



Parliamentary Standing Committee on Public Works

REPORT

relating to the

DEPARTMENT OF THE SENATE
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REDEVELOPMENT BY THE DEFENCE HOUSING AUTHORITY OF SEAWARD VILLAGE, PERTH

(Eighth Report of 1991)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
1991

The Parliament of the Commonwealth of Australia
Parliamentary Standing Committee on Public Works



Report Relating

to the

Redevelopment by the
Defence Housing Authority
of Seaward Village, Perth

(Eighth Report of 1991)

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**MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE
ON PUBLIC WORKS**

(Thirtieth Committee)

Mr Colin Hollis MP (Chairman)
Mr William Leonard Taylor MP (Vice-Chairman)

Senate

Senator Bryant Robert Burns
Senator Paul Henry Calvert*
Senator John Robert Devereux

House of Representatives

Mr Ewen Colin Cameron MP
Mr Lloyd Reginald O'Neil MP
Mr Russell Neville Gorman MP
Mr Bruce Craig Scott MP

* Appointed on 24.8.90 following the retirement of
Senator Dr Glenister Sheil

Committee Secretary: Peter Roberts

Inquiry Secretary: Michael Fetter

Secretarial Support: Jackie McConnell

EXTRACT FROM THE
VOTES AND PROCEEDINGS OF
THE HOUSE OF REPRESENTATIVES

No. 60 dated Wednesday, 17 April 1991

9 PUBLIC WORKS - PARLIAMENTARY STANDING COMMITTEE - REFERENCE OF WORK REDEVELOPMENT BY DEFENCE HOUSING AUTHORITY OF SEWARD VILLAGE, PERTH - Mr Beddall (Minister representing the Minister for Administrative Services), 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 consideration and report: Redevelopment by the Defence Housing Authority of Seaward Village, Perth.

Mr Beddall presented plans in connection with the proposed work.
Debate ensued.

Question - put and passed.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REDEVELOPMENT BY THE DEFENCE HOUSING AUTHORITY OF SEAWARD VILLAGE, PERTH

On 17 April 1991 the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposed redevelopment by the Defence Housing Authority of Seaward Village, Perth.

THE REFERENCE

1. The proposed works, sponsored by the Defence Housing Authority (DHA), is the redevelopment of Seaward Village, located in Swanbourne, a coastal suburb of Perth, WA.
2. Seaward Village is located adjacent to Campbell Barracks which is the home base of the Special Air Service Regiment (SASR).
3. The scope of the proposed works provides for the demolition or sale of 77 poor quality houses, the redevelopment of Seaward Village and its integration with the adjacent Seaview Heights Village of 28 good quality houses. The proposed work will include the demolition or sale of the poor quality houses and the construction of housing suitable for the defence families involved. Existing sub-standard sewerage, stormwater drainage and water supply services are to be replaced as part of the new subdivision works. When completed, the redevelopment site will provide 151 houses on 143 lots. Most houses will be of conventional design, although some group housing and small lot precincts will also be included. This will allow expansion beyond the present housing numbers and poor quality housing located elsewhere in Perth to be vacated and sold.
4. The estimated cost of the proposed works when referred to the Committee was \$12.814m with completion planned for 1994.

THE COMMITTEE'S INVESTIGATION

5. The Committee received a written submission and drawings from the DHA and took evidence from representatives of the DHA and the Department of Defence at a public hearing held on 13 June 1991 in the Council chambers of the Council of the City of Nedlands. The Committee gratefully acknowledges the assistance of the council in making the hearing venue available to it.

6. The following individuals and organisations also presented submissions and appeared at the public hearing:

- Mr A Shrapnel (representing himself and Dr I Bernadt)
- Mr E H Foley
- Dr N F Hills
- Army Tenants Consultative Group
- Coordinator, Sunny Centre.

7. Submissions and letters were also received from the following:

- Out of Earth Constructions
- County Component Home Systems
- Childcare at Work Ltd
- Western Australian Department of Planning and Urban Development
- Water Authority of Western Australia
- Lieutenant Commander B A Austin (Royal Australian Navy)
- Brigadier R M Miller (Commander 5th Military District)
- Wing Commander G P Forbes (Royal Australian Air Force)
- Western Australian Environmental Protection Authority
- Health Department of Western Australia
- Australian Defence Families Information and Liaison Staff.

8. Prior to the public hearing the Committee was briefed by the officers of the DHA and the Commanding Officer of the SASR, inspected a number of existing substandard houses occupied by SASR personnel and their dependants, the wider redevelopment site and access roads and routes to Seaward Village.

9. A list of witnesses who gave evidence at the public hearing is at Appendix A.

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

BACKGROUND

Functions of the DHA

11. The DHA is a Commonwealth statutory authority created under the *Defence Housing Authority Act 1987* (the Act); it commenced operations on 1 January 1988.

12. The functions of the DHA, stated in section 5 of the Act, are to:

... provide adequate and suitable housing for:

- (a) members of the Defence Force and their families;
- (b) officers and employees of the Department [of Defence] and their families; and
- (c) other persons:

in order to meet the operational needs of the Defence Force and the requirements of the Department.

Establishment of the DHA

13. Establishment of the DHA was stimulated by two factors. The first factor was a review undertaken by a task force in 1985 into public service and defence force housing programs. The task force reported about divided responsibilities and complexities in inter-agency arrangements adversely impinging on the effectiveness of overall management of public service and defence force housing. Existing arrangements militated against effective decision-making and prompt action.

14. The review and field observations revealed that of a stock of 23 500 houses:

- 6000 defence houses were below acceptable standards and, not being suitable for renovation, required replacement

- a further 6000 houses required substantial improvements to bring them to acceptable standards
- many of these and other defence houses were poorly located and no longer met the operational and social requirements of a modern defence force
- the bulk of the housing stock, some 14 200, were owned by State governments under the Commonwealth State Housing Agreement (Servicemen) (CSHA(S)) and, as a result:
 - the repairs and maintenance function was not under Commonwealth control
 - without equity in the housing stock the Commonwealth was unable to trade the houses to meet changing operational requirements.

Tackling the Housing Problem

15. The second factor which stimulated the establishment of the DHA was the Government's acknowledgment of the magnitude of the problem and a recognition that the -

... proper housing of members of the Defence Force and their families is a critical element in maintaining a high level of morale and dedication to the important task of the Australian Defence Force.
(Hon Ros Kelly, *Hansard*, 27 October 1987, p. 1515)

16. The establishment of the DHA amounted to a commitment to remedy problems identified by the task force by:

- creating a statutory authority dedicated to the management of defence housing
- providing the authority with a guaranteed level of funding
- requiring the authority to adopt business enterprise and practices in its approach to the task.

17. These general principles are enshrined in the Act which gives the DHA the ability to:

- charge the Department of Defence the full commercial rent for each house it controls
- receive from rent a guaranteed level of income which is not subjected to budget vagaries
- be able to make arrangements for the construction, upgrading and maintenance of its houses
- dispose of housing stock no longer needed and to retain the proceeds of sale.

DHA Commences Operations

18. On 1 January 1988 the DHA commenced operations when it assumed responsibility for the management of 23 000 houses, of which it owns about 9000, across the nation. The DHA receives the bulk of its funds from market rent. The Commonwealth makes additional financial contributions to it in the form of interest-bearing loan funds as well as access to commercial borrowings.

DHA Activities in WA

19. The DHA manages its operations in WA through its Housing Management Centres (HMCs) at Karrakatta in Perth, Rockingham and at Bullsbrook. The inventory of DHA housing in WA is as follows:

- 517 houses, occupied by Navy personnel employed at HMAS Stirling, located in the Rockingham area, 50km to the south of Perth
- 540 houses of mixed quality located in Perth suburbs; the houses range from new houses purchased by the DHA over the past three years to ex-CSHA(S) houses
- 100 small, ex-CSHA(S) houses occupied by RAAF personnel at Bullsbrook, adjacent to RAAF Base Pearce, 45km to the north-east of Perth

90 houses in WA country areas which are occupied by Navy and Army personnel and their dependants.

20. In addition to these houses, the Committee was advised that 69 families occupy housing leased by the DHA and 351 families receive Temporary Rental Allowance (TRA) whilst looking for suitable accommodation in Perth.

21. The DHA is confident that within two years, or three years at the most, every service family will be living in community-standard housing.

THE NEED

Seaward Village

22. The Army currently controls 29 hectares of land adjacent to Campbell Barracks. Of this area, 12 hectares have been developed as an on-base housing estate, known as Seaward Village, and the remaining 17 hectares are open space. The location of Seaward Village and Campbell is shown in Appendix B, drawing B - 1.

23. Seaward Village was established in the 1950s and now comprises 105 dwellings of which 77 are prefabricated houses and 28, built during the 1980s, are constructed of brick. The Committee understands that it is planned formally to transfer ownership of the land from the Department of Defence to the DHA in September 1991.

24. The majority of the housing at Seaward Village are allocated to SASR personnel and their dependants. The Committee was advised that of the 105 houses, 76 are allocated to SASR families and the balance to Army personnel from other units. Of the remaining SASR families, 31 occupy DHA houses scattered throughout the Perth metropolitan area, 30 receive TRA and others own and occupy their own houses.

Substandard Houses

25. The DHA submitted that there is a need to redevelop a large proportion of Seaward Village, comprising the 77 prefabricated houses and associated utility services.

26. The 77 houses are small, ranging in size between 87 and 95 square metres. The DHA considers these dimensions to be too small under current minimum defence housing standards. The houses comprise prefabricated 'Riley Newsum' and 'Hawksley' designs erected during the early 1950s.

Utility Services

27. The existing utility services, comprising roads, sewerage, stormwater drainage and water supply services were constructed many years ago as part of an on-base estate independent of local authority requirements. The services are now old and are nearing the end of their serviceable lives.

Need for Collocation with Campbell Barracks

28. Much of the SASR day-to-day training and preparations for current operations are conducted within the barracks. Training is often undertaken at irregular times throughout day and night. Training and operational tasks place high demands on SASR personnel and their families. Personnel are trained to a high level of fitness and skill and are required to be available for callout at short notice. Callouts are conducted often and at irregular times outside normal working hours.

29. Various elements of the SASR are deployed away from Perth for lengthy periods throughout the year on exercises and operations. For these reasons the Department of Defence believes there would be benefits in both operational and social aspects by having residences occupied by SASR personnel and their dependants in close proximity to Campbell Barracks.

Committee's Conclusions

30. The 77 prefabricated houses at Seaward Village are substandard and should be replaced with modern houses.

31. There is a need for additional houses to be provided to reduce the incidence of dependence on Temporary Rental Allowance and to enable the Defence Housing Authority to achieve its target of providing community standard housing for every service family in Western Australia by the end of 1994.

32. For operational and social reasons deriving from the responsibilities of the Special Air Service Regiment there is no scope for the Defence Housing Authority to develop Seaward Village as an estate containing a mixture of civilian and defence housing.

THE PROPOSAL

33. The proposal is to:

- demolish or sell the 77 prefabricated houses
- subdivide the development area
- provide new utility services
- construct good quality contemporary design houses.

34. The development will result in the availability of 123 dwelling units on 115 new lots. Most houses will be of conventional semi-detached design, although some group housing and small lot precincts will also be included. The Committee was advised that the inclusion of group and small lot houses would allow a greater range of choice for families. The additional houses will enable existing poorer quality houses elsewhere in Perth, currently occupied by SASR personnel and their dependants, to be vacated and sold.

Implications of the Force Structure Review 1991

35. The Committee was advised that the Force Structure Review specifically excluded special forces elements of the Army; the review had no impact on the size of the SASR and the role of the unit.

The Site

36. The site available for the redevelopment, illustrated in Appendix B, Drawing B - 2, is delineated by a number of physical and environmental constraints. These are:

- Campbell Barracks to the north - there is a steep dune formation along the northern boundary of the site

- the prominent knoll in the south-eastern sector
- a stand of tuart (*Eucalyptus gomphocephala*) and peppermint trees on the south-eastern extremity of the land occupied by the 77 houses to be demolished - these trees act as a buffer to adjacent houses
- foreshore dune scrub on the western boundary; this has been badly disturbed in a number of areas and the western extremity of the site was carefully delineated to ensure the redevelopment is kept below the crest of the dune
- the need to maintain an 80 metre buffer zone between any development and the existing underground munitions magazine
- the location and the need to retain the community centre which serves as a child care centre
- the location of the 28 newer brick residences in the south-eastern sector of the site
- the removal of traffic from Iolanthe Street which it is proposed to close in the longer term following the widening of Servetus Street
- the requirement to provide direct access to Campbell Barracks via a new southern access point following widening of Servetus Street and the closure of the existing entrance to Campbell Barracks.

Design Concept for Redeveloped Site

37. The redeveloped site will have capacity to accommodate 143 building lots. This number is a consequence of site constraints and the planning objective of providing a convivial neighbourhood character and the maximisation of flexibility in the provision of housing groups for different ranks. There will be 113 conventional building blocks (which includes the 28 existing houses), 28 small blocks and two blocks for group housing; this mix of blocks will provide 151 dwelling units.

Demolition or Sale and Asbestos

38. The DHA in its submission to the Committee stated that most of the 77 houses have little or no salvage value owing to white ant infestation and the presence of asbestos sheet cladding.

39. The DHA indicated that if the houses were advertised for sale, the intending purchasers would be made aware of the presence of bound asbestos in the houses. Purchasers would be required to move the houses in accordance with relevant Australian codes.

40. Following questioning from the Committee about the suitability of relocated houses for subsequent human habitation, the DHA undertook to engage a consultant to establish the extent of asbestos in each type of house for the benefit of prospective purchasers and demolition contractors.

41. The DHA provided the Committee with a copy of the consultant's report which is based on a survey of eight selected unoccupied dwellings considered to be representative of the 'Riley Newsum' and 'Hawksley' houses at Seaward Village. Four of each type were surveyed. The report concludes:

The similarity between buildings of the same type, and between those of different types, indicates that based on the eight dwellings surveyed the general construction characteristics for the two types of buildings can be defined. The location of asbestos and SMF [Synthetic Mineral Fibres] in each of the two construction types is listed in [the following table]:

Summary of Survey Findings for Asbestos and SMF

Location	'Hawksley'	'Riley Newsum'
Exterior Walls	NA	Chrysotile
Interior Walls	ND	ND
Eaves	NA	Chrysotile
Wall Cavity	SMF	ND
Ceiling Insulation	SMF	SMF
Kitchen Panels:		
- lining	ND	Chrysotile
- AC sheet	ND	} Crocidolite/
Hall Cupboard	ND	} Chrys/
Shed	Chrys/Amosite	} Amosite

NA - Not Applicable ND - Not Detected

42. It is clear from this table that no asbestos material was detected in the 'Hawksley' type dwelling and that various forms of bound asbestos were detected in 'Riley Newsum' dwellings examined.

43. The report evaluates potential hazards from asbestos and SMF to occupants and concludes that:

The location, extent, form and condition of the asbestos present in the eight dwellings inspected indicated that the asbestos material does not represent a significant hazard to occupants. Both types of prefabricated dwellings should have resale value. During the removal or the demolition of the 'Riley Newsum' properties the likelihood of damage to asbestos products would increase the potential for release of asbestos fibres.

During the inspection SMF in the form of insulation material was identified in the wall cavity and ceiling of the 'Hawksley' type dwellings, and in the ceiling only of the 'Riley Newsum' type. The material would not pose a significant hazard unless disturbed.

44. The report makes the following conclusions and recommendations:

- the 'Hawksley' type dwellings contain SMF insulation in the wall cavity and ceiling. The ceiling insulation should be removed in accordance with relevant regulations prior to removal from the site
- the 'Riley Newsum' type dwellings were found to contain SMF insulation in the ceiling. Ceiling insulation should be removed in accordance with relevant regulations prior to removal from the site. Adequate personnel protection should be provided by thoroughly wetting the material (where practicable) and wearing of long sleeve coveralls, gloves and a half-face respirator
- the 'Riley Newsum' type dwellings contain asbestos products in the form of exterior wall sheets, eaves, asbestos cement sheet lining in the hall cupboard and in the panels lining the kitchen area in the vicinity of the stove. The material should not pose a significant risk to removalists if relevant guidelines are strictly followed
- the asbestos cement sheds located on the properties were found to contain a mixture of either Chrysotile and Amosite or Crocidolite, Chrysotile and Amosite. The sheds should be removed and disposed of in accordance with relevant regulations
- special precautions would need to be taken in carrying out repair work, maintenance or removal of asbestos or SMF products.

45. Following the public hearing the Committee also obtained a copy of the 'Report of the Independent Review of Asbestos in Defence'. The review was undertaken by Mr J D Enfield during 1990-91 and the resultant report was tabled in Parliament by the Minister for Defence Science and Personnel on 6 June 1991.

46. The DHA policy on asbestos is stated at Appendix M to that report. The policy makes a distinction between bound and unbound asbestos, the latter being the cause for immediate concern. In relation to the matter under consideration by the Committee - namely the demolition or possible sale and relocation of houses containing bound asbestos and SMF insulation - the DHA advised the Enfield review that:

The attention of HMC Managers has been drawn to Section 9 of the Asbestos Code concerning the demolition and structural alteration of buildings. They are aware that such demolition or structural alterations of buildings containing asbestos based insulation is to be carried out under statutory supervision and any work which may disturb asbestos should be performed by approved removalists holding appropriate licences. They are also aware that precautions should be taken when demolishing fibrocement as dust may be released if it is sawn, drilled or crushed. They are aware that this product is to be handled in accordance with section 9.1 of the Code of Practice.

47. Relevant sections from the 'Code of Practice and Guidance Notes' are reproduced at Appendix C to this report.

Committee's Recommendations

48. The Defence Housing Authority should rigorously enforce the provisions of the 'Code of Practice for the Safe Removal of Asbestos' during the demolition, removal or disposal of the houses.

49. If houses containing bound asbestos or synthetic mineral fibres are sold, purchasers should be fully apprised of the presence of these substances in them, and should enter into an enforceable agreement to comply with the provisions of the code. These conditions should apply to third parties to whom the houses may be subsequently sold.

Open Space to be Retained

50. The proposed redevelopment includes the retention of existing and the provision of additional open space. Areas of open space will preserve significant landscape and vegetation areas and provide parkland. Existing open space areas to be protected will include:

- the tuart and peppermint woodland adjacent to Iolanthe and Jameson Streets
- the vegetated knoll on the south-eastern portion of the site
- the foreshore dune system
- the strip of land along the southern boundary connecting the large knoll with the foreshore dune. The inclusion of this feature will satisfy the requirements and objectives of the Western Australian Environmental Protection Authority for the continuity of remnant vegetation reserves
- buffer areas along the northern boundary; this includes the area between the new access road and Campbell Barracks, the redevelopment area, the southern ridge and the land between the redevelopment area and the underground magazine in the north-west.

Subdivision, Road Pattern and Topography

51. The configuration of the proposed subdivision is illustrated at Appendix B, Drawing B - 3, which shows the road system and individual blocks. The DHA stated that the road pattern was developed to give logical order and to maximise the number of residential blocks facing quiet cul-de-sacs. The road network will comprise a major loop linking Servetus Street and Sayer Street access points. A series of smaller roads and cul-de-sacs will connect to the major loop. The road network serving the existing 28 houses will be retained.

52. The topography of the development site is shown in Appendix B, Drawing B - 4, (proposed development concept/staging plan). The degree of the slopes of dune formations along the northern boundary of Stage 2(A) and along the western side of Stage 3 became evident to the Committee during the site inspection. The Committee understands that some earthworks involving excavation of the dune formations is contemplated as part of the civil works component to allow for the proposed configuration of the subdivision. The Committee also notes that the western extremity of the site has been badly disturbed and, according to the DHA, the western boundary was carefully delineated to ensure the redevelopment is kept below the crest of the secondary dune. Based on the proposed

configuration, some excavation would be necessary.

53. The Committee believes that excavation of the dune formation is undesirable. It therefore examined means by which excavation could be avoided. The first matter considered was the 'carrying capacity' of the site - that is, the number of houses and associated road networks which could be provided without intruding into ecologically sensitive areas. The DHA advised that after examining earlier development plans for the site and the basis for the current proposal, no further development would be feasible without unacceptable extension into ecologically sensitive areas. The Committee takes this to mean that the provision of additional houses, beyond the numbers contained in this proposal, would not be possible and is therefore not contemplated.

54. The second matter which the Committee considered was the substantial amount of open space to be provided. It is open to debate if all elements of this open space could be justified. Some elements are clearly predicated on sound environmentally conscious grounds. Other elements do not appear to be in ecologically sensitive areas - for example west of the barbecue area adjacent to the child care centre and the area marked 'recreation and drainage' in Stage 3. The Committee believes there may be potential for portions of these areas to be used for residential purposes. This could reduce, if not eliminate, the need for blocks to intrude into steep dune formations.

Committee's Recommendations

55. Excavation of steep slopes in dune formations to provide suitable housing blocks is undesirable and should be avoided.

56. An assessment of the need for open spaces in non-environmentally sensitive areas and their suitability for housing blocks should be undertaken to reduce, if not eliminate, the need for blocks to intrude into steep dune formations.

Access

57. It is proposed to provide access to the redeveloped Seaward Village from the existing Sayer Street entry on the south-eastern boundary and by a new entry road connecting Servetus Street and running parallel to Iolanthe Street. The local road network is shown in Appendix B, Drawing B - 5.

58. Mr A Shrapnel, a local resident, suggested to the Committee that the proposal to use Sayer Street as the second access route should be abandoned in favour of an alternative route involving the use of Wood and Kirkwood Streets. Under this alternative, a *cul-de-sac* would be provided at the end of Sayer Street, a roundabout would be provided at the corner of Wood and Kirkwood Streets, with Wood Street being extended through the parkland and recreation reserve to link up with a remnant of the existing Sayer Street entry. This scheme, it was suggested to the Committee, has a number of advantages over retaining the use of the Sayer Street entrance. These advantages are:

- the Sayer Street entrance has been for some time a cause of friction between the Army and the local civilian community. The alternative scheme would eliminate the cause of friction and improve relationships
- it would better serve the residents of Seaward Village, providing improved access to recreation, shopping and beach facilities to the south of the site. The importance of the Sayer Street entry, because of the proximity of shops and recreation facilities, had been understated by the DHA
- identifiable benefits to the wider community, especially residents in Wood and Kirkwood Streets; the alternative proposal would provide an improved traffic situation.

59. In considering the alternative southern proposal, the Committee examined the factors which prompted it and the benefits to be derived from it; these are discussed further in the following paragraphs.

Use of Sayer Street a Cause of Friction

60. The Committee was advised by the SASR that over the past 15 years, at the very least, there had been a harmonious relationship between the defence community and the local civilian community. From time to time there have been some difficulties caused by noise or traffic, but the neighbourhood spirit between the Army and the local community had been sufficiently strong for those difficulties to be ironed out.

Increased use of Sayer Street

61. The DHA advised the Committee that it did not wish to appear to understate the importance of the Sayer Street route. The Sayer Street route will not be the major point of entry and exit. Local residents of Seaward Village advised the Committee that the use of the Sayer Street route would be determined to a large extent by the location on the estate of particular residents. A representative of the Council of the City of Nedlands advised that the council envisaged that the Servetus Street entrance would be the main access point to the village; the southern Sayer Street link would be essentially for people travelling to recreation areas and local shops to the south. Nevertheless, the southern route would be much the minor access point.

Cost of alternative route and cost apportionment

62. The DHA advised the Committee that it has no argument in principle with the alternative route, but does not wish to contribute towards its cost. The council's representative advised that the alternative route had been considered by the council just prior to the public hearing and a decision had not been made. The matter is still under consideration as part of a traffic management study. In the meantime, the representative advised, council's earlier decision to approve the redevelopment stands. This includes the southern link via Sayer Street. The estimated cost of the alternative route would be about \$100 000 to \$150 000. The council's annual expenditure on construction and maintenance is about \$1m, most of this amount being allocated to maintenance work. In short, if the cost of the southern route were to be met by the council, it would involve the expenditure of at least 10 per cent of the council's annual road maintenance and construction budget.

Reactions of Council and other residents

63. The southern link is still under consideration by the Council. Mr E H Foley, a local resident, advised the Committee that the proposal warrants examination. Representatives of the residents of Seaward Village pointed out that the southern link will intrude into a public reserve.

64. Dr N F Hills, another local resident and former member of the council, indicated there had not been time for local residents to consider the merits or otherwise of the southern route. Dr Hills also indicated that in 1984 the Department of Defence had proposed the provision of the northern route off Servetus Street and running parallel to Iolanthe Street (the northern route) as the sole access road to Seaward Village and that use of the Sayer Street route would be discontinued. His understanding was that Defence (Army) did not have the funds to proceed with the northern route at that time. According to Dr Hills, it was agreed that the council would take no further action to limiting access of traffic via Sayer Street while funds were being sought by Defence (Army) for the development of the northern route. The matter was left in abeyance on the understanding that Defence (Army) was developing its funding base. Dr Hills suggested to the Committee that the proposal to have dual access to Seaward Village, the northern and Sayer Street routes, is a totally new proposal.

65. Following the public hearing the DHA confirmed that earlier 'planning studies' did involve possible closure of Sayer Street. During 1984-86 the representatives of the Headquarters of the local Military District (MD) held discussions with the council regarding access to Seaward Village. In December 1984 the council agreed not to close off Sayer Street for 18 months while the MD developed proposals for the northern route. Two other access roads to Seaward Village, from Hooley and Jameson Streets, had at that time already been closed. For the purposes of this discussion it should be noted that at the time the MD's planning was based on a perceived need for Seaward Village to be incorporated in the secure, fenced-off, confines of Campbell Barracks. It was also assumed by the MD that a new access to Servetus Street would be required in the short term because of the planned major upgrading of Servetus Street.

66. The DHA advised the Committee that tentative planning did not lead to any firm proposal. Circumstances have now changed. The earlier perceptions and assumptions on which planning was based are no longer valid - for example, the Army no longer sees the need to include Seaward Village as an integral part of the adjacent cantonment, and upgrading of Servetus Street has not proceeded.

67. Following the public hearing the council advised the Committee that it would support the rezoning of Seaward Village subject to a number of conditions, including:

- the redevelopment complying with State Planning Commission policies governing residential subdivision and other requirements deemed necessary by Council
- the finalisation of a traffic management study to determine suitable road link options for the creation of a publicly gazetted road up to the boundary of Seaward Village and ultimately any new subdivision.

Committee's Conclusion

- 68. There is merit in the Council of the City of Nedlands proceeding with its traffic management study to identify suitable options to provide adequate road access to Seaward Village and for the Defence Housing Authority and the Department of Defence to assist or take part in the study.

Utility Services - Civil Works

- 69. The proposal includes the provision of new utility services and civil works, the main components of which are:

Sewerage - will include the provision of new pump station and internal reticulation to link the station with individual lots. The existing pump station will be adequate to serve the requirements of about 120 dwellings, therefore the new pump station will not be required until Stage 3 of the redevelopment is undertaken

Roads - new internal roads will be provided to serve the redevelopment area and the new lots. Provision has been made for some minor upgrading to existing roads. The new entry, off Servetus Street, will be the first major construction item to be undertaken

Drainage - internal drainage to roads will be provided and will fit into two existing sumps on site. The sumps will require upgrading to handle additional drainage requirements

Water Supply - water reticulation will be provided to all new lots and the existing 28 houses will be connected to the overall reticulation network. Currently problems are experienced with water quality because the reticulation network does not provide a loop link back into the overall headwork system. Provision will be made in the new subdivision for that link

Retaining Walls and Earthworks - provision has been made for earthworks to be undertaken to enhance existing landform by benching to provide platforms for the houses to capitalise on ocean views. Some retaining walls will be required to stabilise earthworks

Other Services - the new subdivision will be provided with underground power, gas reticulation and Telecom services.

Houses

70. The redevelopment will yield 115 new lots. Two of these lots will comprise group housing accommodating ten dwelling units. It is therefore proposed to provide 123 new dwelling units.

71. The DHA intends to carry out the redevelopment through direct contracting with building and engineering contractors. The Committee was advised that this is in contrast to the approach adopted in some other large projects involving joint ventures with commercial developers. The approach to be adopted in this instance recognises the scope and special conditions applying; there will be no avenues for the sale of land or houses whilst the SASR remains at Swanbourne.

72. Project home construction, the delivery method to be used at Seaward Village, is one of a number of options which the DHA has available to provide defence personnel with adequate housing. By this method, builders are encouraged to provide high quality homes at competitive prices. The following criteria are used by the DHA to assess house plans submitted by builders:

- liveability
- design
- inclusions
- construction materials

- visual appearance and potential to conform with surrounding houses
- solar orientation
- price.

73. The following features are considered desirable in houses constructed for the DHA:

- en suites
- family rooms
- built-in wardrobes
- wall oven and separate hot plates in kitchens
- ample cupboard space, particularly in kitchens, with sufficient bench space to accommodate appliances such as microwave ovens
- linen press and broom cupboard
- heating (preferably gas)
- ample power points
- separate shower recess in bathroom, and exhaust fan
- wall insulation in extreme climatic zones
- separate dining area in larger houses
- garages; preferably double garages for larger houses
- the DHA does not look favourably upon dwellings where roof insulation (R2) is not provided.

Medium Density Houses

74. The DHA advised that in the assessment of townhouses or other medium density developments, it ensures that there is adequate consultation with the services and spouse groups, especially in relation to design, colour schemes and functional layout. The following design features are desirable in medium density houses constructed for the DHA:

- comprehensive estate design, incorporating a garden setting
- good distinguishable entry to each dwelling unit
- high quality hard and soft landscaping on the site
- good communal facilities on the site - for example, playground, barbecue facilities and open spaces
- visitor parking
- private useable courtyard
- access to rear yard through garage

good relationship between open spaces and private courtyards.

75. Fitout, design and functional space provision will be in line with those for project homes. The DHA considers solar orientation to be a particularly important consideration.

Energy Conservation

76. The selection criteria include two features which could be described as energy conservation measures, namely, the orientation of the houses and the provision of roofing insulation. Both features would have an impact on the habitability of the houses and, if carried out with the objective of maximising energy efficiency, will produce energy savings.

77. The Committee was advised that the DHA is not setting out to be at the leading edge of solar energy or conservation. Rather, the DHA is setting out to be 'reasonable, good citizens', and will ensure that the designs and siting of houses are such that energy is conserved and at the same time the houses are good to live in.

78. At the public hearing the Committee questioned the DHA about the provision of additional measures which could produce further energy savings such as solar hot water heaters. The DHA stated that it is required under the Act to proceed with commercial prudence. One of the more significant operational costs encountered with its housing stock relates to maintenance and because of this every decision taken is made on the basis of not only capital but recurrent costs. The DHA advised that some of the houses acquired on the spot purchase market have solar hot water heaters which require constant maintenance.

Committee's Recommendation

79. The Defence Housing Authority should establish why solar hot water heaters installed in houses obtained by spot purchasing require constant maintenance and introduce measures designed to overcome the maintenance problem.

Reducing Greenhouse Gases

80. The Committee believes the Government's objective that, nationally, emissions of greenhouse gases should be reduced by 20 per cent by the year 2005 should be reflected in the development and subsequent design of all construction proposals referred to it. Each proposal should demonstrate features designed to reduce energy demand, specifically energy derived from the utilisation of finite greenhouse gas-producing fossil fuels, without at the same time reducing the habitability or functionality of proposed works. Costs are important but Commonwealth authorities also have a responsibility in actively pursuing Government objectives in energy saving.

81. Australian Construction Services has been a long-standing participant in committees responsible for drafting a number of Australian Standards relating to:

- solar hot water heaters installation
- solar collectors with liquid as the heat transfer fluid: method for testing thermal performance
- solar hot water heaters - design and construction
- solar hot water heaters - methods of test for thermal performance: simulator method
- solar hot water heaters - methods of test for thermal performance: outdoor test method

82. The concept and methodologies of energy targets and audits of new and existing buildings have in recent years assumed importance not only in reducing recurrent expenditure on energy requirements, but also in the reduction of the demand for energy. For these reasons, the Committee believes the DHA should add a further criterion to those mentioned at paragraph 73, namely energy efficiency. A demonstration of the DHA's commitment to the Government's objective to reduce greenhouse gas emissions would be the provision of solar hot water heaters in its houses. In addition, there would be merit in the DHA consulting agencies, such as Australian Construction Services, in the development of energy targets because the Committee believes there is considerable scope for the DHA to lead the way in the development and application of energy conservation strategies in houses it owns without compromising its responsibilities under the Act.

Committee's Recommendations

83. The Defence Housing Authority should set energy targets for new houses and use them as a criterion to assess the suitability or otherwise of project homes submitted to it.
84. There should be greater liaison between the DHA and agencies, such as Australian Construction Services, with experience in the development of energy-saving technology and methodologies involved in setting energy targets and the application of strategies to achieve them.
85. Solar hot water heaters should be provided in the houses proposed in this reference.

Staging

86. The proposed redevelopment will be undertaken in three stages. The first stage will involve the demolition or removal of approximately 25 existing sub-standard houses and their replacement with 25 new houses.
87. Occupants of houses to be demolished will be accommodated temporarily in other houses, either at Seaward Village or in new residential units being constructed by the DHA at Shenton Park, about 5km from Seaward Village, or in other DHA properties in Perth.
88. It is aimed to have the Stage 1 houses ready for occupation before the commencement of Stage 2. This second stage involves the demolition of the remaining 52 substandard houses and their replacement with 82 new dwellings.
89. Stage 3 will involve the construction of the remaining 74 dwelling units. Although this could commence at any time, current planning is for it to commence after Stage 2 is completed.
90. The DHA also proposes to stage the provision of other elements of the redevelopment including roads, drainage, sewerage, water reticulation, gas and landscaping. Economies will be achieved by staging the provision of major elements until they are required. For example, the existing pump station on site is adequate to serve the needs of about 120 houses and therefore the new pump station will not be required until Stage 3 is undertaken.

Committee's Conclusion

91. Subject to the implementation of recommendations contained elsewhere in this report, the proposed redevelopment of Seaward Village will produce a housing estate in line with contemporary standards.

ENVIRONMENTAL IMPACT AND HERITAGE CONSIDERATIONS

Environmental Impact Analysis

92. The site was subjected to an independent environmental analysis which recommended:

- the redevelopment be planned and managed in accordance with the recommendations of the Western Australian Environmental Protection Authority (EPA)
- the knoll on the southern side be preserved as public open space with native vegetation. As part of the redevelopment, the site should be upgraded by weed control, replanting, construction of organised footpaths, provision of a public lookout point and erosion control
- a strip along the southern boundary should be revegetated with native plants to link the knoll with the beach reserve
- taurt trees within the housing area should be preserved and protected as far as possible
- the remnant tuart and peppermint trees on the eastern side be preserved. This area could be used for public open space with public facilities
- the steep dune formation along the northern side should be upgraded by using only native plants
- restricting the development to the centre of the hind dune crest area might be appropriate. This would allow a large part of the hind dune to be preserved as native vegetation in public open space

- the public open space area of hind dune vegetation should be upgraded by replanting, erosion control, weed control and development of paths to prevent excessive trampling.

Response to Environmental Analysis

93. The DHA advised that the proposed redevelopment will incorporate provisions to comply with all recommendations arising from the environmental analysis, except the knoll on the southern side will not incorporate public lookout facilities because it would overlook Campbell Barracks.

EPA Recommendations and Requirements

94. The main comments and requirements of the EPA are:

- to retain as much of the existing remnant vegetation on the site as possible, especially mature tuart trees
- develop and manage the site in sympathy with the wider ecosystem to the west and north of the site referred to as area M46
- undertake dust control measures during construction works
- any building demolition works involving the removal of asbestos be undertaken in accordance with the Western Australian Health Department requirements.

Landscaping Master Plan

95. Many of the environmental impacts of the redevelopment could be ameliorated by giving proper attention to landscaping. For this reason the DHA engaged landscape architects to prepare a landscape master plan for the entire redevelopment area. The master plan is shown in Appendix B, Drawing B - 6.

96. The landscape master plan recognises the fragile nature of the site and its highly exposed coastal location. The plan therefore acknowledges the overriding issue to retain and conserve existing vegetation wherever practicable during the demolition program and the installation of utility

services. Retention will not be limited to trees, but will include dune and scrub vegetation, grassed areas and remnants of former private gardens. This approach will aim at minimising the effects of wind scour and topsoil loss which have previously made establishment on this site both difficult and costly.

97. Conservation and limited site disturbance is of considerable importance along the western, northern and southern boundaries. The western and southern boundaries abut the sensitive coastal dune system which connects with the coastal bushland of Bold Park to the north. Effort will be made to reinforce the dune using vegetation within the immediate area to form a vegetation buffer zone. Access through the dunes will also be restricted. The environmental analysis of the site recommended weed control in the 'public open space area of hind-dune vegetation'.

Committee's Recommendation

98. In the longer term the approach to be adopted towards landscaping should aim at eradicating and replacing exotic plant species with species native to the local area.

Aboriginal Heritage Considerations

99. The Western Australian Aboriginal Heritage Act requires developers to investigate the presence of Aboriginal sites of significance on development sites. The DHA engaged consultants to investigate the site and to prepare a report. The report concluded that:

... neither the archaeological nor ethnographic surveys uncovered any sites of significance, as defined by Section 5 of the Aboriginal Heritage Act 1972-1980. It is recommended that the Defence Housing Authority be permitted to proceed with the proposed housing development.

100. The DHA forwarded the report to the Museum of Western Australia, Department of Aboriginal Sites, which concluded that:

On the basis of the report it therefore appears that there are no Aboriginal sites within the proposed development area and therefore no impediment to the development under the Aboriginal Heritage Act 1972-1980.

DASETT Consideration

101. The proposal was not formally referred to the Department of Arts, Sport, the Environment, Tourism and Territories (DASETT) as a 'proposed action' in accordance with the Administrative Procedures under the *Environment Protection (Impact of Proposals) Act 1974*. The DHA did not consider the proposed action significant to warrant the preparation of an Environmental Impact Statement. Nevertheless the DHA forwarded the papers to DASETT which advised that provided the commitments given by the DHA in response to the environmental analysis are fully implemented, it appears unlikely that the proposal will be environmentally significant.

Impact of Construction

102. At the public hearing Mr E H Foley, a local resident, expressed concern about the possible impact on public roads, and the social amenity of the civilian neighbourhood, during the construction of the houses. These concerns arose from experiences during the construction of the 28 brick houses when, it was claimed, traffic on roads leading to the village was severe. Mr Foley suggested that there should be provisions in construction contracts entered into between the DHA and builders to discourage construction contractors from using side streets and encourage them to use the northern Servetus Street entrance. The DHA undertook to instruct on-site management to encourage contractors and suppliers to use the northern Servetus Street entrance for deliveries.

CONSULTATIONS

State and Local Government

103. The Seaward Village site is designated 'Public Purpose - Commonwealth Government' under the Metropolitan Region Scheme and the City of Nedlands Town Planning Scheme. The DHA believes the proposed redevelopment complies with the designated land use. Under normal circumstances the statutory planning requirements of state and local government do not apply to Commonwealth property. It is, however, the intention of the DHA to develop the site in such a way that the opportunity to subdivide the land formally in the future would not be precluded. The redevelopment proposal was therefore submitted for approval to authorities which would normally be consulted if the proposal had been a private redevelopment for which subdivision approval was being sought.

104. Authorities consulted were:

Ministry of Education - which advised that the redevelopment is not expected to have any significant impact on state government educational facilities in the area; any students from Seaward Village will be accommodated at existing neighbouring schools

Health Department of Western Australia - advised it has no objection to the redevelopment. The department will need to be involved during the demolition of the existing 77 houses because of the presence of asbestos and the DHA advised that this requirement will be met

Department of Planning and Urban Development - would normally play a significant role in any private development. As the project is in the nature of 'on-base' housing, the department advised no objection to the redevelopment. Any proposal to seek titles for the land would, however, require rezoning and formal subdivision

State Energy Commission of Western Australia - advised that it will consider the redevelopment as a private development, and water reticulation and sewerage to individual houses will be the responsibility of the DHA

Council of the City of Nedlands - advised it has no objection to the redevelopment subject to a number of conditions relating to access roads, cost attribution, and landscaping.

Service and Tenant Consultative Groups

105. The DHA convened a consultative group of tenants, including representatives of the residents of Seaward Village as a vehicle for consultations. As the proposal is further developed, representatives of prospective tenants will be closely involved in advising the DHA of preferences in relation to house designs and colour schemes. At the public hearing the Committee was advised by representatives of the residents of Seaward Village that they expect to have a 'big input' into relevant aspects of the houses.

CONSTRUCTION PROGRAM

106. The DHA advised that construction time will be 32 months, commencing in October 1991 and finishing in November/December 1993.

COST

107. The overall project cost for the redevelopment is \$12.814 million made up as follows:

Subdivision	\$2.819
Housing	\$9.840
Fees	\$0.155

Confidence of Cost

108. The Committee questioned the DHA about the confidence of the estimates of cost. The Committee was advised by the DHA that the cost errs on the conservative side. There are a number of components of the cost which may not ultimately be borne by the DHA. Currently, in WA, cost increases in the building industry are minimal. Construction costs provide \$80 000 per house which is in line with experience in Perth.

Committee's Recommendation

109. The Committee recommends the redevelopment of Seaward Village, Swanbourne, WA proceed at an estimated cost of \$12.814m.

CONCLUSIONS AND RECOMMENDATIONS

110. The conclusions and recommendations of the Committee and the paragraph in the report to which each refers are set out below:

1. The 77 prefabricated houses at Seaward Village are substandard and should be replaced with modern houses. 30
2. There is a need for additional houses to be provided to reduce the incidence of dependence on Temporary Rental Allowance and to enable the Defence Housing Authority to achieve its target of providing community standard housing for every service family in Western Australia by the end of 1994. 31
3. For operational and social reasons deriving from the responsibilities of the Special Air Service Regiment there is no scope for the Defence Housing Authority to develop Seaward Village as an estate containing a mixture of civilian and defence housing. 32
4. The Defence Housing Authority should rigorously enforce the provisions of the 'Code of Practice for the Safe Removal of Asbestos' during the demolition, removal or disposal of the houses. 48
5. If houses containing bound asbestos or synthetic mineral fibres are sold, purchasers should be fully apprised of the presence of these substances in them, and should enter into an enforceable agreement to comply with the provisions of the code. These conditions should apply to third parties to whom the houses may be subsequently sold. 49

6.	Excavation of steep slopes in dune formations to provide suitable housing blocks is undesirable and should be avoided.	55
7.	An assessment of the need for open spaces in non-environmentally sensitive areas and their suitability for housing blocks should be undertaken to reduce, if not eliminate, the need for blocks to intrude into steep dune formations.	56
8.	There is merit in the Council of the City of Nedlands proceeding with its traffic management study to identify suitable options to provide adequate road access to Seaward Village and for the Defence Housing Authority and the Department of Defence to assist or take part in the study.	68
9.	The Defence Housing Authority should establish why solar hot water heaters installed in houses obtained by spot purchasing require constant maintenance and introduce measures designed to overcome the maintenance problem.	79
10.	The Defence Housing Authority should set energy targets for new houses and use them as a criterion to assess the suitability or otherwise of project homes submitted to it.	83
11.	There should be greater liaison between the DHA and agencies, such as Australian Construction Services, with experience in the development of energy-saving technology and methodologies involved in setting energy targets and the application of strategies to achieve them.	84
12.	Solar hot water heaters should be provided in the houses proposed in this reference.	85
13.	Subject to the implementation of recommendations contained elsewhere in this report, the proposed redevelopment of Seaward Village will produce a housing estate in line with contemporary standards.	91

14. In the longer term the approach to be adopted towards landscaping should aim at eradicating and replacing exotic plant species with species native to the local area.	98
15. The Committee recommends the redevelopment of Seaward Village, Swanbourne, WA proceed at an estimated cost of \$12.814m.	109


Colin Hollis
Chairman

22 August 1991

APPENDIX A

WITNESSES

BYNON, Mr Geoff, Regional Manager, Defence Housing Authority - Perth, c/- Irwin Barracks, Mooro Drive, Mount Claremont, Western Australia

FOLEY, Mr Edward Henry, 29 Lynton Street, Swanbourne, Western Australia

GRAHAM, Mr John Edward, AM, Chairman, Defence Housing Authority, 2 Brisbane Avenue, Barton, Australian Capital Territory

HILLS, Dr Neville Francis, 3 Jameson Street, Swanbourne, Western Australia

KOLTASZ, Mr Eugene, Director, Rowe Koltasz Smith and Partners, Level 1/125 Melville Parade, Como, Western Australia

LEACH, Mr Neil George, Town Clerk, City of Nedlands, PO Box 9, Nedlands, Western Australia

LEWIS, Lieutenant-Colonel Duncan Edward, Commanding Officer, Special Air Service Regiment - Army, Campbell Barracks, Swanbourne, Western Australia

MARTIN, Mrs Susan Kaye, Coordinator, Swanbourne Services Child Care Centre, Sayer Street, Swanbourne, Western Australia

MARTINDALE, Lieutenant-Colonel David James, Chief Engineer Fifth Military District, Australian Army, Swan Barracks, Francis Street, Perth, Western Australia

MASKEW, Mrs Judith, Member, Army Tenant Consultative Group, Seaward Village, Swanbourne, Western Australia

MILLAR, Brigadier Robert Malcolm, Commander Fifth Military District, Australian Army, Swan Barracks, Francis Street, Perth, Western Australia

MILLER, Mr Lindsay Phillip, Project Manager, Defence Housing Authority, 2 Brisbane Avenue, Barton, Australian Capital Territory

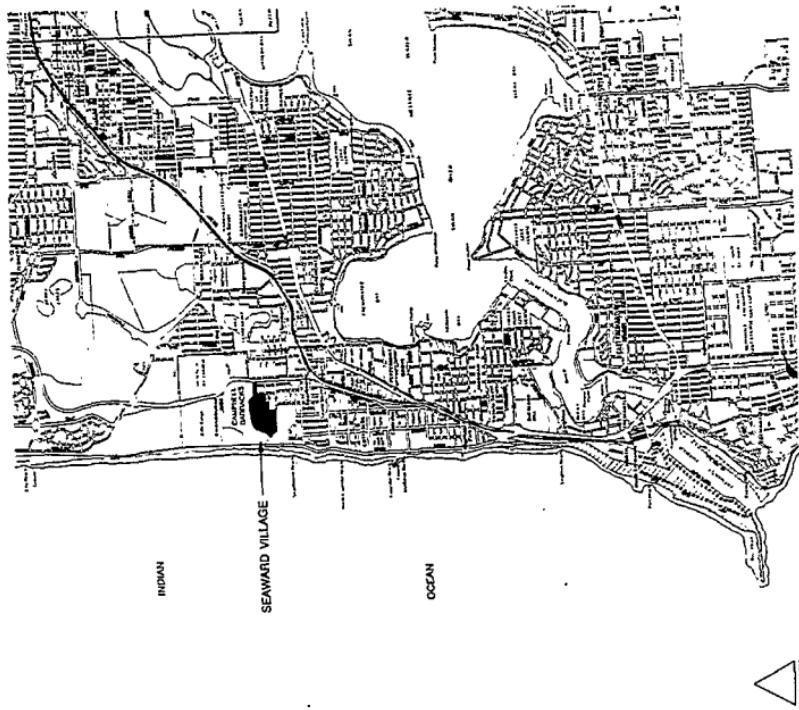
SHRAPNEL, Mr Anthony Edward Scrope, 2/63 Hay Street, Subiaco, Western Australia

VAVASOUR, Mrs Katherine Wilga, Committee Member, Army Tenant Consultative Group, Seaward Village, Swanbourne, Western Australia

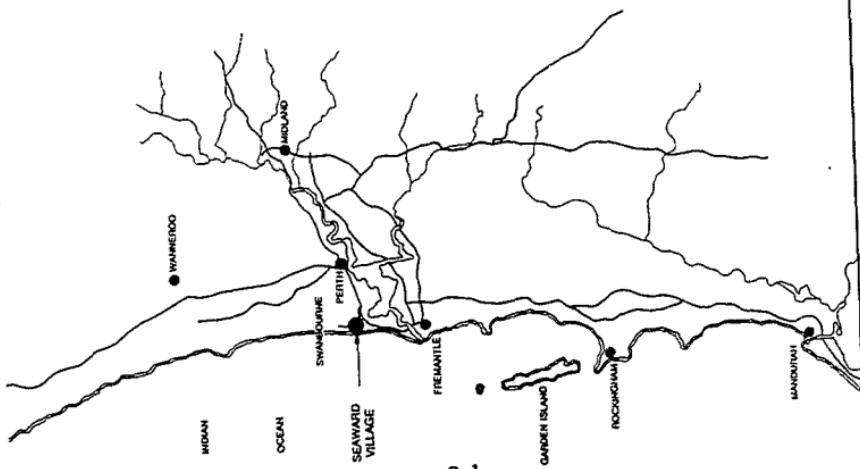
WEBB, Mrs Moira, President, Army Tenant Consultative Group, Seaward Village, Swanbourne, Western Australia

APPENDIX B

ILLUSTRATIONS AND DRAWINGS	Page
Location Plan	B - 1
Composite Development Constraints	B - 2
Development Concept	B - 3
Development Concept/Staging Plan	B - 4
Community Facilities Infrastructure	B - 5
Landscape Master Plan	B - 6



CLIENT : DEFENCE HOUSING AUTHORITY
 DATE : APRIL 1991
 SCIAF : HTS
 FILE : 8-1
LOCATION PLAN



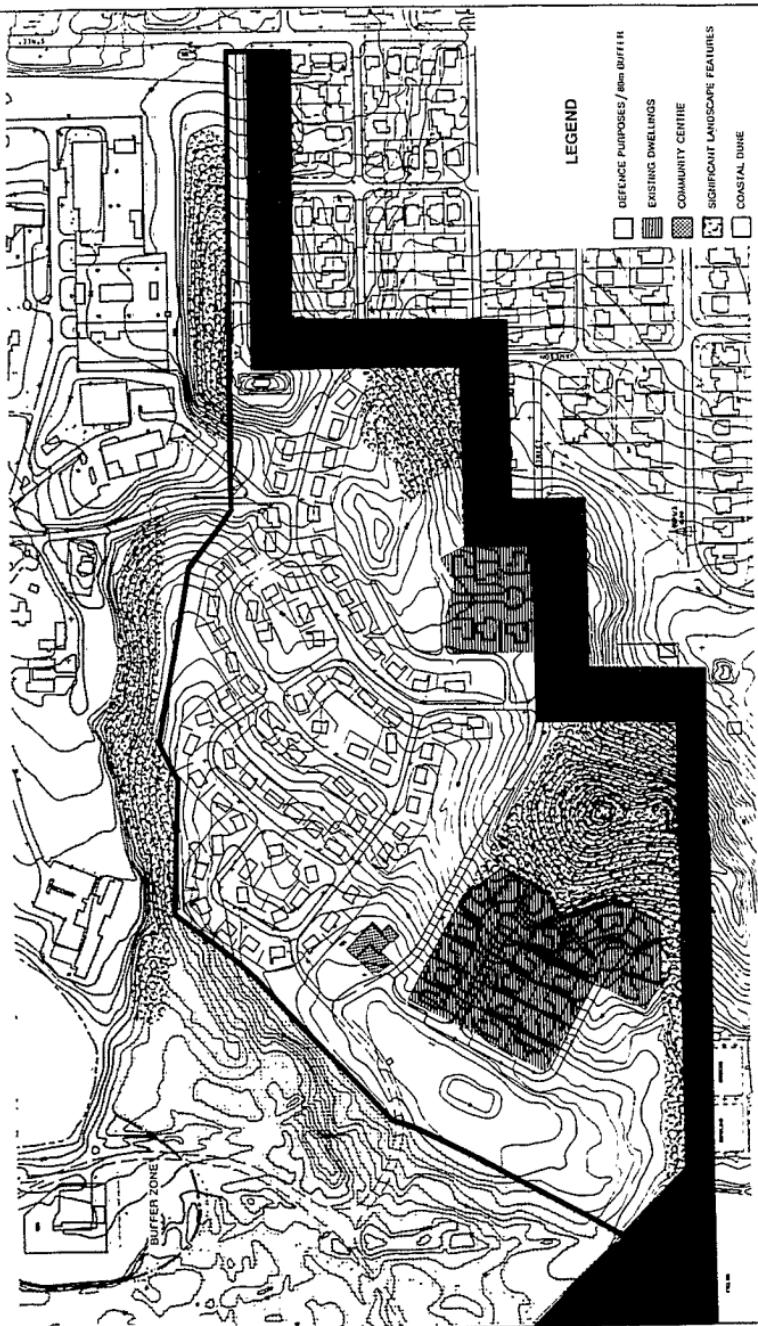


FIGURE 6

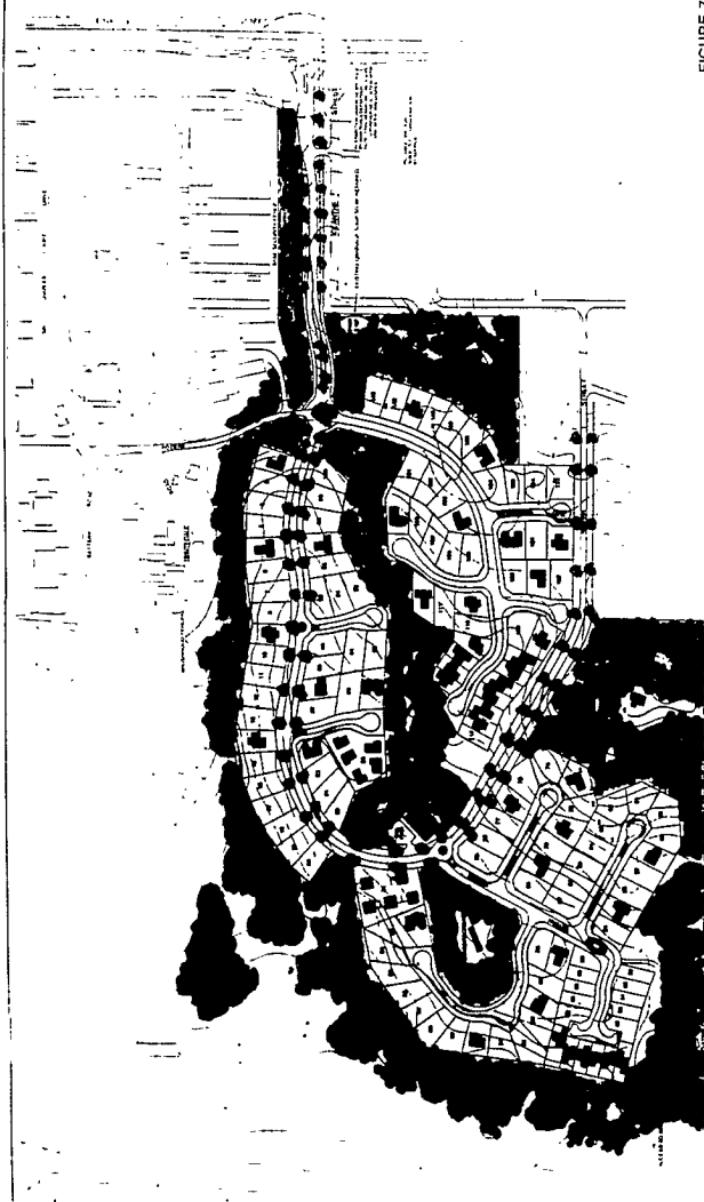
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DATE : APRIL 1991

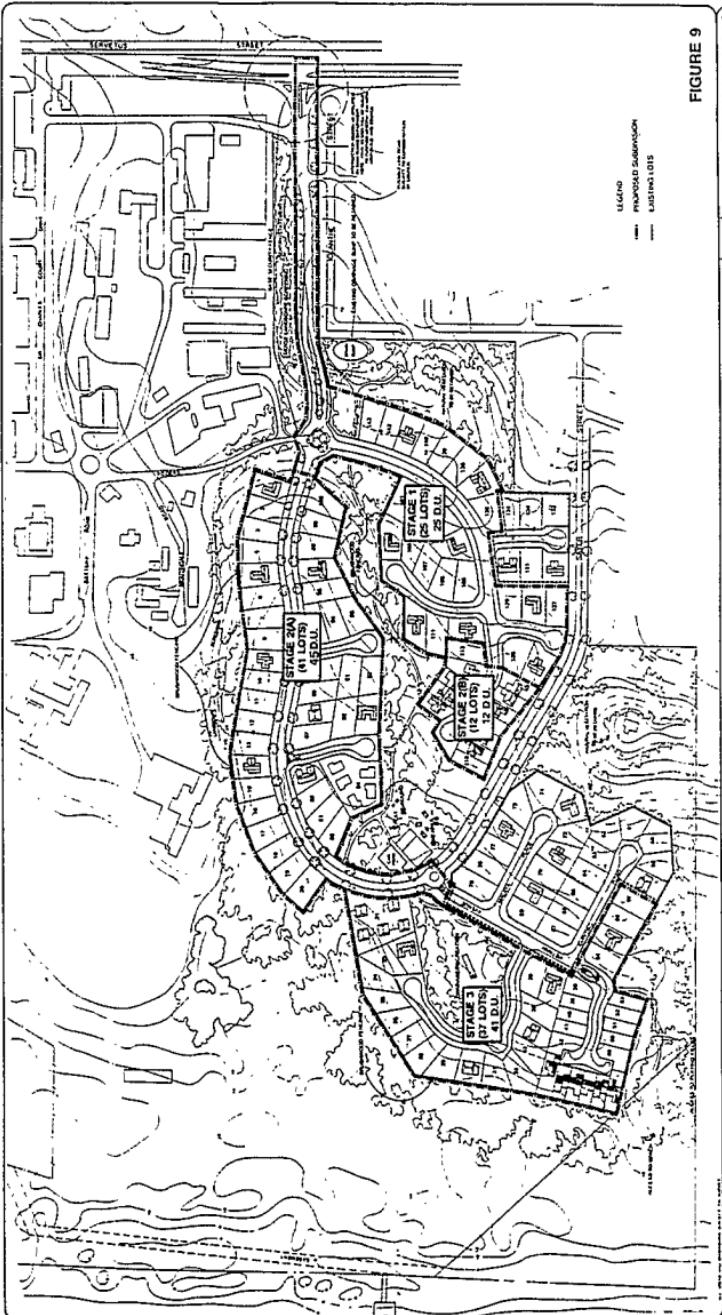
COMPOSITE DEVELOPMENT CONSTRAINTS

FIGURE 7

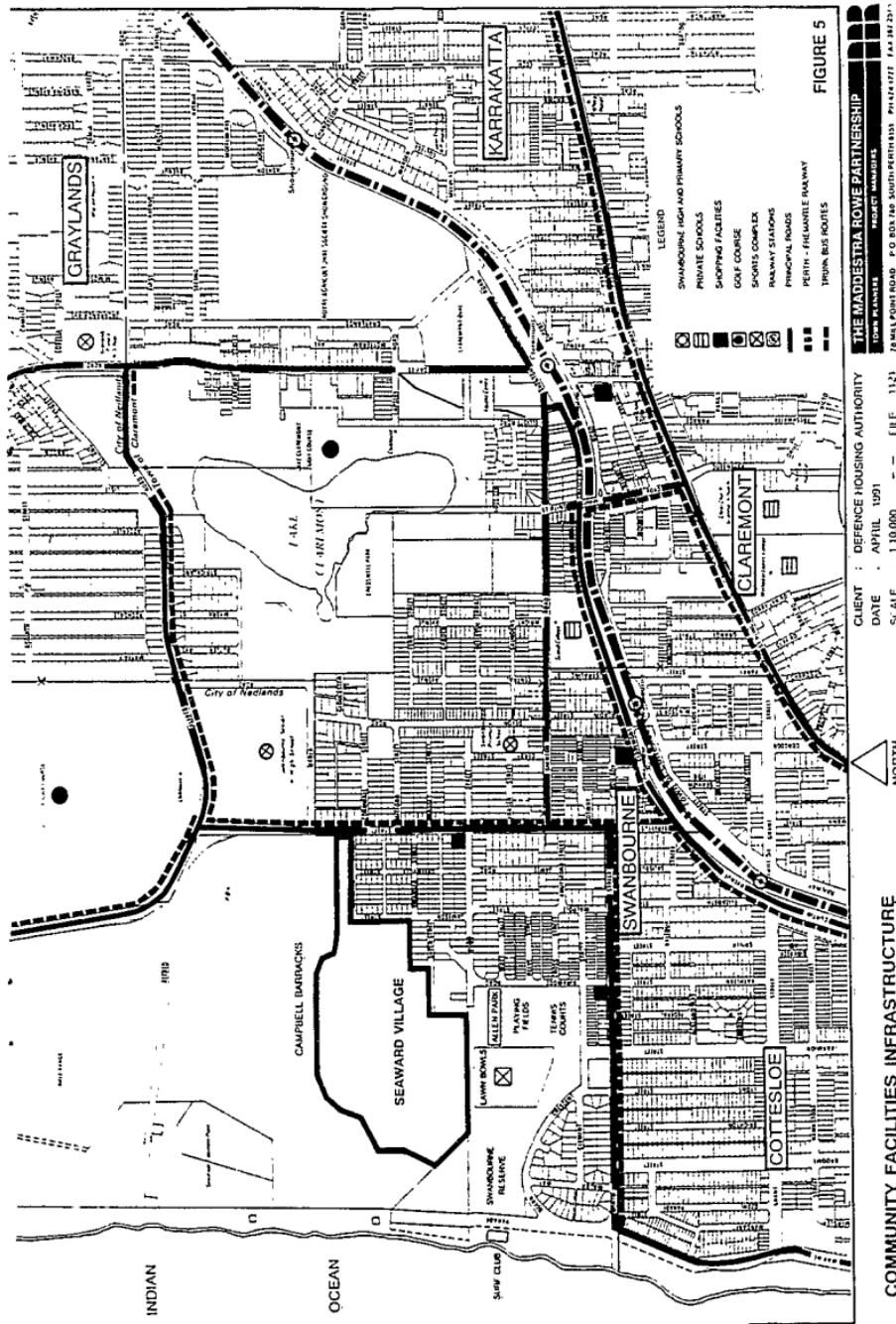


SEAWARD VILLAGE, SWANBOURNE — DEVELOPMENT CONCEPT





ROADS
PARKS/OPEN SPACE
EXISTING LOTS



COMMUNITY FACILITIES INFRASTRUCTURE

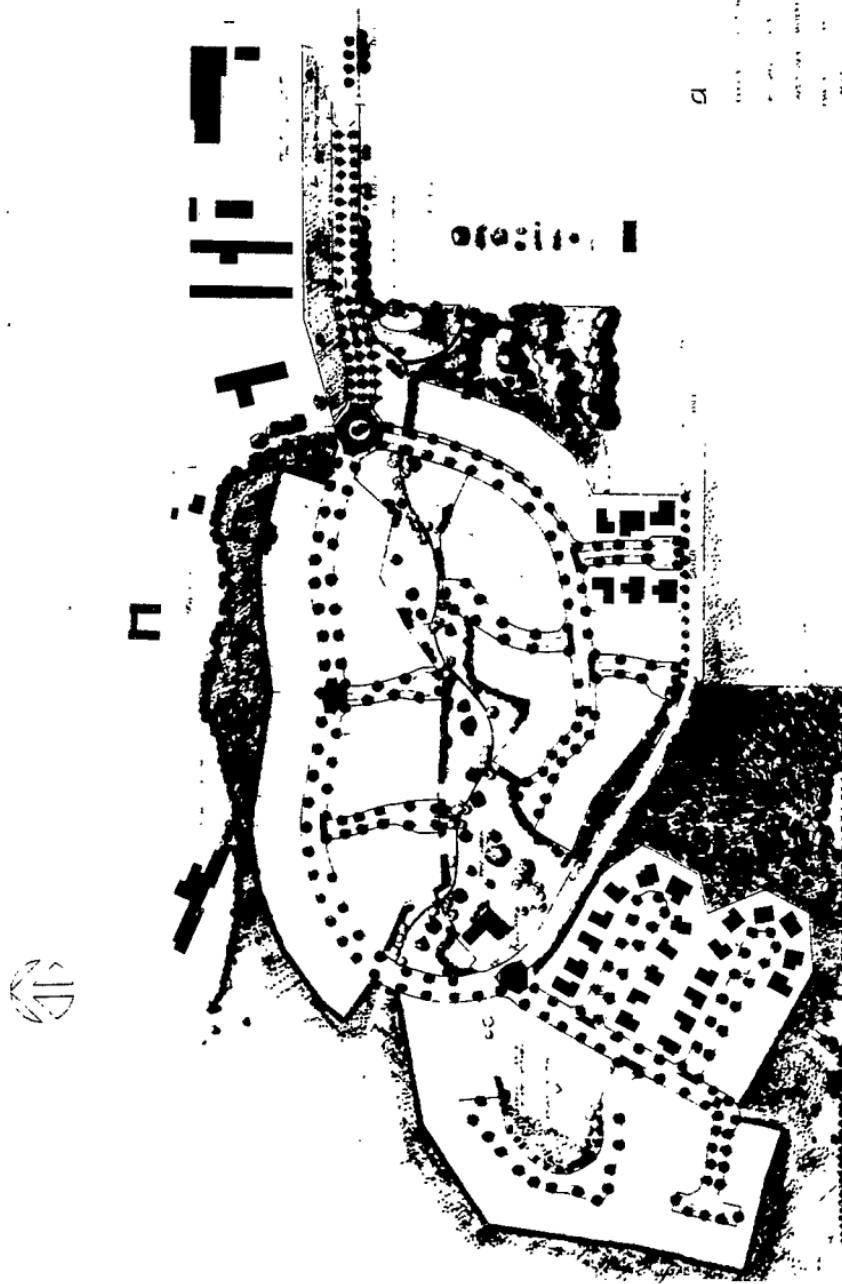


FIGURE 8

APPENDIX C

Extract from

Asbestos: Code of Practice and Guidance Notes, National Occupational Health & Safety Commission, August 1988, AGPS, Canberra

Guide to the Control of Asbestos Hazards in Buildings and Structures

3.7 REMOVAL AND MAINTENANCE WORK

- Each State and Territory Government should institute a system for the regulation of asbestos and/or its necessary maintenance, incorporating a scheme for the registration of asbestos removalists, and for the issuing and review of permits for the removal of asbestos products from particular locations
- Removal of asbestos shall be carried out only by a removalist registered under the relevant legislation in the appropriate State to perform asbestos removal and maintenance work. Removal shall also be carried out only when a permit under the State legislation has been issued and is in force, for removal work at the particular locations. All work shall be undertaken in accordance with the attached *Code of Practice for the Safe Removal of Asbestos* [see pages C2-C4], using a wet removal process, and in accordance with the general procedures listed in this Guide. If dry removal is required for whatever reason, statutory approval would be required
- A registered asbestos removalist shall give adequate notice to property owners, employers and employees that asbestos removal is to be carried out, and when it is to be carried out. The notification should also include an explanation of the general procedures and equipment involved and the precautions to be taken
- Asbestos products shall be disposed of in a manner approved by the appropriate authority

Extract from

Asbestos: Code of Practice and Guidance Notes, National Occupational Health & Safety Commission, August 1988, AGPS, Canberra

Code of Practice for the Safe Removal of Asbestos.

9. HANDLING OF ASBESTOS-CEMENT (FIBRO) PRODUCTS

A large number of building products used in the building and construction industry in Australia have been compounded from asbestos-cement. These products include, but are not limited to:

- flat or corrugated, compressed asbestos-cement sheeting (fibro)
- fibro pipes - water, drainage and flue
- roofing shingles
- flexible building boards (for example, Villaboard, Hardiflex, Wundaboard, Flexiboard)

While new fibrous-cement products no longer contain asbestos, prior to 1970 crocidolite was used in many products. Provided these products are maintained in good order, they present no health risk; however, precautions must be observed during structural alteration or demolition involving asbestos-cement materials.

9.1 PRECAUTIONS TO BE OBSERVED WHEN WORKING WITH ASBESTOS-CEMENT PRODUCTS

In general, work procedures should be designed to minimise the generation of dust and, where possible, action should be taken to avoid the spread of any asbestos dust contamination. In particular, the following practices should be adopted:

- use non-powered hand tools such as hand-saws, as these generate a smaller quantity of predominantly coarser dust or waste chips

wetting down the material further reduces the release of dust when cutting. High pressure water jets shall not be used

***POWER TOOLS UNLESS APPROVED BY THE
RELEVANT STATUTORY AUTHORITY FOR
ASBESTOS WORK, AND ABRASIVE CUTTING OR
SANDING DISCS, IN PARTICULAR, SHALL NOT BE
USED ON ASBESTOS-CEMENT PRODUCTS***

work with asbestos-cement products in well-ventilated areas, and where possible, in the open air

good work hygiene principles should be observed. This may entail the use of plastic drop sheets to collect off-cuts and coarse dust or the use of approved vacuum cleaning equipment. Where it is necessary to sweep floors, the area involved should be wetted to suppress dust

all off-cuts and collected dust should be disposed of as asbestos waste

approved respiratory protection should be used when appropriate, particularly in confined spaces.

9.2 REMOVAL OF ASBESTOS-CEMENT (FIBRO) SHEETING

The following precautions should be observed when removing asbestos-cement roofing, wall sheeting or other fibro products from buildings or other structures:

all windows and doors on the building should be closed, or in factory-type buildings where there is no ceiling, the area below or adjacent to the work should be roped off

the asbestos-cement sheets should be sealed or wetted with water, but not with high pressure water jets. The sheets should not be wetted if this creates a high risk of a worker slipping from a roof

- workers should wear disposable coveralls and either an approved disposable respirator or an approved half-face respirator mask fitted with dust cartridges approved for asbestos
- only power tools approved by the appropriate statutory authority for asbestos work may be used for removal
- asbestos-cement sheets should be stacked on a ground sheet and not allowed to lie about the site where they may be further broken or crushed by machinery or site traffic
- all asbestos-containing waste should be kept wet, wrapped in plastic or otherwise sealed and removed from the site as soon as practicable, using covered bins or on a covered truck
- the asbestos-containing waste should be disposed of in a manner, and at a site, approved by the appropriate disposal authority. Asbestos-cement sheets should not be re-used
- any asbestos-cement residues remaining in the roof space or around the removal area should be cleaned up, using an approved vacuum cleaner if necessary.