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at

Clayton, Victoria

(THIRD REPORT OF 1979)

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Parliamentary Standing Committee on Public Works

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at

Clayton,
Victoria

(Third Report of 1979)

Australian Government Publishing Service
Canberra 1979

Printed by C. J. Thompson, Commonwealth Government Printer, Canberra

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(Twenty-fifth Committee)

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EXTRACT FROM
THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES
NO. 84 DATED 8 MARCH 1979

17 PUBLIC WORKS COMMITTEE - REFERENCE OF WORK - C.S.I.R.O. CLAYTON, VIC. - RESEARCH LABORATORY COMPLEX: Mr McLeay (Acting Minister for Housing and Construction), pursuant to notice, moved - That, in accordance with the provisions of the Public Works Committee Act 1969, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for investigation and report: Construction of a research laboratory complex for C.S.I.R.O.'s Division of Chemical Technology, Clayton, Vic.

Mr McLeay presented plans in connection with the proposed work.

Question - put and passed.

WITNESSES

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Worner, Dr. H.W., Director, Institute of Industrial Technology, C.S.I.R.O., P.O. Box 225, Dickson, Australian Capital Territory

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

RESEARCH LABORATORY COMPLEX FOR THE C.S.I.R.O.'S DIVISION OF CHEMICAL TECHNOLOGY, CLAYTON, VICTORIA

R E P O R T

By resolution on 8 March 1979, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament the proposed construction of a research laboratory complex for the C.S.I.R.O.'s Division of Chemical Technology at Clayton, Victoria.

The Committee has the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee is for the construction of a complex to accommodate laboratories, administrative and support facilities for the Commonwealth Scientific and Industrial Research Organisation's (C.S.I.R.O.) Division of Chemical Technology.

2. The proposal initiates the third stage of a plan formulated in the late 1950s by the C.S.I.R.O. Executive to establish a complex of laboratories at Clayton, Victoria and to make this the major centre for C.S.I.R.O. chemical research related to industry. The area of land provided for the complex comprises 15.4 hectares adjacent to Monash University, 17 km south-east of Melbourne. The first two stages involved the transfer to Clayton from Fishermen's Bend of the C.S.I.R.O. Division of Chemical Physics in 1965 and the C.S.I.R.O. Division of Chemical Engineering (now called Mineral Engineering) in 1970 following inquiries by the Committee in 1961 and 1966.

3. The facilities will comprise:

- organic and general chemical laboratories;
- technical laboratories for large-scale research work;
- prototype industrial process bays for organic chemistry, general chemistry and pulp and paper;

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- workshops and stores;
- administrative accommodation and support facilities.

4. Provision will be made for on-site car parking and landscaping will complement the existing site development.

5. The estimated cost of the proposal when referred to the Committee was $9.1 million at February 1979 prices.

THE COMMITTEE'S INVESTIGATION

6. The Committee received written submissions and drawings from the C.S.I.R.O. and the Department of Housing and Construction, and took evidence from their representatives at a public hearing at Oakleigh on 10-11 April 1979. The Committee also received written submissions and took evidence from the Central Gippsland Regional Planning Authority Interim Committee, the Housing Commission of Victoria, the Australian Public Service Association Fourth Division Officers, the C.S.I.R.O. Laboratory Craftsmen's Association, the Public Service Artisans' Association, the Victorian Department of State Development, Decentralisation and Tourism, and the Royal Australian Institute of Architects.

7. Prior to the public hearing, the Committee inspected the existing premises of the Division of Chemical Technology at South Melbourne and the site for the proposed complex. The Committee also inspected the facilities of the Division of Mineral Engineering at Clayton.

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

BACKGROUND

9. The Division of Chemical Technology is one of several Divisions in the C.S.I.R.O.'s Institute of Industrial Technology concerned with the application of chemistry and chemical technology to problems of importance to industry and the nation. When established in 1974, it was located in temporary accommodation previously occupied by the former Division of Forest Products at South Melbourne pending the construction of laboratories at Clayton where it was planned it would eventually be located.

10. The pulp and paper section and the water treatment groups form the major part of the Division, and although the Division is only five years old, most of the work undertaken is based on much longer experience. Over the years, research teams have been drawn from disestablished, or restructured

Divisions namely, Forest Products, Physical Chemistry and Applied Chemistry.

11. The study of pulp and paper manufacture began in the C.S.I.R.O. prior to the formation of the Division of Forest Products in 1928; a group of polymer chemists concerned with water treatment processes trace their history to the earlier Division of Physical Chemistry. Other scientists with specialised skills have also been transferred, which has enabled major programs to expand and also permitted the establishment of an important energy program. More recently, the Agroindustrial Unit was transferred to the Division providing a very useful background of agroeconomic experience in alternative plant materials to complement the energy program.

12. The Divisional objective approved by the Executive, when the Division was formed, is "To apply chemical technology, and particularly polymer technology, to developing ways whereby Australia's forestry, agricultural, water resources and wastes can be more effectively utilised".

13. The thrust of the Division's work is in the purification and treatment of water, the study of pulp and paper technology and other uses for plant resources with emphasis on liquid fuels and other chemical products. The work is grouped into six central research programs:

- Cellulose Technology;
- Water and Waste Water Purification;
- Biosynthetic Technology;
- Assessment and Development of Cellulose Resources;
- Lignin Technology;
- Agroindustrial Systems;

plus a program concerned with supplying technical services to the research.

14. The work of the Division is of importance to industry and the Report of the Independent Inquiry into the C.S.I.R.O. (the Birch Report) dated August 1977, in a number of its recommendations, emphasised the desirability of programs being influenced by industry, or contracting research to industrial firms, and of concentrating effort on transferring technology to industry.

15. Currently, collaborative projects are in progress with some twenty different companies, either through licensing of C.S.I.R.O. patents, through research contracts or by an arrangement which is of mutual benefit. Major collaborations are:

- "Sirotherm" and magnetic resin technology is licensed to ICI Australia Limited, while "Sirofloc" clarification process is licensed jointly to Davy Pacific Pty Ltd, ICI Australia Limited and Commando Water Treatment Ltd;
- Part of the cellulosic composites work is being studied jointly with James Hardie & Coy Pty Ltd while energy absorbing composites are being developed with Nylex Corporation Ltd to whom a contract has been let to carry out pultrusion trials. Olex Cables Ltd., Monsanto Australia Limited and Halls Paper Products Pty Ltd are involved in the same project;
- Scrimber, the reconsolidated wood product is being developed by Repco, and other companies are likely to be involved at a later stage;
- In the pulp and paper field, various projects are being studied with all of the pulp and paper companies.

THE NEED

16. The C.S.I.R.O. seeks to proceed with the third stage of a plan formulated in the late 1950s to transfer the Division of Chemical Technology from its present inadequate and unsafe accommodation, to Clayton where a major centre for chemical research is being progressively established. The move will not only eliminate the potential hazards which are unavoidable because of the nature of the present site but will also provide an environment which does not interfere with or limit the type of work which can be conducted by the scientists of the Division. It is proposed also to include in the move a small group of the Division of Mathematics and Statistics currently located at the South Melbourne site.

17. The Division is currently located at four sites. Most of the staff are located at the South Melbourne site, but three members of the Agroindustrial Systems Program are in Canberra and two in Townsville. A laboratory for undertaking pilot plant studies of water treatment processes exists on C.S.I.R.O. land at Lower Plenty.

18. The South Melbourne site is bounded by Yarra Bank Road, Kings Street Bridge, Spencer Street and the Port Melbourne railway line and consists of two adjacent pieces of land, Lot 57 and Lot 58. The area of land is about 0.5 hectares and is held under lease from the State of Victoria. The current annual ground rental for both leases is $14,5000 and advice from the Department of Administrative Services is that, upon expiration of the leases in 1985, new leases would be based on fair market rents and would be of the order of $180,000.

19. The buildings on the site reflect the original research requirements of the former Division of Forest Products which were designed for work of a physical and engineering nature. These buildings are most unsuitable for the pursuit of chemistry and chemical engineering research and their occupancy by the present Division presents a considerable number of previously non-existent hazards.

20. A majority of the buildings are built of timber, are poorly ventilated, and present an appreciable fire risk. Remedial measures have been undertaken to improve the safety of the site and to control the discharge of toxic and polluting wastes but nevertheless, the site still retains inherently unsafe features most of which cannot be readily eliminated. Over the years, a slow subsidence of the buildings, which are built on timber piles in the river flats, has occurred.

21. The location of the site introduces undesirable environmental effects and of prime importance are the effects of dust, dirt and air pollution, and of vibration. It has proved impossible to exclude from the laboratories the excessive quantities of dust and fumes produced by local industry and by vehicles, and vibration generated by trams and other traffic.

22. The limitations of the South Melbourne site prevent the investigation of many processes on a scale larger than that possible or permissible in a laboratory, and facilities of the correct standard are not available at the South Melbourne site and cannot be provided there.

23. The Department of Housing and Construction investigated the possibility of converting the South Melbourne site to provide accommodation of suitable standard which conformed to the brief prepared by C.S.I.R.O. It determined that the best that could be achieved involved extensive demolition, alterations to existing buildings, the construction of a nine-storey tower and the building of potentially hazardous bays on the site. The total cost would have been $8.5 million.

24. The Department recommended against this approach for the following reasons:-

- the high cost of this exercise;
- the overdevelopment of the site;
- the inability to control satisfactorily the environmental conditions;
- the enormous disruption to the Division's activities which would result from the building operation;
- the inadvisability of making such a large investment on leased land.

25. In summary, the present premises are most unsuitable for the future needs of the Division. They are old, overcrowded, lacking in facilities and situated in an area which is environmentally unsatisfactory. They cannot be extended or adapted to meet the demands for more critical environmental conditions essential for present and future research.

26. Committee's Conclusion There is an urgent need to provide a new research laboratory complex for the Division of Chemical Technology. The existing premises possess many unsafe features, are overcrowded and cannot be expanded or adapted to meet the high technical standards desirable for the type of research work being undertaken.

THE PROPOSAL

27. The proposal comprises the erection of new laboratory accommodation for the C.S.I.R.O.'s Division of Chemical Technology on a site which is part of the C.S.I.R.O. complex located at Clayton, Victoria. The proposed building is to be in the area set aside for it some time ago when the master plan for the development of the Clayton site was established. This area, possessing a north/south orientation, is in the approximate centre of the site and is flanked by the Division of Mineral Engineering to the west and the Division of Chemical Physics to the east.

28. Planning and Design The proposed building will provide accommodation, facilities and services required for research in the field of chemical technology. It has been designed strictly in accordance with the design brief submitted by C.S.I.R.O. whose primary requirements were:

- provision of safe working conditions for scientific research;

- work space functionally tailored for C.S.I.R.O. acitivites;
- design of these spaces to ensure control over temperature, cleanliness, ventilation, solar penetration and vibration.

29. The master planning concept for the Clayton site is to maintain the research activities on the south of the site facing Monash University, while the service and utility components are towards the north, where they relate to the surrounding industrial area.

30. The research laboratories will be accommodated in two three-storey wings containing standard laboratory modules (which incorporate offices for scientists) together with support facilities including instrument, cold and constant temperature rooms, and storage for solvents and other laboratory requisites.

31. The administrative services of the Division will be accommodated in a two-storey building. It will contain administrative offices and support components including a suite of rooms for the consultant group of the C.S.I.R.O. Division of Mathematics and Statistics. The latter also incorporates computer facilities. The location of this building ensures ready access from the research laboratory, light technical bays, the technical services wing and workshop/stores building.

32. The light technical bays will consist of a series of open laboratories and will incorporate all the reticulated services encountered in the research laboratories. They will be located in a separate, single-storey structure.

33. The technical services wing will serve as a link between the research laboratory and the light technical bays and incorporates technical service facilities common to the two principal research areas. Structurally, this area will be a continuation of the adjoining administrative building.

34. The workshop and stores building comprises a single storey detached building and will accommodate the divisional workshop and its associated stores. A facility for the storage of bulk requisites, the general store, is also provided in the building.

35. The process bays will be housed in a separate building which will provide three fire isolated areas for work in organic, general and pulp and paper chemistry on a scale larger than would be possible in the research laboratories or the light technical bays.

36. A separate isolated building, the special stores building, will be provided for the bulk storage of potentially hazardous solvents and chemicals. It will be located clear of other buildings and is of reinforced concrete construction.

37. The overall design of the complex, while satisfying the C.S.I.R.O.'s principal requirements outlined above, has been developed to provide for:

- the construction of economical buildings incorporating serviceable, low maintenance materials and simple and practical mechanical plant;
- the optimisation of energy usage in the servicing of the buildings;
- controls to minimise environmental pollution from the laboratories;
- a building complex compatible in form and scale with the existing and planned structures and with the adjoining environment;
- the erection of a complex of accommodation that is safe, convenient and provides an aesthetic working environment; and
- staff recreational facilities and amenities, and workshop and stores access, which will form the basis of future joint services to be shared between the Division of Chemical Technology and the planned Applied Organic Chemistry building.

38. In summary, the consideration of functional layout, utility, safety, flexibility and access have had a significant influence on the design solution, and the overall design of the complex recognises the fire hazard by the separation of buildings and the isolation of areas within buildings.

39. Committee's Conclusion The proposed complex has been designed to ensure control over temperature, cleanliness, ventilation, solar penetration, and vibration and to provide safe working conditions for scientific research.

THE SITE

40. The site for the proposed project is portion of a 15.4 hectare site at Clayton owned by C.S.I.R.O. and located immediately north of Monash University in the City of Oakleigh, Victoria approximately 17 km south-east

of Melbourne. It is bounded to the south by Monash Drive and Bayview Avenue, to the north by Normanby Road, to the east by Monash Drive and to the west by Gardiner's Road.

41. The Division of Chemical Physics and the Division of Mineral Engineering have been established towards the eastern and western ends of the site respectively. Space is allowed for three additional future Divisions, Applied Organic Chemistry, Materials Science, and a Division associated with the Institute of Earth Resources.

42. The site is substantially flat and is grassed with plantings of native shrubs and trees, which will be retained as far as possible, along the northern and southern boundaries. Sub-surface investigations indicate clay over mudstone and sandstone, which will provide a sound building foundation provided adequate precautions are taken to reduce the effects of moisture variations in the clay surface.

43. A full range of underground services is already available at the site with sufficient capacity for proposed development.

44. In 1975, C.S.I.R.O. submitted a draft Environmental Impact Statement to the then Department of Environment, Housing and Community Development for the three stages of site development related to the proposed building, and two additional future Divisions, Applied Organic Chemistry and Material Science. Advice received from that Department is that no further action is required under the Environment (Impact of Proposals) Act, provided that continuing consultations take place with relevant State and local authorities during development of the proposals. This consultation has been undertaken during the course of the development of this proposal.

45. The site is zoned "Public Purposes, Commonwealth of Australia" in the Melbourne and Metropolitan Board of Works Planning Scheme 1968 and the proposal and plans for future development conform with this Scheme.

46. The proposed site is well served by transport services and its close proximity to Monash University will enable the Division of Chemical Technology to foster close contacts between Monash staff and the Divisions already located there.

47. In a submission to the Committee, the Central Gippsland Regional Planning Authority Interim Committee stated that "... the Central Gippsland region, perhaps, together with some other potentially suitable regions,

apparently has not been given serious consideration as a possible area in which to establish the proposed Research Laboratory Complex". Submissions relating to a decentralised location were also received from the Victorian Housing Commission and the Victorian Department of State Development, Decentralisation and Tourism. While the Committee supports, and is mindful of the advantages attached to decentralisation, it is not persuaded on the evidence presented, to vary the conclusions determined by the Committee during the 1961 hearings relating to the proposed construction of the then New Chemical Physics Laboratory Building for C.S.I.R.O. at Clayton, Victoria. As quoted in the Committee's Report, they were, inter alia:

> "53. Alternative Sites. We were told that many other sites were considered. Ideally, from the point of view of freedom from disturbance by industrial processes and commercial activity, the site should be somewhere in the country.
>
> 54. Such a site would, however, fail to meet the desirable features of one handy to industry with which the C.S.I.R.O. is co-operating, in close proximity to a university and near the homes of staff. "

48. Committee's Conclusion The site selected is suitable and meets the geographical, environmental and infrastructure requirements of the Division of Chemical Technology.

CONSTRUCTION

49. Structure The research laboratories comprising two three-storey wings will be reinforced concrete structures with beamless concrete floor slabs, and the administrative services building will be a reinforced concrete frame structure with lightweight non-structural internal partitions. Structurally, the technical services wing will be a continuation of the administrative building, which it adjoins. Generally, the remaining buildings of the complex: the light technical bays, the process bays, and the workshop and stores building will be steel framed structures with precast concrete panels and internal fire-isolating concrete block walls. The special stores building, which is located clear of the other buildings, will be of reinforced concrete construction.

50. A feature of the design of the research laboratory buildings is the external balconies which acknowledge the potential fire and toxic hazard

by providing an additional means of escape. They also give the required sun protection to windows and facilitate ready access to the full range of reticulated services.

51. External Finishes The external cladding of the balconies is non-structural natural anodised aluminium, while the plant room and end wall are faced with precast concrete. The external stairs will be constructed of off-form reinforced concrete. The external finishes of the administrative services building will be similar to the research laboratory, while the external walls of the light technical bays will be precast concrete.

52. Internal Finishes Within the research laboratory buildings, economical low maintenance fire-resistant materials and finishes will be used. Ceilings will be painted off-form concrete; partitions, plasterboard; and floors, sheet vinyl. Built-in laboratory furniture will be provided. Carpeted floors and acoustic ceilings will be provided in the administrative services building where walls will generally be painted plaster, while a few areas will incorporate selected wall finishes to reduce maintenance, e.g. tiling to wet areas and vinyl wallpaper to corridors.

53. The internal finishes of the light technical bays will comprise granolithic concrete floors with walls of painted concrete and painted plasterboard ceilings; the finishes of the process bays will be similar to those of the light technical bays. The floors of the workshop and stores building will be industrial parquetry in workshop areas, vinyl to offices and granolithic to stores areas. The ceiling will be of painted asbestos cement, walls will be blockwork and partitions painted plasterboard.

54. Internally, finishes in the workshop and stores building as well as the technical services wing will vary in accordance with the differing and various types of functions and accommodation required.

55. Mechanical Services The organic and general chemical laboratories within the research laboratory building make the greatest demand on all building services and, accordingly, a central mechanical plant building has been provided adjacent to these laboratories.

56. The plant building will contain a central refrigeration system and air handling plant associated with the research laboratory building. Chilled water will be reticulated from this plant room to serve the various air handling plants throughout the complex whilst hot water will be

reticulated from a central gas-fired boiler located in the process bay plant room.

57. Primary plant for compressed air, distilled water, chilled water and low pressure steam for laboratory uses, the vacuum plant and the main electrical substation and switchboard are contained in the central plant room. Services for the research laboratories and light technical bays will be reticulated from the central plant building while those required for the process bay and workshop areas will be reticulated from the mechanical services plant room located in the process bay.

58. Air conditioning ductwork will be of low velocity type to reduce noise levels and energy consumption. Air conditioning will be provided to the research laboratory building, the administrative services and technical services wing and the process bays. Air handling plant for the various laboratories will be located at each level of the central plant room while a separate air conditioning unit located in the first floor plant room provides for the process bays.

59. Separate plant rooms providing air handling equipment and accommodation for supplementary services will be situated on the roof of the administrative services building to serve it, the technical services wing and the light technical bays; and in the process bay building to service the three bays and areas of the workshop and stores building. Prime services will be reticulated to these plant rooms along the link and covered walkway.

60. Other mechanical equipment to be installed in various areas within the complex will include cold rooms, kitchen equipment, sawdust extraction unit, overhead travelling cranes, paint spray booth and fume exhaust hoods.

61. Heating will be provided by hot water unit heaters in the process bays, workshops, various store areas and light technical bays. Ventilation to these areas will be generally provided by natural means, however mechanical ventilation systems will be provided for toilets, plant rooms, kitchen and selected areas such as the chemical store, paint shop and welding bay within the stores and workshop facility.

62. Electrical Services High voltage power supply will be supplied to the Chemical Technology complex from the main site substation located adjacent to the existing Division of Chemical Physics via a substation which

will be located in the new central plant house. For reasons of safety and utility, each laboratory and other distinct occupied areas in the new building will be supplied from an individual electrical distribution board.

63. Lighting will generally be by fluorescent fittings and will be designed to comply with the Australian Lighting Code Recommendations. Special lighting will be provided in the conference room and photographic studio and in class 1 hazardous areas, e.g. solvent stores and general process bays. The existing street lighting will be supplemented by external security lighting around the building and in the car park.

64. A P.A.B.X. and emergency warning public address systems will be provided throughout the complex together with a supervisory system for security and building services monitoring.

65. A standby diesel alternator set will be installed to provide emergency power to essential load areas during mains failure. This supply will be restricted to certain critical items of equipment, some fume cupboards and other special rooms and laboratories, which require uninterrupted electrical power.

66. An electric goods/passenger lift will be provided adjoining the link between the laboratory wings to service all of the upper levels of the complex.

67. Fire Protection Generally each building will be fully sprinklered. Supplementary fire protection will be provided to occupants of the laboratory wings by the pressurisation of the main escape corridor. All fume cupboards will be individually protected with self-contained extinguishing units.

68. Control of Toxic and Flammable Chemicals This will be primarily achieved by the provision of fume cupboards in the working areas for the handling of solvents and other potentially hazardous products. Further, in the organic chemistry wing, the ventilated air will not be re-circulated through the air handling plant. The bulk storage of solvents will be maintained in the isolated special store located in a remote part of the site, back-up supplies of solvents for the laboratory wings will be provided in discrete solvent stores, one on each floor, and the storage of solvents for day-to-day use, in specially designed and ventilated cabinets in the laboratory modules.

69. Disposal of Laboratory Wastes All laboratory sinks will be connected to a neutralizer pit providing treatment prior to discharge to the Melbourne and Metropolitan Board of Works (M.M.B.W.) sewer. All such wastes will be the subject of a Trade Waste Agreement between C.S.I.R.O. and the M.M.B.W. Solvent wastes will be collected separately and securely stored in underground concrete holding tanks, and provision will be made for the location of a container on the site for the storage of solid wastes. These wastes will be removed periodically by an industrial waste contractor.

70. C.S.I.R.O.'s radio-active wastes will be relatively small in quantity and of a very low potency. Storage and disposal provisions will conform with the requirements of the Victorian Department of Health.

71. Roads and Car Parking Limited roadworks will be required to be carried out and these include: vehicle crossings from Normanby Road, a short entrance road from Monash Drive, and paved areas for vehicular traffic around the process bays, workshops and stores. A total of 110 car parking spaces will be provided for staff and visitors.

72. Landscaping and External Works The areas surrounding the proposed facility will be landscaped to integrate with existing landscaping and with that of the adjoining Monash University; provide a pleasant character to the courtyard areas used by staff; enhance the external access of the buildings generally, and provide a screen and some shade to the car parking areas.

73. Consultations and Approvals The proposal has been discussed with officers of the City of Waverley, City of Oakleigh and Monash University and responses from those bodies are included in the Minutes of Evidence. The Committee was assured that the building will be designed to comply with the requirements and regulations of all relevant State and municipal authorities as far as practicable within government policy.

74. Staff Consultations To date, consultations between the C.S.I.R.O. and employee unions and/or associations have extended to general discussions on the broad concept of the proposal. The Committee was assured by C.S.I.R.O. representatives that, during the detailed design stage, full consultations will be undertaken with staff, or their representatives, on matters relating to the work area, facilities and/or amenities with which they are directly concerned.

75. Committee's Conclusion The Committee recommends the construction of the work in this reference.

ESTIMATE OF COST

76. The estimated cost of the work when referred to the Committee was $9 100 000 at February 1979 prices, made up as follows:

	$
Building works including structural	5 440 000
Mechanical services	2 350 000
Electrical services	800 000
Lift services	60 000
Hydraulic services	110 000
Civil works	250 000
Landscaping	50 000
Investigations, quality control and fees to local authorities	40 000
	9 100 000

PROGRAM

77. It is expected that after an approval to proceed is given, the preparation of final drawings and tender documents, subsequent invitation of tenders and letting of a contract will take eight months. Construction time is estimated at two and a half years after a contract is let.

RECOMMENDATIONS AND CONCLUSIONS

78. 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.

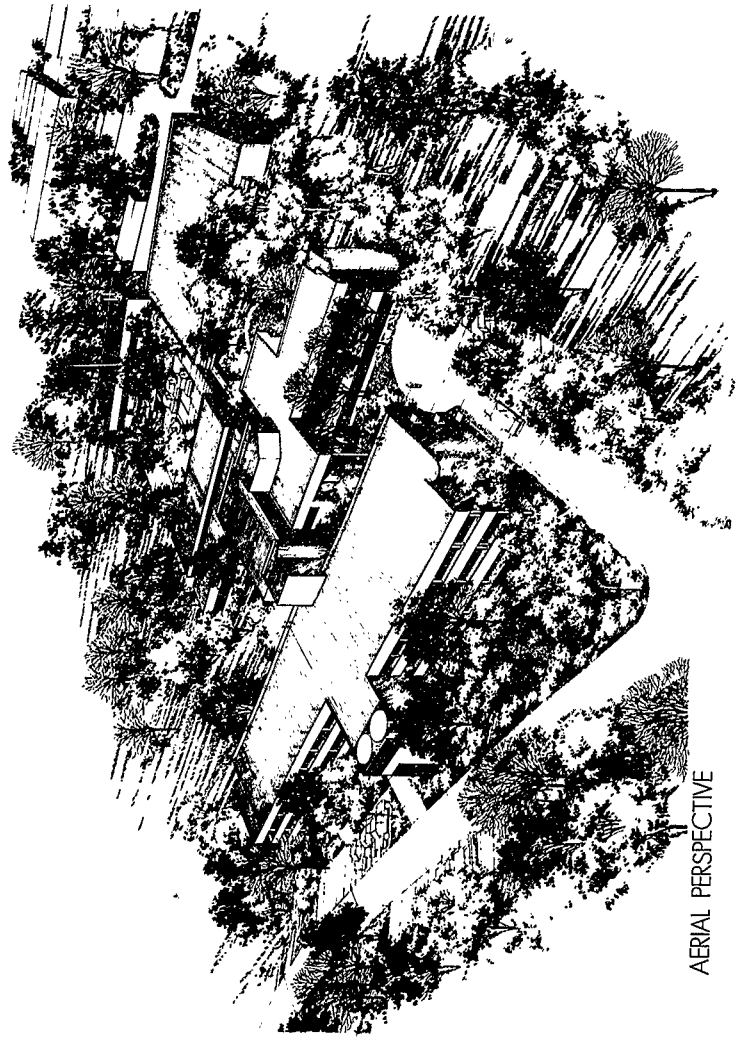
		Paragraph
1.	THERE IS AN URGENT NEED TO PROVIDE A NEW RESEARCH LABORATORY COMPLEX FOR THE DIVISION OF CHEMICAL TECHNOLOGY. THE EXISTING PREMISES POSSESS MANY UNSAFE FEATURES, ARE OVERCROWDED AND CANNOT BE EXPANDED OR ADAPTED TO MEET THE HIGH TECHNICAL STANDARDS DESIRABLE FOR THE TYPE OF RESEARCH WORK BEING UNDERTAKEN.	26
2.	THE PROPOSED COMPLEX HAS BEEN DESIGNED TO ENSURE CONTROL OVER TEMPERATURE, CLEANLINESS, VENTILATION, SOLAR PENETRATION AND VIBRATION AND TO PROVIDE SAFE WORKING CONDITIONS FOR SCIENTIFIC RESEARCH.	39

		Paragraph
3.	THE SITE SELECTED IS SUITABLE AND MEETS THE GEOGRAPHICAL, ENVIRONMENTAL AND INFRASTRUCTURE REQUIREMENTS OF THE DIVISION OF CHEMICAL TECHNOLOGY.	48
4.	THE COMMITTEE RECOMMENDS THE CONSTRUCTION OF THE WORK IN THIS REFERENCE.	75
5.	THE ESTIMATED COST OF THE WORK WHEN REFERRED TO THE COMMITTEE WAS $9.1 MILLION AT FEBRUARY 1979 PRICES.	76

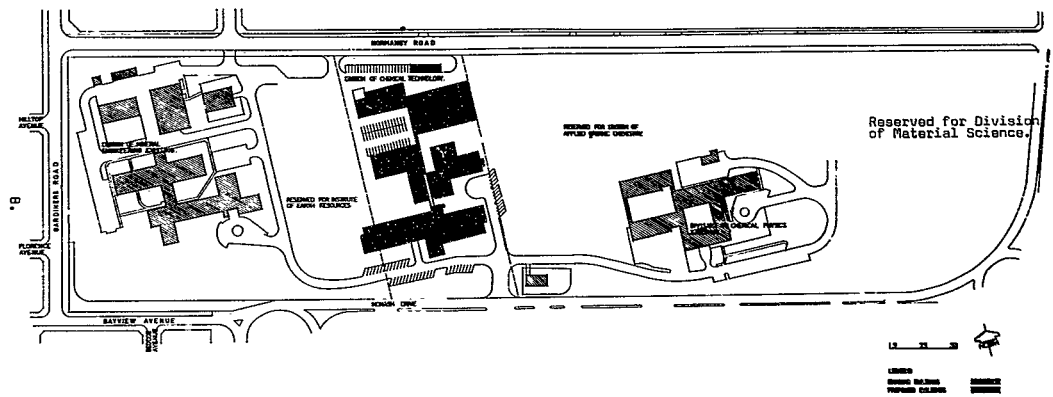
(M.H. BUNGEY)
Chairman

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

10 May 1979.



AERIAL PERSPECTIVE



MASTER SITE PLAN

SITE & LANDSCAPE PLAN

24484/79–L

C.