumps.

13. Pipe lines. It is proposed to lay a 21 inch diameter pipe line from Borrimah to Bagot Road via McMillans Road and a 15 inch diameter pipe line along Bagot Road to Rapid Creek. These will give increased capacity to the reticulation serving Nightcliff and Rapid Creek.

14. A 15 inch diameter pipe from the Salonika reservoir to Vesteys reservoir will provide an overflow to safeguard the system against excessive pressure. It will also be used later to pump water from Vesteys reservoir into the main pipe lines. The installation of the pipes is estimated to cost £252,000.

15. Service reservoir. Service reservoirs are required to even out hourly variations in the demand for water, to provide for emergencies and for interruptions to the supply. A storage of 1.5 times the maximum consumption is considered adequate. The absence of hills makes it necessary to use elevated tanks.

16. An elevated storage tank of 1,000,000 gallons capacity is to be erected at Winnellie at an estimated cost of £100,000. This will provide additional storage for the Rapid Creek area and other parts of Darwin.

17. Diesel driven pumps. It is proposed to equip the ground level storages at Stokes Hill and Vesteys with larger diesel driven pumps. The pump at Stokes Hill will be capable of delivering 1,500,000 gallons per day to the elevated service reservoirs and the one at Vesteys, 5,000,000 gallons per day. Pumps provide a safeguard against interruptions to flow in the main pipe line from the

Manton reservoir and larger pumps are needed so that the capacity will exist to meet the demand. The estimated cost of this portion of the work is £25,000.

18. The work proposed together with the work going on will enable more use to be made of the Manton reservoir and permit expected demand for water to be met. The Committee recommend that the work proposed be carried out.

FUTURE DEVELOPMENT

19. Future development involves the establishment of a new source of water and some more work to permit full use to be made of the Manton supply.

20. Existing supply. The additional works necessary to permit full use of the Manton reservoir are the provision of a 10 million gallons service reservoir on a hill approximately 30 miles from Darwin and the installation of booster pumps in the same locality.

21. Additional sources of water. Possible sources of additional water supply are at Berry Springs and the Darwin River. It may also be practical to raise the wall of the Manton reservoir to give about 1,000,000 gallons per day additional water. The alternatives are under consideration at present and conclusions are expected by the end of 1963.

22. We realize that the authorities concerned are conscious of the need for early development of an additional source of water for Darwin. As this is likely to be needed by 1966 at the latest, we stress that there should be no delay in advancing the necessary planning.

CONSTRUCTION TIMETABLE

23. It is proposed to commence the work towards the end of this year and to complete it by June 1964.

ESTIMATES OF COST

24. The estimated cost of the work proposed is £377,000 made up as follows :-

(1)	21 inch diameter pipe line from Berrimah to Bagot Road via McMillans Road	188,000
(2)	15 inch diameter pipe line along Bagot Road to Rapid Creek	49,000
(3)	Elevated service reservoir at Winnollie having 1,000,000 gallon capacity	100,000
(4)	15 inch diameter pipe line from existing reservoir at Salonika to Vesteys reservoir	15,000
(5)	Provision of diesel driven pump at Vesteys reservoir	15,000
(6)	Provision of diesel driven pump at Stokes Hill reservoir	<u>10,000</u>
		<u>£377,000</u>

SUMMARY OF RECOMMENDATIONS AND CONCLUSIONS

25. The recommendations and conclusions of the Committee, arrived at after studying the evidence presented are set out below, and alongside each is shown the paragraph to which it refers.

(1)	It is necessary to provide additional installations to guarantee an adequate water supply for the developing areas of Darwin	11
(2)	The carrying out of the work proposed is recommended	17
(3)	There should be no delay in advancing the planning necessary for the development of an additional source of water	21
(4)	The estimated cost of the work proposed is £377,000	23

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R.L. Dean.
(R.L. DEAN)
Chairman.

15 AUG 1963