1978
THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

Parliamentary Standing Committee on Public Works

REVIEW OF FIFTH REPORT 1973

relating to the proposed construction of an

OFF SHORE HIGH SECURITY ANIMAL QUARANTINE STATION

at

West Island
Cocos (Keeling) Islands

(SECOND REPORT OF 1978)

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Australian Government Publishing Service
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C O N T E N T S

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

OFF-SHORE HIGH SECURITY ANIMAL QUARANTINE STATION WEST ISLAND, COCOS (KEELING) ISLANDS

(Review of the Fifth Report of 1973)

FURTHER REPORT PURSUANT TO SECTION 19 OF THE PUBLIC WORKS COMMITTEE ACT 1969

By resolution on 31 May, 1973, the Senate referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament the proposal to construct an Off-Shore High Security Animal Quarantine Station.

THE 1973 REFERENCE

1 The proposal referred to the Committee involves the construction of an off-shore high security animal quarantine station to facilitate the safe importation of commercial breeds of livestock onto the Australian mainland. Because of the important need for quarantine security, an off-shore location is desired at least 100 miles from the Australian mainland. Christmas Island, Norfolk Island and Cocos (Keeling) Islands are proposed as possible locations for the station and the Committee have been asked to select the most appropriate one.

2 The estimated costs of the proposal at the alternative sites when referred to the Committee were Christmas Island $2.6 million, Norfolk Island $2.5 million and Cocos (Keeling) Islands $2.1 million.

3 The Committee had the honour to report on that reference to Parliament on 20 September, 1973 and in its Fifth Report of 1973 the recommendations and conclusions were:

- The Committee agree that there is a need to establish a high-security animal quarantine station.
- The station should be located on an island remote from the mainland.
- Providing that satisfactory arrangements can be made about the terms of the land on which the station is to be built and on the assumption that the Government is satisfied that the local people are in favour of the station being built, the Committee recommend that the animal quarantine station be located on West Island, Cocos (Keeling) Islands.
- The Committee recommend the construction of the work in this reference.
- The estimated cost of the proposed work when referred to the Committee was $2.1 million.

BACKGROUND

4 Although the Committee reported to Parliament in 1973, a motion of expediency for the approval of the work has not yet been introduced by the Government because of difficulties in resolving issues relating to the acquisition of the selected site on Cocos (Keeling) Islands and the broad question for the future relationships between the islanders, the Clunies-Ross Estate and the Australian Government.

5 New Government policies relating to Cocos Island and its people were announced by the Government in June 1977. These policies included a provision that the Commonwealth Government should own all land on Cocos Island on which its facilities are located.

6 The Ministers for Health and Home Affairs announced on 8 March, 1978 that negotiations with the Clunies-Ross Estate for the animal quarantine station site on Cocos Island had been successfully completed. The Ministers also indicated that subject to the further views of this Committee the "Motion of Expediency" would be introduced in the House of Representatives seeking authority to carry out the work.

7 In reviewing its Fifth Report of 1973, the Committee has the honour to report as follows:

THE COMMITTEE'S INVESTIGATION

8 On 6 and 13 April, 1978 the Committee met with Department of Health officials who informed us of events since 1973 including changes in cost estimates and with planning amendments designed to improve animal husbandry, and contain costs.

9 On 21 April, 1978 the Committee resolved that the 1973 Report be reviewed and that, pursuant to Section 19 of the Public Works Committee Act 1969, a further report should be presented to Parliament.

10 The Committee received written submissions and drawings from the Departments of Health and Construction and took evidence from their representatives at a public hearing in Parliament House, Canberra on 12 May, 1978. At the Committee's request evidence was also given by Mr. R. W. Gee, Director, Australian Bureau of Animal Health.

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

THE CONTINUING NEED FOR AN OFF-SHORE QUARANTINE STATION

12 The need for the station has not diminished since the

Committee's consideration in 1973. Australia has a continuing need for improved genetic material, for its economic range of livestock species. To maintain and improve our competitive position, herds must be evolved which are more adaptable to Australian environmental conditions. Increased unit productivity, reduced costs of pest control and reduced production losses from pests and parasites would result. The introduction of heat tolerant and tick resistant cattle would be of particular benefit to our northern beef areas.

13. In the light of recent developments in ova transplant technology and the techniques for semen storage, there have been suggestions that there may no longer be a need for an off-shore quarantine station.

14. The Committee was assured that this suggestion is without foundation. The major recent advances in artificial insemination have been in semen freezing techniques for species other than cattle, whilst the major advances in ova transplants are related to storage techniques and non-surgical methods of transplantation.

15. The technical and scientific views on this question presented to the Committee in 1973 remain valid in 1978. In summary, the position is as follows:

- from a disease point of view, imports of semen or ova need to be regarded at least as cautiously as the importation of live animals. Both these media are capable of carrying viral and bacterial diseases. The techniques for storage are conducive to virus survival.
- in view of world disease distributions, and the problems of disease testing, semen and ova can only be imported direct into Australia from a small number of countries. Those countries in which the advanced technology exists are not necessarily the countries from which we need genetic material.
- live animal imports increase the range of genetic material which could be expected from the importation of semen and ova alone. Total reliance

upon semen and fertilised ova imports brings with it the possibility of producing a "founder" effect.

- live animal imports would allow breeds to be established faster than would be the case with semen and ova importations only.
- semen and ova handling techniques do not have current application to all economically valuable species of livestock.

16 The Director of the Bureau of Animal Health strongly supports the view that semen and ova importation do not represent a satisfactory alternative to live animal imports as a source of improved genetic material.

17 Committee's Conclusion The need for the Quarantine Station has not diminished since the Committee reported in 1973.

18 Australia has a continuing need for improved genetic material for its economic range of livestock species.

19 Restatement of Location Criteria The overriding criteria for location of the Station is complete disease security from the mainland. Only an island at least 160 km off-shore can provide this complete security in the event of an outbreak of disease in the station. A disease proof station could be constructed on the mainland or in-shore island (if a suitable one were available) at great cost, however its security would always be suspect, if only on unsubstantiated grounds, regardless of expert assurances as to safety, security and risk factors. Such suspicion, with its ever-present threat of embargos on trade would not be acceptable to the Australian community.

20 Committee's Conclusion To ensure complete disease security from the mainland the Committee confirms the selection of the site on West Island, Cocos (Keeling) Islands.

21 Land Acquisition Following agreement with the Clunies-Ross Estate, the Government has now purchased the land on Cocos Island on which it is proposed to locate the quarantine station. At various times the Islanders have indicated their support for the Station. Late in 1977 the Department of Health was advised that the Islanders and Mr. J. Clunies-Ross had no objection to the Commonwealth constructing and operating the station with its own resources.

22 Committee's Conclusion The Committee notes that arrangements have now been made about the purchase of the land on which the Station is to be built and that the local people have indicated their support.

23 Station Capacity The proposal submitted to the Committee in 1973 provided for a station capacity of 200 adult imported cattle (or their equivalent in smaller animals). The size of the proposed station should be sufficient to ensure that species of animals, and breeds within species, could be imported in sufficient numbers to permit rapid commercial multiplication. We were told that whilst it was not easy to predict total industry demand for the use of the station, there were a number of factors supporting the proposed capacity of 200 animals.

24 In 1976, in the light of its broad policy of economic constraint, the Government directed that the station design be reviewed with a view to reduction in capital costs.

25 The subsequent Departmental review of the station design later in 1976 indicated that while economies of the detailed aspects of the design could be made, these would be insufficient to warrant a reduction in the estimate, which by this time had increased through inflation to $8.2m. However, it was ascertained that, without prejudicing the viability of the station, a saving of $1.76m could be achieved by reducing planned capacity from 200 imported adult cattle to 120. This was achieved by the deletion of 2 of the 5 animal houses (40 animals each) and Government approval to the project was obtained on this basis.

26 The reduction in station capacity was undertaken as a specific response to the Government's economic constraints. It did not result from any specific indication of reduced demand. Whilst the capacity now planned will reduce the station capability to handle what the Department of Health believe will be a future heavy and continuing demand, it is still at a level which will enable the importation of species of animals, and breeds within species, in sufficient numbers within a sufficiently short time to permit rapid commercial multiplication on release from quarantine.

27 Cattle Importation The use of the Cocos Island Quarantine Station is essential for importations of animals for which the disease security of an off-shore station facility is necessary. Importations from North America, South America, Europe, Asia, Africa and the Middle East currently fall into this category.

28 For importations from countries which do not require the high cost disease security of an off-shore station, the Department of Health intends to expand its existing animal quarantine station at Torrens Island, near Adelaide, to include facilities for 144 cattle. The Torrens Island Station presently is limited to horses, dogs and cats. Current planning is that cattle from the United Kingdom and Ireland and New Zealand cattle of foreign origin will be imported through this Station. Without this mainland facility such importations could only be arranged through the off-shore station.

29 With the expansion of Torrens Island, it will be possible to plan on maximum utilisation of the Cocos Island quarantine station for the importation of animals for which the disease security of an off-shore station facility is essential.

30 The Torrens Island cattle facility is expected to be in operation well before the Cocos Island quarantine station. Current planning is that when the latter is completed, shipments of cattle from the U.K./Ireland would be temporarily diverted through the off-shore station to allow procedures and operations to be streamlined

before animals are received from countries of greater animal health risk.

31 Review of Cocos Island Station Design In view of the several years which have elapsed since the initial design concepts for the station were developed, it was decided that a thorough review, with emphasis on animal handling and husbandry, operational efficiency and economy, be undertaken. As a result of this review, a more compact layout for the total installation has been devised. Specifically animal accommodation has been replanned, a more efficient waste disposal scheme adopted, and related services, roadworks etc. have accordingly been reduced in scope.

32 The original plans envisaged open animal houses which were to be naturally cooled by prevailing winds. The animal houses were "solar oriented" to minimise heat loads and were to be topographically located so as to allow cooling from prevailing south east trade winds. The animal houses were located 140 feet apart to prevent "wind shadows".

33 The location of the buildings dictated the length and size of drains etc., and the internal roadways, all of which had to be paved and drained.

34 Cocos is in the "doldrums" weather area. For three months each year there is little or no wind. Study has shown that the average temperatures on Cocos are close to those which are critical for animal health and productivity. Solar orientation and building separation would be insufficient to guarantee a reduction in animal body temperatures to safe levels.

35 The new plan therefore envisages a compact layout for the entire installation which will allow mechanical ventilation to be employed economically in the animal accommodation. Savings would result in roadways and associated drainage.

36 The more compact layout and other design features will also allow the station to operate more efficiently and with less labour.

37 The Animal House Under the 1973 plans, each animal house was to contain 10 pens, each of which was large enough for 5 adult animals, comprising 4 imported animals and 1 Australian sentinel.

38 Hay and straw were to be used as feed and bedding and manure was to be removed manually. The corridors in each animal house therefore had to be large enough to allow machinery access.

39 As already mentioned the initial plan assumed that adequate cooling would be provided by natural ventilation, orientation of the buildings, and by the elimination of wind shadows.

40 With the new design, the animal pens within each building have been reduced in size and rearranged, without reducing the total animal capacity. An improved non-manual system of effluent disposal will be used incorporating the collection of all solids and liquids through a partially slatted floor in each pen, draining to a collection and treatment facility. Animals will be fed mostly on concentrates and bedding will be eliminated.

41 It has therefore been possible to reduce the size of feed storages and reduce the area and length of passageways. The total result has been a substantial reduction in the overall size of the animal house which can be maintained with improved operational efficiency.

42 Other changes to the original plan for stock yards, security fences, ablution block, administrative building and feed store have been made.

43 Area of Land The Department of Health's submission in 1973 indicated that limited land of about 30 acres (12.15 ha) was expected to be available on West Island. This site was somewhat

restricted when compared to that expected to be available on Christmas Island (up to 100 acres) and Norfolk Island (60 acres). Consequently, in the settlement of terms with the Clunies-Ross Estate for the outright purchase of the site additional area was sought and the total area is now 52 acres, (21.52 ha). The additional area will considerably increase the scope of the station by:

- increasing the area available for growing fodder.
- providing additional buffer area.
- providing better opportunities for long term retention of climatically suitable grazing animals, especially sheep.

It also enables the Commonwealth to link up its land holdings in the area.

44 Committee's Conclusion The reduction in station capacity from 200 to 120 adult imported cattle will not prejudice the viability of the station and will be offset, in certain respects, by the additional facilities to be provided at the Torrens Island Quarantine Station. The new design incorporates the latest concepts of animal care and husbandry.

CONSTRUCTION

45 The work consists of the following facilities:

- An Animal House for 150 head of adult cattle, i.e. 120 imported and 30 sentinel or equivalent numbers of sheep, goats or pigs, in one building which will be divided into three separate major compartments. This Animal House will be mechanically ventilated and spot-cooled at animal breathing positions. There are 12 pens for each animal house division. 2 pens will be used for daily feed storage.
- A Facilities Building will include a sick bay for animals, isolation room, operating theatre, autopsy area, laboratory and various ancillary rooms. Also included as part of the Facilities Building will be the Station's administrative facilities, staff

amenities, laundry, and the showers/changerooms required to serve people moving into and from the secure area.

- Roofed animal yards and races, including a spray and crush, and various animal handling devices will be provided, as well as a services building containing a workshop and garage for Station vehicles.
- Accommodation will consist of 8 twin bed motel type units for short term resident veterinary and scientific staff and three residences comprising one each for the Officer-in-Charge, Lay Station Manager and another Staff member in accordance with the appropriate scales and standards. There will be two feed stores for hay and concentrates and a pathological type incinerator.
- Access roads and pathways connecting the various buildings and facilities are also planned as well as engineering facilities including water, power and sewerage and waste disposal to service the needs of the Station.

46 The Site The site which is located on the West Island of the Cocos Island group has a maximum width of 230 metres and an area of approximately 21.5 hectares and is located at Point Blakang Jambe and between the Sydney Highway (sealed surface) and the high water mark on the shore line. Located either side of the site are Commonwealth properties, one the old cemetery and the other the Compass Locator Station.

47 The land is presently under coconut plantation and has heavy undergrowth in places. The area is generally between 2.1m and 2.5m above Mean Sea Level.

48 Materials and Finishes Construction of buildings other than feed stores and residential buildings will be generally concrete footings and floors, steel portal frames, brick walls,

aluminium deck roofs and asbestos cement ceilings insulated with mineral wool or fibreglass.

49 Surface finishes will vary according to the function of the building but the emphasis will be on use of only a limited range of finishes in order to limit the number of workmen and variety of trades required at the site.

50 Generally, wherever possible, applied finishes will be avoided. In appropriate locations concrete will be trowelled up without screeds or grano toppings, brickwork will be face work without render, asbestos cement eaves linings and aluminium roofs will be left unpainted, aluminium window frames will be natural anodised and natural finishes will be retained where they offer adequate durability.

51 The hygiene requirements within the secure areas of the Station necessitate use of washable, durable, non-porous finishes and for this reason epoxy paint will constitute the major finish in these areas.

52 Feed stores will be of concrete floors, steel portals, sheeted walls on timber girts, and aluminium roof. There will be no internal linings.

53 Residential buildings will be consistent with houses currently being erected on West Island Settlement for the Department of Home Affairs. These are of concrete footings, steel and timber framing, asbestos cement lined walls and aluminium deck roofs. The houses are to be provided with fans, solar hot water systems, some built-in furniture and verandahs.

54 Structure All the buildings will be designed to S.A.A. Wind Code requirements for cyclonic areas.

55 Mechanical Services The proposal provides for a system of mechanical cooling to the Animal House which will ensure the safety and fertility of animals accustomed to cool climate conditions.

56 The cooling system will force cold air through a series of jets located in each pen to provide pockets of cool, dry air for breathing at animal head height. As animals rely largely upon respiration for body heat loss, this "spot cooling" arrangement will allow them to retain their body temperatures below levels which are critical for animal productivity and survival. The quantity of cold air which the system will generate has been assessed on the respiratory needs of the animals, and not on the cubic capacity of the Animal House.

57 Each division of the Animal House will be mechanically ventilated to reduce the temperature and humidity that would otherwise build up due to the presence of animals.

58 Standard animal handling facilities will be provided to draft, spray, crush and weigh the animals.

59 An oil fired pathological incinerator will be provided for the disposal of dead animals or infectious/contaminated materials.

60 The Facilities Building will be air-conditioned except for the laundry/changeroom/lunch room wing.

61 Hydraulics The Station's water needs will be supplied by construction of new wells. Storage will be by two ground level tanks each approximately 150,000 litres capacity. Pumps will pressurise the total station water reticulation system.

62 A water borne waste disposal system will be provided to collect and treat waste from the secure area. The clear effluent from this system will be held for at least 21 days then used for fertilising pasture or disposed of to sea. Sewerage from the buildings outside of the secure area will be treated by normal septic tank and the effluent disposed of to sea.

63 Electrical An existing power house provides the Island's power needs. There is insufficient capacity to meet the Station's requirements and an increase in the generating plant by the addition of one 350 KVA unit with associated switchgear is proposed and allowed for in the estimates. Site reticulation will generally be by underground cables.

64 Electrical installation will be to S.A.A. Code Standards.

65 A 100 KVA emergency generating set will be provided at the Station site to supply power to essential loads under emergency conditions.

66 Civil Paved internal roads will be provided. The site will be fenced and a security fence will be erected around the secure area.

67 Fire Protection A pressurised fire ring main will be provided to enable coverage of all buildings. In addition, portable extinguishers will be installed in all buildings. Manual alarms will be provided to the Animal House and automatic detector alarms will protect the Central Facilities Building.

68 Committee's Recommendation The Committee recommends the construction of the work in this reference.

PROGRAM

69 The work could be commenced on site in October, 1978 and construction completed by April, 1981. The relatively long construction period is due primarily to limitations on labour availability due to the depletion of the Clunies-Ross local labour resources and the consequential need to employ a larger component of Australian labour and the limitations on accommodation on the Island.

FUTURE DEVELOPMENT

70 In the event of further development of the Station the proposal allows a considerable degree of flexibility. The site plan provides for possible locations for three further 3-bay animal houses if required. Associated with an expansion of animal accommodation will be support facilities such as additional feed stores and services.

ESTIMATE OF COST

71 The estimated cost of the work when the project was initially referred to the Committee was $2.1 million to $3 million depending on the proportion of Australian labour required. The lower was based on the assumption that substantial use could be made of cheaper local labour. By late 1976 the estimated cost of the station had risen to $8.2 million. This higher estimate was based on the use of Australian labour, as substantial emigration from Cocos indicated that local labour resources may not be available for the project.

72 In response to Government concern at this higher total cost, the scope of the proposal was reviewed. In November 1976 the total Station capacity was reduced from 200 imported adult cattle to 120. (These figures do not include Australian sentinel animals). This reduction was achieved by reducing the number of animal houses proposed for initial construction from 5 to 3, (each of which is planned to accommodate 40 imported adult cattle). Estimated cost of the revised proposal at the time of the formulation of the 1977/78 Budget was $6.9 million, since risen to $7.4 million because of increases in labour and materials costs.

73 A further review of the project at the end of 1977 has resulted in a cost reduction to $6.4 million.

74 Without these economies, firstly in capacity and secondly in design, it is estimated that the current cost of construction of the station would be $9.5 million.

75 The estimated cost of the work as at February 1978 is made up as follows:

	$
Building works including structural	3,879,000
Mechanical services	1,060,000
Electrical services	345,000
Civil works/hydraulic services	786,000
Site works	30,000
Special provision, including landscaping, Departmental Management and inspection, packaging and handling of stores, cost of local shipping delays etc.	300,000
	$6,400,000

76 Costs to Importers The current Departmental policy is to establish fees which recover operational costs only. On this basis the estimated average costs to be recovered for an adult cattle beast imported through the Station would be $1,946, comprising of Quarantine Station operational cost $946, pre-embarkation testing, assembly, supervision and transportation to embarkation point $1,000, total $1,946.

77 In addition, the importer would have to bear the costs of transportation to Cocos and subsequent movement to Australia. These additional costs are currently estimated at an average of $1,800 per adult cattle beast (including travel of accompanying veterinarians). This results in a total average cost per adult beast to the importer of $3,746. During the hearing evidence given to the Committee indicated that costs would be higher for importations from high risk areas.

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.

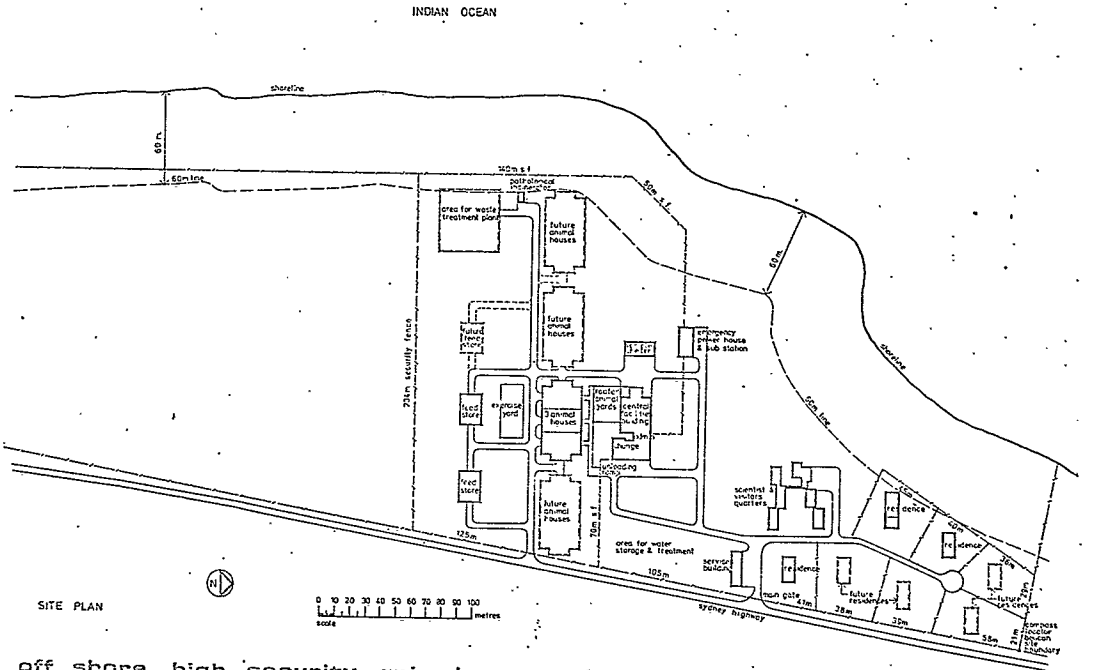
		Paragraph
1	THE NEED FOR THE QUARANTINE STATION HAS NOT DIMINISHED SINCE THE COMMITTEE REPORTED IN 1973.	17
2	AUSTRALIA HAS A CONTINUING NEED FOR IMPROVED GENETIC MATERIAL FOR ITS ECONOMIC RANGE OF LIVESTOCK SPECIES.	18
3	TO ENSURE COMPLETE DISEASE SECURITY FROM THE MAINLAND THE COMMITTEE CONFIRMS THE SELECTION OF THE SITE ON WEST ISLAND, COCOS (KEELING) ISLANDS.	20
4	THE COMMITTEE NOTES THAT ARRANGEMENTS HAVE NOW BEEN MADE ABOUT THE PURCHASE OF THE LAND ON WHICH THE STATION IS TO BE BUILT AND THAT THE LOCAL PEOPLE HAVE INDICATED THEIR SUPPORT.	22
5	THE REDUCTION IN STATION CAPACITY FROM 200 TO 120 ADULT CATTLE WILL NOT PREJUDICE THE VIABILITY OF THE STATION AND WILL BE OFFSET, IN CERTAIN RESPECTS, BY THE ADDITIONAL FACILITIES TO BE PROVIDED AT THE TORRENS ISLAND QUARANTINE STATION.	44

		Paragraph
6	THE NEW DESIGN INCORPORATES THE LATEST CONCEPTS OF ANIMAL CARE AND HUSBANDRY.	44
7	THE COMMITTEE RECOMMENDS THE CONSTRUCTION OF THE WORK IN THIS REFERENCE.	68
8	THE ESTIMATED COST OF THE WORK AT FEBRUARY 1978 PRICES IS $6.4 MILLION.	75

(M. H. BUNGEY)
Chairman

Parliamentary Standing Committee of
Public Works,
Parliament House,
Canberra.

23 May, 1978.



off shore high security animal quarantine station west island
cocos (keeling) islands

CENTRAL FACILITIES BUILDING

cocos island
quarantine station

floor plan