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Parliamentary Standing Committee on Public Works

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REPORT
relating to the proposed construction of a
PRIMARY SCHOOL
at
Katherine South
Northern Territory
(FOURTH REPORT OF 1977)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

R E P O R T

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Northern Territory

(Fourth Report of 1977)

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C O N T E N T S

	<u>Paragraph</u>
The Reference	1
The Committee's Investigation	3
The Katherine Inspection and Hearing	4
The Canberra Hearing	10
Education in the Northern Territory	14
The Need	
Existing School Accommodation	16
Katherine High School	17
Clyde Fenton Primary School	19
Katherine South Primary School	21
Katherine School of the Air	22
Katherine North Pre-School	24
Shepherd Street Pre-School	25
Population Growth	26
Enrolments	27
Committee's Deliberations	29
Committee's Conclusion	31
The Proposal	32
Design Concept	36
Educational Basis of the New Design	43
Committee's Conclusion	46
The Site	47
Committee's Conclusion	49
Construction	
Planning	50
Structure	52
Materials and Finishes	53
Mechanical Engineering Services	55
Electrical Services	57
Hydraulic Services	58
Fire Protection	59
Civil Services	60
Provision for the Handicapped	62
Fittings	63
Regulations	64
Environmental Impact	65
Committee's Conclusion	66

Paragraph

Estimate of Cost

67

Program

68

Recommendations and Conclusions

69

Site Plan

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

PRIMARY SCHOOL
KATHERINE SOUTH, NORTHERN TERRITORY

R E P O R T

By resolution on 3 December 1976, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament, the proposal to construct a primary school at Katherine South, Northern Territory.

The Committee has the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee was for the construction of an air conditioned primary school for 480 students plus 50 pre-school children. It was to be of a modular design being developed for future Northern Territory primary schools. It was proposed to phase completion of the school with the objective of having a learning unit for 240 students and a multi-purpose unit available for occupation from the beginning of 1979, and the remainder by June 1979. When completed, the school was to provide the following accommodation:

- two 240-student learning units;
- one library/resources centre;
- one administration building;
- one multi-purpose unit;
- one single unit pre-school.

2. The estimated cost of the work when referred to the Committee was \$2.6 million at November 1976 prices.

THE COMMITTEE'S INVESTIGATION

3. The Committee received written submissions and drawings from the Departments of Education and Construction and took evidence from their representatives at public hearings in Katherine on 9 February and Canberra on

19 April 1977. Submissions were received and evidence was taken at Katherine from two members of the Northern Territory Legislative Assembly, a representative of the Katherine South Primary School Board and one parent. A submission was received from the Katherine Principals' Association prior to the second hearing but was not included as evidence.

4. The Katherine Inspection and Hearing On 8 February, the Committee inspected the proposed site and the adjacent demountable facilities of the temporary Katherine South Primary School. We also inspected the newly completed Clyde Fenton Primary School and saw the Shepherd Street Pre-School and the Katherine High School.

5. Prior to commencement of the public hearing, advice was received from the Department of Education that revised demographic projections indicated a slower rate of growth for Katherine than that shown in their submission. Their submission was amended to show the following requirements:

- one 240-student learning unit;
 - one 120-student learning unit;
 - one library;
 - one administration building;
 - one multi-purpose unit.
- } In scale for 480 students.

6. The facilities deleted were one 120-student learning unit, one audio-visual room and the single unit pre-school. It was proposed that these facilities could be provided as a future Stage 2 if required and that the specialist facilities in Stage 1, such as the administration library and multi-purpose areas, be built in scale for 480 students to provide for this contingency.

7. The revised estimate of cost for Stage 1 was then \$2.1 million.

8. At the conclusion of the Katherine hearing, the Committee was concerned that the revised proposal was still in excess of requirements, based on the latest demographic projections. The Departments of Education and Construction were asked to re-examine the proposal and to submit further evidence at a hearing to be held at Canberra.

9. The Committee also suggested that further consideration be given to the possibility of extending the Clyde Fenton Primary School to cater for the needs of Katherine South for the next ten years.

10. The Canberra Hearing The public hearing re-opened at Canberra on 19 April 1977. The Department of Education in its revised submission stated that it may not now be necessary to provide for more than 360 students in permanent construction at Katherine South. The proposal was therefore amended to delete the future Stage 2 and to reduce the specialist facilities previously designed to cater for 480 students. The estimated cost was accordingly reduced to \$1.8 million. This estimate has now been revised upwards to \$1.82 million to provide for the retention of a shower and change block. This is further explained in paragraph 34 of this report.

11. The proposed school will now comprise the following elements of accommodation, each housed in a separate building:

- one 240-student learning unit;
 - one 120-student learning unit;
 - one library;
 - one administration building;
 - one multi-purpose unit.
- } In scale for 360 students.

12. The following sections of the report are based on the revised proposal presented at the public hearing at Canberra on 19 April 1977.

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

EDUCATION IN THE NORTHERN TERRITORY

14. The Commonwealth Department of Education through its Northern Territory Education Division administers the school system in the Northern Territory. Teaching staff in schools are employed by the Commonwealth Teaching Service and made available to the Department of Education. Ancillary and industrial staff are employed by the Department of Education.

15. The Territorial and Facilities Division of the Department is responsible for the provision of educational buildings in the Northern

Territory and maintains close liaison with the Northern Territory Division on the planning and design of these facilities.

THE NEED

16. Existing School Accommodation The following schools are located in Katherine:

- Katherine High School (formerly the Katherine Area School);
- Clyde Fenton Primary School;
- Katherine South Primary School (temporary);
- Katherine School of the Air;
- Katherine North Pre-School;
- Shepherd Street Pre-School.

17. Katherine High School There were 560 students attending this school in 1976. This was only made possible as an emergency arrangement by the use of a number of substandard and transportable buildings. When these buildings are removed, the school is expected to have a capacity of 400 secondary level students.

18. Until 1976, all school age children attended the Katherine Area School (now the High School) which operated classes from years 1 to 11. Parental and community pressures were brought to bear on the Department of Education to separate primary and secondary students and to offer a full secondary program leading to matriculation. With the opening of the Clyde Fenton Primary School and the continued operation of the temporary primary school at Katherine South, it has become possible to change the Katherine Area School to a High School. In future all students in years 7 to 12 will be able to attend this school. A matriculation year (year 12) has now been introduced. All students in years 1 to 6 will attend one of the two primary schools.

19. Clyde Fenton Primary School This school was planned to open early in 1976 but was delayed a year by the effects of Cyclone Tracy and was finally completed late in 1976. It accepted its first students in February 1977. The School is designed on the open plan principle and has 16 teaching spaces.

20. Although this school was originally planned on the basis of 35 students per class, the changes in school organisation, curriculum and staffing practices since then mean that it will have an effective capacity of 30 students per teaching space, a total of 480.

21. Katherine South Primary School The Katherine Area School was unable to accommodate all children in 1976 in existing buildings and site restrictions precluded the placement of sufficient transportable accommodation. The delay in completion of the Clyde Fenton Primary School resulted in the establishment of the Katherine South Primary School in the Katherine showground pavilion at the beginning of 1976. It later moved into a complex of transportable buildings on a temporary site made available by the C.S.I.R.O. about 400 metres from the site for the permanent school.

22. Katherine School of the Air This school is intended to work in close collaboration with the adjacent Clyde Fenton Primary School and staff of the school will make use of some of its facilities. There is, for example, no library in the School of the Air as it is expected to use the Clyde Fenton library.

23. It is intended that children enrolled in the School of the Air will be brought to Katherine for short periods during which they will attend the Clyde Fenton Primary School. It is intended that a residential complex for use in association with the School of the Air will also be located on the Clyde Fenton Primary School site. As the site is only 7 hectares in area, the Department of Education believes that it will be fully committed when all these uses are developed.

24. Katherine North Pre-School The Clyde Fenton Primary School site also accommodates the Katherine North Pre-School.

25. Shepherd Street Pre-School This school has a capacity of 25 students per session. As two sessions are run, a total of 50 students may be enrolled. Population growth will probably be slower than previously anticipated and it should be quite capable of handling the pre-school needs of the area in the future. It will continue to accommodate children from the Katherine South area.

26. Population Growth The community of Katherine has shown a slower rate of growth over recent years. The population increased at an annual rate of more than ten per cent over the period 1966 to 1971. The population, however, has remained stable during 1975-76 although further modest growth is expected. The most recent projections received from the Department of the Northern Territory in January 1977 indicate continued growth with a total population of 3600 by 1980 and 4900 by 1986.

It is understood that these estimates are based on an expectation of continuing economic activity and modest growth in the pastoral and tourist industries. The Department of Education has also been advised that the Katherine meatworks will open for the coming season and this will attract seasonal workers from other areas.

27. Enrolments The slower rate of growth in total population over recent years, leading to an adjustment downwards in more recent estimates has not been reflected in school enrolments. Estimates of school enrolments made in 1972 indicated likely total school enrolments in 1976 of about 780 and actual enrolments in August 1976 were 779. Total enrolments in Katherine have increased from 556 in 1973 to 779 in 1976. The projected total number of enrolments for 1980 is 1060. These estimates make no allowance for children who might be brought into Katherine by the establishment of residential facilities for children living on pastoral properties, either by government or private agency.

28. The Katherine residential development south of the railway line forms a nominal catchment for the Katherine South Primary School. More than 200 students were enrolled at the temporary school in 1976 and this number increased to 247 in February 1977. It is expected that 340 students will be enrolled at Katherine South Primary School by 1980.

29. Committee's Deliberations At both hearings the Committee investigated the implications of the revised demographic projections with a view to satisfying itself that there would not be an over provision of facilities at Katherine South Primary School. The revised proposal presented at Canberra seems to be realistically based. However, we would like the Departments to monitor enrolments closely and to document the project in such a way as to allow deletion of the 120-student learning unit from the contract if enrolments do not increase as expected. The Departments undertook to keep the Committee advised.

30. The extension of the Clyde Fenton Primary School as an alternative to constructing a new school was also thoroughly investigated. This was strongly opposed by the Department of Education for the following reasons:

- a primary school of more than 800 students would be required. This could not be supported on educational grounds and would be contrary to current policy and practice elsewhere in Australia and overseas;

- it would cost in the vicinity of \$1.5 million to provide the extra facilities, therefore it would be more viable to build a new school elsewhere;
- as the site will eventually contain the primary school, school of the air and residential facilities for isolated children, further development is considered impracticable;
- the distribution of population is such that a significant number of students would be required to travel unacceptable distances to school;
- extension of the existing school would be disruptive to school organisation and mechanical services.

31. Committee's Conclusion There is a need in Katherine South for a new and permanent primary school. The Departments should monitor enrolments closely and document the project to allow deletion of the 120-student learning unit from the contract if enrolments do not increase as expected. The extension of Clyde Fenton Primary School to cater for the needs of the Katherine South area is considered impracticable.

THE PROPOSAL

32. The permanent school for Katherine South will accommodate 360 students in one 240-student learning unit and one 120-student learning unit, plus a library, an administration building and a multi-purpose unit.

33. It is proposed that most elements of the school be completed for occupation at the beginning of 1979 with the remainder being completed by June 1979. This will also allow most of the school to move into permanent facilities from the beginning of the 1979 school year.

34. At the Canberra hearing, the Department of Education proposed to delete the shower and change room previously included in the multi-purpose area to further reduce the cost of the proposal. However, the Committee is of the opinion that this facility should be retained in scale for 360 students. We were subsequently advised that this will increase the cost of the proposal by \$20000 to \$1.82 million.

35. The Committee understands that all new primary schools in the Northern Territory will have this type of facility and we feel that this is justified because of the climatic and social conditions applying in that Territory.

36. Design Concept This proposal encompasses the requirement of the Department of Education for a system of rationalised modular construction for a number of primary schools in various locations in the Northern Territory. The system embodies a simplification of designs and fittings without reducing the educational efficiency or the quality of the educational environment.

37. It is envisaged that a number of schools required in the near future will be built using this system since the use of standard layouts for the various elements of a school allows an immediate flexibility in assembling different sized schools on a wide range of sites. Each of the schools will utilise the standard units designed for the Katherine School but in different configurations and combinations which will be dictated by site and accommodation requirements.

38. It is becoming increasingly important to reduce the cost of schools in real terms without reducing educational efficiency. The Department of Education has up until now sought large open learning areas with direct access to a centrally located resources area. To meet these requirements it was necessary to design large inward looking schools with a continuum of teaching space. These buildings have achieved the results envisaged in their planning stage although the Department now considers that a number of features envisaged in their educational philosophy are not entirely appropriate to meet educational practice for primary schools in the Northern Territory.

39. As a result, a review of current educational requirements was undertaken in consultation with the Department of Construction and a different design concept for primary schools in the Northern Territory was developed based on standard modular units. Essentially the various school facilities will be housed in separate buildings linked by covered ways with ramps where necessary to form the total complex. All of the buildings will be of single level domestic scale with a greater emphasis on natural light, outdoor orientation and the possibility of using cross ventilation. The design will lend itself to phased development of schools and to extensions and alterations. This will reduce the demand for transportable schools currently used as an interim measure until population factors warrant the building of permanent schools. The housing of facilities in separate buildings will allow good regional security, an important factor when using schools for community purposes.

40. The basic accommodation module of the new design concept is a 60-student unit. These modules will in most cases be paired with shared facilities and some interconnection. They will be aggregated into two sizes of learning units, one for 120 and one for 240 students. Formal access to the unit and between units will be by covered verandahs. There will also be an informal circulation pattern through the unit.

41. A school complex will be made up of a number of units housed in separate buildings. Each school will contain learning units, library, administration and multi-purpose units and will usually include a pre-school.

42. The facilities to be provided are similar to those incorporated in recently constructed Northern Territory primary schools but the new design approach will emphasise the following features:

- smaller scale buildings which will allow full natural ventilation if the air conditioning units are out of action or switched off in the dry season;
- window areas protected by verandahs to provide natural light and outlook for the learning units. Overhanging eaves will shield walls and help reduce energy consumption;
- separate buildings linked by covered walkways to emphasise an outdoor orientation more in keeping with the Northern Territory lifestyle;
- domestic scale and modular panelised construction methods to reduce time and cost in providing complete schools and to facilitate phased development or extensions to existing schools;
- provision of two teacher units as the basic teaching unit in place of the larger three and four teacher units which are generally no longer favoured by educationists.

43. Educational Basis of the New Design The new design concept for primary schools in the Northern Territory will continue the educational practice of providing open plan teaching space but will add a desirable degree of flexibility in usage. The proposed Katherine South Primary School will allow the principal to make decisions over a range of methods of operation from near traditional to open non-structured programs and combinations of these. The design should enhance the school's capacity to promote the mastering of basic skills as well as fostering the cultural and social development of the pupils.

44. As with previously designed open plan schools, the aim has been to provide good opportunities for teachers to co-operate in planning and teaching, enabling them to make better use of their individual talents.

45. In such a school, children may move easily from large groups to small groups or to private study with an emphasis on pupil motivation and initiative in learning, on pupil activity and on the development of personal and social qualities. The atmosphere and method of operation of an open plan school are intended to encourage both self-reliance and co-operation with other children and the adult members of the group. The domestic scale and atmosphere of the separate units of the school are expected to facilitate these educational aims.

46. Committee's Conclusion The proposal is the most appropriate solution to provide for the educational needs of primary school students in the Katherine South area. The shower and change block should be retained. The new modular design concept, which is to be adopted throughout the Northern Territory is considered to be efficient and economical and lends itself to extension and alteration.

THE SITE

47. The site, designated Lot 1477 in the approved Katherine Town Planning Scheme, was formerly occupied by the C.S.I.R.O. whose building complex remains beyond the southern boundary. The C.S.I.R.O. oval, which occupied part of the site, is to remain, but will be partly relocated and will be available both to the school and to the C.S.I.R.O.

48. The site is 3.04 hectares in area and is bounded by residential development on the north, the continuation of Riverbank Drive and the Katherine River on the west, C.S.I.R.O. on the south and a nature strip on the east. Part of the nature strip is low lying, but the school site is high and dry, and above known flood levels. A temporary school, of demountable and mobile classrooms was set up adjacent to the site early in 1976.

49. Committee's Conclusion The site selected is suitable. The Committee was assured that the school will be above known flood levels.

CONSTRUCTION

50. Planning The proposal is capable of future extension and allowance has been made in site planning to cover this contingency. The overall layout has been planned with an easily defined means of circulation.

It will provide:

- close proximity of the library to the learning units;
- an administration building convenient to the rest of the school;
- easy access from the road to those parts of the school most used by the community such as the library, the multi-purpose unit and the administration building.

51. To reduce the running costs for air conditioning and lighting, the buildings have been planned with occupied areas adjacent to external walls, thereby making greater use of natural light and encouraging natural ventilation through door and window openings when satisfactory climatic conditions prevail.

52. Structure The structure will comprise a series of portal frames spanning 3.6 metres, spaced at 3.6 metre centres and will be braced by structurally engaged infill panels. The structural system has been developed on the basis of the most economical spacing of the structural frame and the maximum transportable size of a prefabricated wall panel. Where spans larger than 3.6 metres are required, a universal beam will be used to support the portal frame and the intermediate column will be dispensed with. A variation to this system will occur in the multi-purpose building where the greater height and wider span will necessitate the use of heavier columns and a prefabricated roof truss.

53. Materials and Finishes Consistent with the requirements of each functional area of the school, materials and finishes have been chosen to reduce maintenance, on-site labour for fixing and overall cost to a minimum. External wall panels will be constructed of steel-faced structural plywood sheets on timber framing with insulation infill. Internal wall panels will be constructed of asbestos cement sheets on timber framing and will be designed so that they can be re-positioned if required by subsequent variations in the room layout. Bracing panels consisting of timber framing and structural plywood will be located in permanent position.

54. Floors will be constructed of concrete with varying types of finish. Ceilings will be acoustic tiles or sheet material, suspended from the roof structure. Roofs will be insulated coloured corrugated galvanised steel. Windows and doors will have aluminium frames with the windows having vertically sliding sections to facilitate natural ventilation. Windows and

external doors will be glazed with anti-glare glass. Sound absorbent materials will be used to reduce the general noise level in open learning areas.

55. Mechanical Engineering Services Air conditioning will be provided by means of chilled water reticulated from a central chilled water plant to floor or wall mounted fan coil units located inside individual buildings. The multi-purpose unit will not be air conditioned.

56. Hot water will be supplied by mains pressure electric hot water units located in the areas concerned. A solar hot water system will be provided to the shower and change room block.

57. Electrical Services Power supply to the school will be from medium voltage mains and a package substation on the site. Lighting and power services will be installed to conform with the Australian Standard Codes of Practice. External and security lighting will be provided as required. Intercom and loud speaker systems will also be provided.

58. Hydraulic Services Water for general purposes, ground watering and fire fighting will be obtained from the town supply. Sewerage will be connected to the town sewer. Stormwater will be collected in an underground drainage system and discharged into the river.

59. Fire Protection Hose reels and portable fire extinguishers will be provided to each building with hydrants outside. A thermal fire alarm system will be installed and connected to the local fire station.

60. Civil Services The main access to the site will be from a small extension of Riverbank Drive. Access will also be available along the existing bitumen driveway past the oval which will be partly relocated. A bicycle park and parking for 14 cars will be provided. A service road to the bulk store and canteen will also be provided.

61. Other site development will include grassed play areas, a hard surfaced playing court, fixed play equipment and an illuminated basketball court. The site will be landscaped.

62. Provision for the Handicapped Ramps will be provided where necessary instead of steps. Toilets will be suitably fitted for handicapped persons and doors will allow for wheelchair access.

63. Fittings Built-in cupboards, shelves and other fittings will be provided. Moveable fittings will be provided by the Department of Education.

64. Regulations The proposed building complies with the Northern Territory Building Regulations. The Controller of Fire Services and the Electrical Supply Undertaking have been consulted.

65. Environmental Impact The proposal has been considered by the Department of the Environment, Housing and Community Development and that Department is satisfied it will not have adverse environmental effects.

66. Committee's Conclusion The Committee recommends the construction of the work proposed in the Department of Education's revised submission. The Committee notes that the proposed school is capable of future extension and that site planning covers this contingency.

ESTIMATE OF COST

67. The estimated cost of the revised proposal is \$1.82 million made up as follows:

	\$
Building works	1 240 000
Mechanical services	275 000
Electrical services	105 000
Site works	200 000
	<hr/>
	1 820 000

PROGRAM


68. The preparation of contract documents and the invitation and consideration of tenders will take until November 1977. The project is scheduled to be completed by June 1979.

RECOMMENDATIONS AND CONCLUSIONS

69. 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.

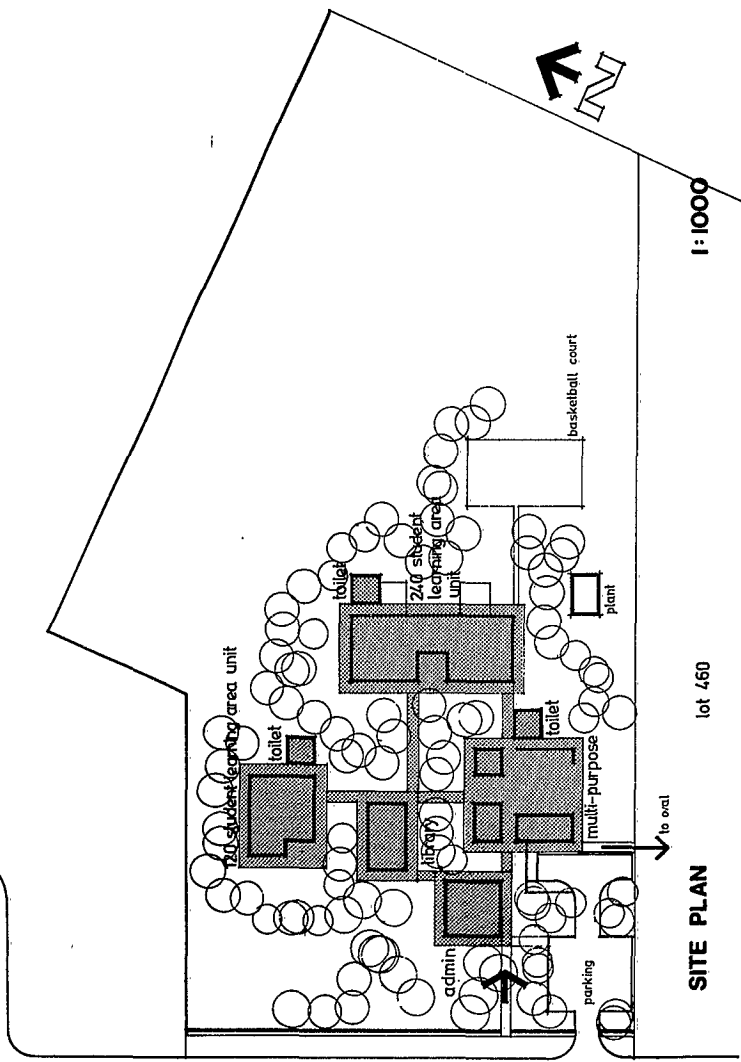
	<u>Paragraph</u>
1. THERE IS A NEED IN KATHERINE SOUTH FOR A NEW AND PERMANENT PRIMARY SCHOOL.	31
2. THE DEPARTMENTS SHOULD MONITOR ENROLMENTS CLOSELY AND DOCUMENT THE PROJECT TO ALLOW DELETION OF THE 120-STUDENT LEARNING UNIT FROM THE CONTRACT IF ENROLMENTS DO NOT INCREASE AS EXPECTED.	31

	<u>Paragraph</u>
3. THE EXTENSION OF CLYDE FENTON PRIMARY SCHOOL TO CATER FOR THE NEEDS OF THE KATHERINE SOUTH AREA IS CONSIDERED IMPRACTICABLE.	31
4. THE PROPOSAL IS THE MOST APPROPRIATE SOLUTION TO PROVIDE FOR THE EDUCATIONAL NEEDS OF PRIMARY SCHOOL STUDENTS IN THE KATHERINE SOUTH AREA.	46
5. THE SHOWER AND CHANGE BLOCK SHOULD BE RETAINED.	46
6. THE NEW MODULAR DESIGN CONCEPT, WHICH IS TO BE ADOPTED THROUGHOUT THE NORTHERN TERRITORY IS CONSIDERED TO BE EFFICIENT AND ECONOMICAL AND LENDS ITSELF TO EXTENSION AND ALTERATION.	46
7. THE SITE SELECTED IS SUITABLE.	49
8. THE COMMITTEE WAS ASSURED THAT THE SCHOOL BUILDINGS WILL BE ABOVE KNOWN FLOOD LEVELS.	49
9. THE COMMITTEE RECOMMENDS THE CONSTRUCTION OF THE WORK PROPOSED IN THE DEPARTMENT OF EDUCATION'S REVISED SUBMISSION.	66
10. THE COMMITTEE NOTES THAT THE PROPOSED SCHOOL IS CAPABLE OF FUTURE EXTENSION AND THAT SITE PLANNING COVERS THIS CONTINGENCY.	66
11. THE ESTIMATED COST OF THE REVISED PROPOSAL IS \$1.82 MILLION.	67


(C.R. KELLY)
Chairman

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

26 May 1977.



1:1000

lot 450

SITE PLAN

to oval

700 student learning area unit

240 student learning area unit

basketball court

plant

multi-purpose

admin

parking

toilet

toilet

toilet