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The Parliament of the Commonwealth of Australia

Parliamentary Standing Committee on Public Works



Report Relating

to the

Relocation of the Salisbury Explosive Ordnance Testing Facilities to Port Wakefield, SA



Parliamentary Standing Committee on Public Works

REPORT

relating to the

RELOCATION OF THE SALISBURY EXPLOSIVE ORDNANCE TESTING FACILITIES TO PORT WAKEFIELD, SA

(Third Report of 1994)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
1994

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

(Thirty-First Committee)

Mr Colin Hollis MP (Chairman)
Senator Paul Henry Calvert (Vice-Chairman)

Senate

Senator Bryant Robert Burns
Senator John Robert Devereux

House of Representatives

Mr John Neil Andrew MP
Mr Raymond Allen Braithwaite MP
Mr Russell Neville Gorman MP
Mr Robert George Halverson OBE MP
Hon. Benjamin Charles Humphreys MP

Committee Secretary: Peter Roberts

Inquiry Secretary: Michael Fetter

Secretarial Support: Sue Whalan
Gemma Searles

**EXTRACT FROM THE VOTES AND PROCEEDINGS OF
THE HOUSE OF REPRESENTATIVES**

No. 41 dated Tuesday, 14 December 1993

**11 PUBLIC WORKS – PARLIAMENTARY STANDING
COMMITTEE – REFERENCE OF WORK – RELOCATION OF
SALISBURY EXPLOSIVE ORDNANCE TESTING FACILITIES
TO PORT WAKEFIELD, SA.**

Mrs Crosio (Parliamentary Secretary to the Minister for the Arts and 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: Relocation of the Salisbury Explosive Ordnance testing facilities to Port Wakefield, SA.

Question—put and passed.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

RELOCATION OF THE SALISBURY EXPLOSIVE ORDNANCE TESTING FACILITIES TO PORT WAKEFIELD, SA

On 14 December 1993 the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report to Parliament the proposed relocation of the Salisbury Explosive Ordnance testing facilities to Port Wakefield, SA.

THE REFERENCE

1. The Environmental Test Facility (ETF) is an Army unit that undertakes environmental testing of equipment and explosive ordnance to ascertain compliance with Defence specifications.
2. The proposal referred to the Committee involves the partial relocation of the ETF from its current location in the Defence Science and Technology Organisation (DSTO) complex at Salisbury to Port Wakefield—north of Adelaide. It is proposed to provide improved facilities for explosive ordnance testing to eliminate danger to the community from testing and from the transport of stressed explosive ordnance from Salisbury to Port Wakefield for firing or destruction.
3. The scope of the proposed work involves the construction of 12 test laboratory buildings and control and administrative buildings, four storage magazines and associated infrastructure at Port Wakefield.
4. The estimated cost of the proposed work when referred to the Committee was \$8.0m.

THE COMMITTEE'S INVESTIGATION

5. The Committee received a submission and drawings from the Department of Defence (Defence) and took evidence at a public hearing held at Gawler, SA, on 17 February from:

- ☐ Department of Defence
- ☐ District Council of Wakefield Plains
- ☐ Yorke Regional Development Board.

6. Written submissions about the proposed works were also received from:

- Returned and Services League of Australia
- Commonwealth Fire Board
- Institution of Engineers
- Municipality of Gawler
- Australian Heritage Commission
- Commonwealth Environment Protection Agency
- Kelstrom Pty Ltd
- Mr John Meier MP.

7. On 16 February the Committee inspected existing environmental testing facilities at Salisbury and then travelled to the Proof and Experimental Establishment (P & EE) at Port Wakefield. There the Committee inspected the site for the proposed facility, facilities used by the P & EE, the site of the proposed drop tower and the ordnance museum. The Committee was most impressed with the museum. On display is a vast range of items of ordnance, collected over many years, which are used as teaching aids as well as being a repository of artefacts of some historical significance. The Committee believes there may be scope for the museum to be opened to the public although it recognises that at its present location, within a security area, there may be problems in achieving that aim.

8. A list of the witnesses who gave evidence at the public hearing is at Appendix A. The Committee's proceedings will be printed as Minutes of Evidence.

BACKGROUND

Testing of ordnance

9. The Australian policy of defence self-reliance requires the support of the local manufacture of ammunition and the capability to proof it, i.e. subjecting a weapon or ammunition to a testing process. Most of the

conventional ordnance used is produced in Australia. Annual expenditure on it is of the order of \$70m.

10. Australia subjects explosive ordnance to specified environmental and safety tests for development purposes and to assess the safety and suitability of ordnance for service. These tests are specified by the design authority and the Australian Ordnance Council. Ordnance testing must be carried out before items are taken into service use. The rationale of environmental testing was explained by Defence as follows:

When an item of explosive ordnance is being introduced to the Armed Forces for the first time, the users are asked some basic questions: What exactly do you do with this thing whilst it is in your control? How are you going to store it and transport it? What exactly will happen to it?

An environmental profile on the life of the item—from its manufacture at factory, through its storage and transport, on how it will be used, right up until it is either fired or disposed of—is then developed.

From this environmental profile, the worst possible thing that could happen to this explosive ordnance and what risks are involved in its handling and transport are then determined.

A series of tests or trials to accelerate these handling and environmental procedures is then planned and conducted so that the user will know fairly precisely what this explosive ordnance is capable of taking. This series of trials and tests is what we call environmental stressing. (Transcript, p. 50)

Salisbury Environmental Test Facility (ETF)

11. The ETF, located at Salisbury, is the prime Defence explosive ordnance environmental test facility and is used by the RAN, Army and RAAF, the Defence Science and Technology Organisation (DSTO) and A&L. It has a staff of 27 and occupies 50 buildings in the technical services area in the larger DSTO site.

12. ETF explosive ordnance testing programs often require tests to be conducted over a three to six month period, often sequentially or simultaneously. Some climatic test programs run continuously for a three to

six month period, with explosive items being removed for other tests at predetermined intervals.

THE NEED

Existing conditions at Salisbury

13. Of the 50 buildings at Salisbury, 17 are used on a daily to weekly basis. The buildings are a combination of brick and galvanised iron structures built during the Second World War and the mid-1960s.

14. Severe limitations are placed on the operations of the ETF because of its proximity to office accommodation and laboratories. These limitations include:

- restrictions on the quantity and type of explosive ordnance held for testing
- the need to test certain types of ordnance at weekends—due to fewer personnel being in the area and due to the safety area being able to be extended
- stressed explosive ordnance needs to be moved through the DSTO area and through civilian areas for functional testing, and sometimes demolition—usually at the Proof and Experimental Establishment at Port Wakefield.

15. Defence indicated to the Committee that the ETF at its present location, is unable to utilise fully the capacity of equipment and facilities. The main consequences of restrictions imposed by safety regulations are an inability to fully assess the safety and suitability for service of certain items of ordnance, including those developed in Australia. Defence advised the Committee that some explosive ordnance is being accepted into service with limited environmental and safety testing. Restriction applying at Salisbury also extend the time required to carry out certain tests. This may, in turn, delay the introduction of some munitions into service.

16. Defence indicated that the level of risk to departmental employees at Salisbury has been assessed as low. Nevertheless the danger arc from the most hazardous items being tested does encroach over buildings not engaged in environmental testing. To avoid the risks Defence employs containment measures, working out of hours and reducing quantities being tested. Urban encroachment is also a problem, the closest house is located 450 m away.

Transport of ordnance

17. Environmentally stressed explosive ordnance which requires functional testing at the Proof and Experimental Establishment at Port Wakefield is transported there from Salisbury through suburban areas of northern Adelaide, a total distance of about 100km. The nature and quantity of the ordnance will vary. The frequency of transporting the ordnance to Port Wakefield will depend on test programs, but would generally occur once every four to six weeks. Defence believes the requirement to transport environmentally stressed ordnance along a major highway through densely populated areas poses an avoidable risk to the public and to Defence. It also subjects explosive ordnance which has already undergone known stress in a controlled environment to uncontrolled stresses during transportation.

18. The Committee questioned Defence about the standards and procedures which need to be followed for the land transport of items of ordnance. Defence advised the Committee that the *Explosives Act 1961*, and regulations made pursuant to it, provide the statutory framework for the land transport of explosives. Regulations have been reviewed recently and Defence believe they accord completely with practice in the United States and the United Kingdom.

19. In recent years there have been few accidents involving military vehicles transporting ordnance. The incidence is minuscule when compared with accidents involving commercial vehicles transporting dangerous goods.

Drop tower

20. The need for a facility which is used to drop ordnance stems from both military and civilian requirements. International requirements specify standards for the safe transport of dangerous goods such as explosives. A 12 metre drop test is a standardised test for both packaging and safety. The aim of a test facility is to assure transport agencies that if an item is dropped, it can safely be removed from a facility such as a wharf and can be subsequently disposed of.

21. The ETF has a drop tower at Woomera. This tower is capable of being used for some of the required tests but its capacity is limited to loads of 500kg and does not allow for the drop testing of a standard pallet. The impact surface is not to required standards. The tower itself is simplistic in design and construction, consisting of two poles and a crossbar; it does not allow for safe operator access to the top without the use of separate

elevating equipment. Defence believes that it would not be feasible nor cost effective to attempt to relocate what is, in effect, an inadequate facility.

22. One further factor mitigating against continuing the use of the tower is the requirement to close a public road before it can be safely used. To do this Defence must give the Highways Department of South Australia three months notice.

Priority of relocation

23. The Committee questioned the priority to relocate the explosives ordnance testing function away from Salisbury. Defence indicated that the Salisbury facility was established to test products from the Defence Science and Technology Organisation, mainly from the DSTO laboratories at Salisbury. The products tested consisted mainly of rocket motors, which are less hazardous than high explosives. Since the mid-1980s there has been an increasing demand for the testing of more hazardous items. This increase in demand can be attributed in part to the progressive closure of other facilities interstate.

Committee's Conclusions

24. The environmental stress testing of explosive ordnance is essential to ensure the safety of Defence personnel required to transport it and ultimately operate the weapons systems. Environmental stress testing is also essential for the safe storage of all items of ordnance.

25. The effectiveness and efficiency of the Environmental Test Facility at Salisbury are limited due to measures taken to reduce possible risks to Defence personnel working there.

26. The transportation of environmental stressed ordnance from Salisbury through suburban areas of Adelaide and along a national highway to the Proof and Experimental Establishment at Port Wakefield poses risks to the public and to Defence personnel which could be avoided.

27. There is a need for the environmental stress testing of all ordnance to be undertaken at a safer location, preferably in close proximity to a proofing range.

ALTERNATIVES EXAMINED

28. Defence examined a number of alternatives to overcome the problems associated with remaining at Salisbury. Two alternatives considered involved relocating to the Proof and Experimental Establishment at Graytown, near Puckapunyal, Vic, and the other to the Munitions Test Centre, St Marys, NSW.

Graytown

29. This would involve locating the ETF with an existing P & EE, but the Graytown facility does not provide a regular and unconstrained long range firing capability, nor does the Graytown facility have a capability for the recovery of medium to large projectiles for evaluation after firing.

St Marys

30. The possibility of relocating the ETF to the Munitions Test Centre, St Marys was an option considered by Defence early in the development of the proposal being examined by the Committee. It can now no longer be considered an alternative. Australian Defence Industries has announced the closure of the St Marys facility by mid 1994. At the same time Defence will need to close the Munitions Test Centre which, as a consequence of other Defence initiatives, will be relocated to the ETF at Port Wakefield.

Proof and Experimental Establishment, Port Wakefield

31. The relocation of the ETF explosive ordnance testing function from Salisbury to Port Wakefield was initially identified by the Australian Ordnance Council and subsequently confirmed by informal reviews and, later, a report prepared by a Siting Board. Factors which led to Port Wakefield being selected as the preferred site were:

- the need to collocate the ETF explosive ordnance testing function with an existing proof and experimental establishment
- the long range firing and unique over-the-water recovery capabilities of the P & EE, Port Wakefield.

Location and history

32. The P & EE, Port Wakefield, is located 100km north of Adelaide. Its northern boundary is about 10km south of the township of Port Wakefield on the east coast of the Gulf of St Vincent. Relief is minimal close to the coast. It is somewhat surprising that the establishment has a history going back to 1916 when investigations by the Department of Defence to identify a suitable site for the establishment of a proof facility commenced. The Port Wakefield site was recommended for acquisition by the Commonwealth in 1922, was acquired in 1924 and commenced operations in 1928. Since then the rangehead of the P & EE has been further developed and now comprises:

- technical and administrative facilities - this includes laboratories and workshops and various storehouses
- residential and recreational facilities - including houses, and accommodation blocks for service personnel, dining and kitchen area, and swimming pool
- ancillary facilities and services - including sewage treatment plant and power, water, fire, security and communications
- firing facilities - these are designed for firing as part of the proof function and comprise the principal gun batteries, and splinter-proof pill boxes for coastal observation.

Area

33. The land area of the range covers 5 000 ha; with the seaward area it is 19 000 ha. The sea area is classified as a Defence Prohibited Area and is marked by pylons, beacons and lights.

Port Wakefield—advantages

34. Defence believe that by relocating the ETF explosive ordnance testing function to Port Wakefield the following benefits will result:

- removal of a risk to the Defence community within the Salisbury area

- enhancement of the explosive ordnance testing capacity by operating within purpose built structures, and removing constraints associated with safety distance limitations
- removal of an avoidable risk to the public by ceasing the transportation of environmental stressed explosive ordnance from Salisbury to Port Wakefield.

35. One of the major features which the Port Wakefield facility offers is the unique over-the-water recovery capability. The extensive tidal flats extending southward from firing batteries at the P & EE rangehead permit projectiles, fired at low elevation over tidal water, to be recovered at low tide. This method enables examination of the effects of passage of a projectile through the chamber, barrel and muzzle of a gun without damage by impact on a hard surface. This capability of over-the-water recovery is almost unique in the world. There is a similar facility in the United Kingdom. The Committee was advised that the situation in the United States is as follows:

America has over-sand recovery, but it does not work very well at all. In fact the Americans tried to build their own lake in the desert, which they could fire into, but as fast as they filled the water up it evaporated out, so the scheme failed. (Transcript, p.99)

Future of Salisbury

36. The Committee asked Defence about future plans for the Salisbury site if the environmental testing of ordnance were relocated elsewhere. Defence indicated that the requirement to relocate the environmental testing of ordnance has presented an opportunity to rationalise existing land use at Salisbury. A study is underway which will examine existing land uses and contamination issues.

Committee's Conclusion

37. Studies of alternative sites available for a new ordnance environmental stress facility indicate that there would be considerable advantages in collocating it with the Defence Proof and Experimental Establishment at Port Wakefield.

THE PROPOSAL

Scope

38. The scope of the proposed work is as follows:

- ☐ main office and control building
- ☐ workshop
- ☐ two hardened test buildings
- ☐ hardened breakdown building
- ☐ hardened radiography/inspection and remote control building
- ☐ two climatic test buildings
- ☐ four hardened magazine buildings
- ☐ hardened isolation magazine
- ☐ package store
- ☐ drop test tower
- ☐ hardened control building for drop test tower
- ☐ pendulum rig.

Materials and finishes

39. The hardened buildings will be reinforced concrete covered with a waterproof sealant or metal cladding. The control building will be of brick veneer using a metal frame. All other buildings will have steel portal frames with a combination of brick and metal cladding.

Mechanical services

40. Hot and cold water will be mains pressure. The Committee is pleased to note that solar hot water will be provided to the control building.

41. All test and climatic buildings will have liquid nitrogen connections. Gas containers will be supplied by the ETF.

42. Facilities requiring environmental control will be provided with airconditioning.

43. Chemical and domestic waste liquids will be discharged into a septic system or into interceptor traps and an absorption trench system.

Hydraulic systems

44. There will be a compressed air system to facilities requiring air hoist, monorail and compressed air tools. Each system will be serviced by its own aircompressor.

45. Supplies of groundwater will be obtained from the existing P & EE range facilities. Investigations carried out by the local water supply authority indicated that the existing supply will have sufficient capacity for both complexes and capacity for future expansion.

Fire protection

46. Each building will be provided with thermal detection units and manual call points remoted to the control building and linked to the P & EE for reaction. Fire hose reels will be placed outside non-hazardous buildings. Water will be obtained from the mains water reticulation system. Dry chemical powder extinguishers will be located inside all buildings. A fire fighting tanker from the P & EE will provide for emergency fire fighting.

Electrical

47. Power to the site will be provided by high voltage aerial cables to a series of stepdown transformers. The reticulation system will be underground in close proximity to buildings being served. The reticulation system will be owned and operated by the local electricity authority.

48. Electrical services will include fibre optic cabling for closed-circuit television signals, fire and intruder alarm signals and conventional cabling for telephone, intercom and closed circuit television control channels.

Landscaping

49. The area surrounding the control building and workshop will be landscaped and suitable vegetation will be planted. Rehabilitation of natural areas affected by construction activities such as the provision of civil and engineering services will also be carried out.

Civil works

50. It is proposed to provide 3.7km of new roads; they will be 6m wide with 1m shoulders. With the exception of the road connecting the P & EE magazine area, all roads within the complex will be sealed. Hardstanding will be provided to each building and a carparking area at the entrance of the complex will also be sealed. Runoff from the road system will be controlled by open swales.

51. Elevations and plans of each proposed facility are shown at Appendix B.

Provision for the disabled

52. Wheelchair access will be provided into and throughout the Control Building. An ablution facility for the disabled will be located in the Control Building. The other buildings have not been designed for the disabled.

Energy conservation

53. Defence indicated that given the required standard of working environments and the equipment to be utilised, no significant energy conservation measures could be utilised apart from standard practices such as:

- ☐ fluorescent lights
- ☐ automatic control of security lighting
- ☐ solar heating for hot water.

Fire safety

54. The Commonwealth Fire Board examined the proposal and advised the Committee that the buildings proposed will be small, special-purpose,

single storey structures providing ready escape from fire. Facilities will have automatic fire detection and this appears to be adequate given the isolation and nature of the buildings. The Board recommended liaison with fire services and continuing familiarisation visits of personnel.

55. Defence indicated that the fire protection measures were designed in accordance with the Building Code of Australia and were reviewed by Defence fire experts. The local fire service is provided by the Country Fire Service which is staffed by volunteers from the Port Wakefield area. Several members of the P & EE fire team are also senior members of the local volunteer brigade which is the basis of good liaison.

Committee's Conclusion

56. The extent of the proposed work can be justified on the basis of the specialised functions which need to be carried out by or in the various buildings proposed.

SITE DETAILS

Land acquired

57. Defence acquired additional land adjoining the north west boundary of the P & EE at Port Wakefield on the basis of the specific siting and collocation requirements of the ETF function being met

Site and master planning

58. The suitability of the site was determined by a siting board in 1991. The siting board provided an indicative layout based on separation distances which were predetermined by specific building explosive limits, physical limitations imposed by the site and security requirements. The final proposed layout of the buildings and road network was arrived at after analysis of functional relationships between the various elements and more detailed engineering considerations.

59. The site for the proposed buildings and support infrastructure is located adjacent to the northern boundary of the P & EE Range. It is bounded by the P & EE access road to the west, the existing P & EE boundary to the south and east and by private land to the north.

60. The site is currently used for limited cropping and is bounded along the eastern edge by a saline depression. This depression was discounted as a site for the construction of any facilities.

61. Access from the national highway to the P & EE is provided by a 5.6km sealed access road. The Committee was advised that although the proposed site is adjacent to the access road, it is not proposed to realign the access road.

62. The proposed layout of the new facility is shown at Appendix B.

Capacity for expansion

63. The proposed facility will occupy only the eastern half of the site due to specified safety distances from public access routes. Defence advised that future development of the western half of the site could be considered for non-residential buildings or buildings not containing explosive ordnance.

64. The proposed layout will allow the construction of two further test buildings within the eastern portion of the site by extending outwards the northern security fence.

Engineering investigations

65. Defence advised that the following engineering surveys and investigations were conducted during the preliminary investigation phase:

- ☐ topographical
- ☐ geotechnical
- ☐ water reticulation
- ☐ electrical reticulation.

Security

66. Defence advised that the question of the security measures to be applied to the proposed facility were examined by specialist Defence security staff. Security measures will comply with the requirements of the Defence Security Manual—a combination of electronic and physical security measures, supplemented by security patrols.

Drop test tower site

67. The proposed drop test tower and drop test control building will be located down range, adjacent to the eastern boundary of the P & EE range. Defence advised that proposed land acquisitions between the highway and the boundary will provide sufficient safety distance for this site.

Committee's Conclusion

68. The location and size of the proposed site provides adequate clearances and room for expansion. Preliminary engineering investigations have indicated that the site is suitable for constructing the buildings proposed.

ENVIRONMENTAL IMPACT CONSIDERATIONS

Environmental clearance

69. Environmental impacts were examined within Defence and an Environmental Certificate of Compliance was issued on 13 August 1993. The certificate approved the proposal subject to the following conditions:

- ☐ environmental testing performed will be of a similar nature to that conducted by the ETF at Salisbury (i.e. no intentional functioning of explosive ordnance)
- ☐ the proposed layout of structures contains the purple line within the property
- ☐ noise pollution and liquid and gaseous wastes will be treated in accordance with all State pollution legislative requirements and procedures.

Frequency of firing and noise

70. The Committee questioned Defence about two possible impacts of the proposal:

- ☐ if the proposal to relocate the facility from Salisbury to Port Wakefield will increase the frequency of ordnance being fired from the P & EE, and if so, the extent of the increased activity

- if the current levels of firing are adding to the level of Malfunctioned Explosive Ordnance (MEO) within the proof range area.

71. In relation to the frequency of ordnance being fired, a representative of Defence stated:

The level of activity in terms of firing will not increase. What we are doing is collocating a test function from Salisbury with the proofing function at [Port] Wakefield. In terms of explosions, there will be no additional noise generated by the collocation of this facility. I would like to assure [you] that Defence is very sensitive to these issues. We undertake regular programs of acoustic and seismic testing. If any member of the community felt they had a complaint, we would investigate that. (Transcript, pp. 56-7)

72. In response to the question about the proposal generating additional MEO, the Committee was similarly assured that:

All projectiles are tracked using a number of mechanisms including radar survey. Many items are not explosive. With over-the-water recovery, we only recover an intact projectile. These projectiles are located. There would be very few occurrences where projectiles are not recovered. Measures have been in place for the last 20 years to ensure that pre-existing levels of contamination are not added to in any significant way. (Transcript, p. 57)

Committee's Conclusions

73. There will be no significant deleterious environmental impacts from the proposed facility.

74. There will be no additional firing and associated noise from the Proof and Experimental Establishment as a consequence of the relocation of the ordnance environmental stress test facility to Port Wakefield.

REVENUE AND CHARGING FOR TESTING

Revenue

75. In recent years Defence has received some revenue from charges for testing ordnance for defence industries. Defence advised the Committee that the income has been variable, as follows:

□	1990-91	\$437 000
□	1991-92	\$202 800
□	1992-93	\$510 600
□	1993-94	\$255 000*
(* to the end of February 1994)		

76. Defence believes that the new facility at Port Wakefield will provide the opportunity to undertake additional programs for commercial sources. An increase in revenue of 20-30% is envisaged and this could be achieved by accelerating programs rather than by taking on work previously refused.

77. The Committee also asked Defence why the cost of testing and proofing is not borne by the manufacturers of ordnance. In response, Defence advised the Committee:

Much of the commercial revenue that we have received in the last few years has been as a result of just that. The manufacturers pay us to do the testing and proofing so that they can provide to their customer a complete package, including proof of test. (Transcript, p. 71)

78. As to the possibility of changes in policy or procedures requiring manufacturers to proof and test equipment and ordnance, the Committee was advised that:

The testing function could well be subjected to a commercial support program evaluation. In fact, Defence is already looking at commercialisation of elements of the proofing function. The facility we looked at yesterday [the P & EE at Port Wakefield] has been examined, but particular activities carried out there, particularly the firing of the guns, have been determined to be a core activity to be retained in house. That core activity might

be using uniform or defence civilian employees. The opportunities for commercialisation at Port Wakefield would be generally limited to the administrative support areas. (Transcript, p. 72)

Committee's Conclusions

79. The provision of a new purpose built facility will provide considerable scope for Defence to undertake additional commercial work without the need for additional staff.

80. In the event of policy changes occurring in the future which may place the responsibility for all or some environmental stress testing of ordnance on Australian manufacturers, need for and use of the proposed facilities will remain.

STAFFING OF THE FACILITY

81. The staffing of the ETF at Port Wakefield will mainly be on a daily basis. Staff will travel from Salisbury using a Defence vehicle. The journey will take about one hour. If staff are required to stay overnight, accommodation will be provided at the P & EE mess. Defence does not anticipate that any employee will be required to work at Port Wakefield for more than 80 days per annum and that the majority of tasks will be single day activities.

82. This aspect of the proposal raised a number of questions from the Committee—the impact of dividing staff between Salisbury and Port Wakefield, if any additional staff will be required, and the level of additional recurrent expenditure involved.

83. Defence acknowledged that there would be some advantages in collocating ETF staff, but pointed out that personnel at Salisbury undertake other work, apart from ordnance testing, such as calibration and instrumentation development. Defence also pointed to difficulties associated with recruiting and keeping staff with the necessary skills. For this reason Defence believes taking staff from Salisbury on an as required basis to undertake testing at Port Wakefield is the more prudent course.

84. Defence believes that the new facility will not require additional staff. The new facility will enable greater efficiencies to be gained:

Whereas at the moment we may be restricted to testing one or two large calibre shells at a time, for example, because of our constraints, at the new site we might be able to do it by the pallet load, so we will get efficiencies in that way. (Transcript, p. 79)

85. The annual recurrent cost of operating the Salisbury site, is about \$2m, which includes salaries. The additional cost of operating the Port Wakefield site is estimated at \$350 000 annually.

CONSULTATIONS

86. The following organisations were consulted:

- ☐ Australian Ordnance Council
- ☐ Electricity Trust of South Australia
- ☐ Department of Engineering and Water Supply, South Australia
- ☐ Department of Environment and Land Management, South Australia Management Commission
- ☐ District Council of Northern Yorke Peninsula.

Local support

87. The District Council of Wakefield Plains and the Yorke Regional Development Board expressed considerable enthusiasm for the project. There is sufficient land available for the facility and it will present a very low level of risk to the civilian population. Local organisations, such as the Council, have had a very good relationship with P & EE personnel who take part in many facets of community life. Council officers have considerable local knowledge of design and construction conditions and this will be offered to the Army.

COST AND TIMETABLE

Preliminary design

88. Defence advised the Committee that based on a preliminary design the project was costed as follows:

- \$5.851m—construction by primary civilian contractor
- \$3.961m—construction by primary military contractor.

89. These estimates do not include costs associated with the following components:

- design and project management
- the purchase, installation and commissioning of new ETF equipment
- the dismantling, refurbishment, relocation and recommissioning of existing ETF equipment from Salisbury to Port Wakefield
- the modification of refrigeration systems for ozone friendly gases
- anticipated repairs to the P & EE range access road during construction
- contingency.

Program

90. Construction is planned to commence in May 1994 and conclude in August 1995. The relocation and commissioning of test equipment is scheduled for completion in December 1995.

PROJECT DELIVERY

Army engineers

91. The total project cost, including the cost of providing services and contingencies is \$7.97m. Defence proposes to use Army engineers as the primary construction agency, which will reduce the final cost to \$6.08m. The balance of \$1.89m will be held in the project as a special contingency against the possibility of the Army engineers being deployed operationally during the course of the project. Defence advised the Committee that, in this event, the special contingency will be released to using civilian contractors to complete any outstanding work. It will not be used to fund additional work outside of the scope of the work examined by the Committee.

92. The Committee questioned Defence about a number of aspects of the proposed use of Army engineers to undertake the work—if there is a baseline or formula which determines when or when not Army engineers will be used, the extent to which civilian contractors may be displaced by using the proposed delivery system, and the costing of the proposed work.

Defence policy

93. Defence advised the Committee that under current Defence policy commercial resources would normally be used to undertake all fixed construction activities. Nevertheless, there are occasions involving construction activity in relatively remote areas, where some of the work is reasonably specialised and where there is scope for Army engineers to gain benefits from training, and where value for money could be achieved. In these circumstances Army engineers may be used; it is certainly not the norm.

Savings

94. In terms of the cost of the proposed work, Defence advised that savings of the order of 33% will be achieved in design and construction costs by using Army engineers compared with a civilian contractor. These savings will flow from the exclusion of salaries, equipment depreciation and profit from the cost estimate. Defence excluded these costs because the Army must maintain a skilled manpower base and maintain construction equipment in readiness for defence emergencies. If Army engineers were not employed on a project of this nature, the same or greater costs would be incurred through other forms of construction training. The cost estimate does provide for some civilian subcontracting and includes the cost of building materials.

Local involvement in construction

95. The Committee also questioned Defence about the use of local subcontractors and suppliers of construction material. Defence will use a commercial project manager superintendent to oversight the project. The project manager will be responsible for both design and construction aspects and the Army will be treated no differently from a commercial contractor. The Army will purchase building material from local suppliers, require subcontractors for specialist trades and will employ casual labour on the project. There will, in short, be benefits flowing from the project to smaller operators in the Port Wakefield/Gawler area.

Construction manager

96. The Committee also questioned Defence whether there is a need to appoint a civilian construction manager for the project. Defence explained that the Army has the technical capacity to undertake the project, but the Army engineers will not be undertaking the work for the Army per se. Rather, the proposal is a Defence project, being undertaken for the Department which requires that projects are undertaken and completed in a commercial manner. To this end, a commercial project manager will be appointed to ensure that the interests of the department are safeguarded.

Committee's Recommendation

97. The Committee recommends the construction of facilities associated with the relocation of the Salisbury Explosive Ordnance testing facilities to Port Wakefield, SA at an estimated cost of \$8.0 million.


RECOMMENDATIONS AND CONCLUSIONS

98. The Committee's recommendations and conclusions and the paragraphs in the report to which each refers are set out below:

	Paragraph
1. The environmental stress testing of explosive ordnance is essential to ensure the safety of Defence personnel required to transport it and ultimately operate the weapons systems. Environmental stress testing is also essential for the safe storage of all items of ordnance.	24
2. The effectiveness and efficiency of the Environmental Test Facility at Salisbury are limited due to measures taken to reduce possible risks to Defence personnel working there.	25
3. The transportation of environmental stressed ordnance from Salisbury through suburban areas of Adelaide and along a national highway to the Proof and Experimental Establishment at Port Wakefield poses risks to the public and to Defence personnel which could be avoided.	26
4. There is a need for the environmental stress testing of all ordnance to be undertaken at a safer location, preferably in close proximity to a proofing range.	27
5. Studies of alternative sites available for a new ordnance environmental stress facility indicate that there would be considerable advantages in collocating it with the Defence Proof and Experimental Establishment at Port Wakefield.	37
6. The extent of the proposed work can be justified on the basis of the specialised functions which need to be carried out by or in the various buildings proposed.	56

WITNESSES

7. The location and size of the proposed site provides adequate clearances and room for expansion. Preliminary engineering investigations have indicated that the site is suitable for constructing the buildings proposed. 68
8. There will be no significant deleterious environmental impacts from the proposed facility. 73
9. There will be no additional firing and associated noise from the Proof and Experimental Establishment as a consequence of the relocation of the ordnance environmental stress test facility to Port Wakefield. 74
10. The provision of a new purpose built facility will provide considerable scope for Defence to undertake additional commercial work without the need for additional staff. 79
11. In the event of policy changes occurring in the future which may place the responsibility for all or some environmental stress testing of ordnance on Australian manufacturers, need for and use of the proposed facilities will remain. 80
12. The Committee recommends the construction of facilities associated with the relocation of the Salisbury Explosive Ordnance testing facilities to Port Wakefield, SA at an estimated cost of \$8.0 million. 97



Colin Hollis
Chairman

24 March 1994

BARKLEY, Lieutenant-Colonel Garry, Director of Quality Assurance, Army, Department of Defence, J-3-28 Russell Offices, Canberra, ACT.

CORNISH, Mr David Frank, Acting Secretary, Yorke Regional Development Board, 51 Taylor Street, Kadina, SA.

GOOLD, Mr John Jefferson, Secretary, Explosives Storage and Transport Committee, Australian Ordnance Council, Department of Defence, CP2-3-31 Campbell Park Offices, Canberra, ACT.

GUERIN, Mr Paul Davis, Mayor, District Council of Wakefield Plains, Pinery, SA.

JOHNSTON, Mr Geoffrey Robert, Chief Executive Officer, District Council of Wakefield Plains, 10 Edith Terrace, Balaklava, SA.

McCANN, Brigadier Raymond Leslie, Director General, Accommodation and Works, Army, Department of Defence, CP3-2-15 Campbell Park Offices, Canberra, ACT.

PEARCE, Mr John Edward, Engineer in Charge, Environmental Test Facility, Engineering Development Establishment, Commercial Road, Salisbury, SA.

SOWRY, Lieutenant-Colonel Brendan John Bolton, Project Director, Department of Defence, CP3-2-24, Campbell Park Offices, Canberra, ACT.

APPENDIX B

PLANS AND ELEVATIONS

	Page
Environmental Test Facility	
. Site Location	B - 1
. Site Layout	B - 2
Control/Office Building	
. Elevations	B - 3
. Plan	B - 4
Workshop Building	
. Elevations	B - 5
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Test Building No 1 - Plan	B - 7
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Breakdown Building - Plan	B - 9
Radiography, Inspection and Remote Control Building	
. Plan	B - 10
. Legend - Construction notes	B - 11
Climatic Test Building No 1	
. Elevations	B - 12
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Climatic Test Building No 2

. Elevations	B - 15
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Main Magazine - Plan and Elevation	B - 18
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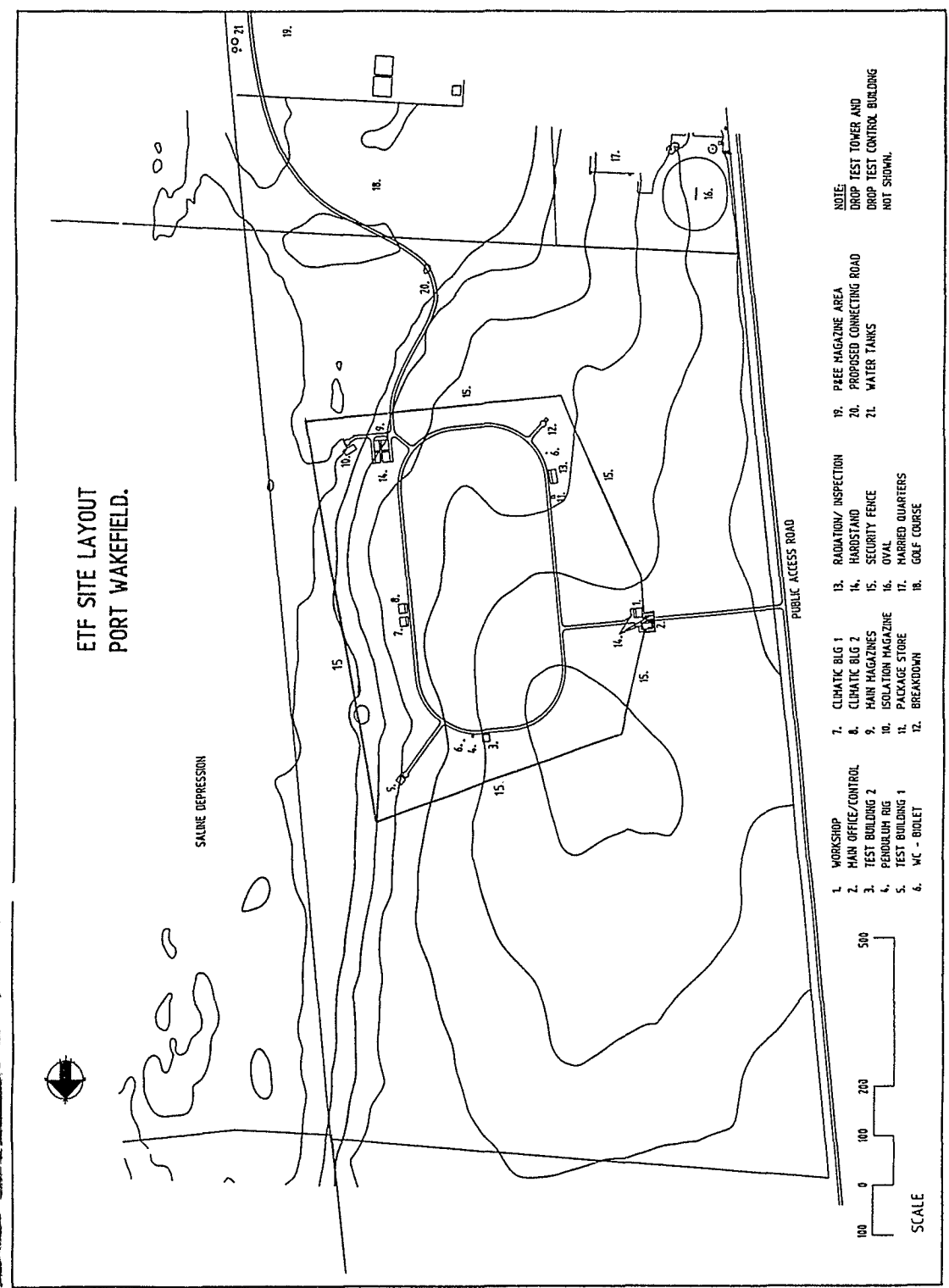
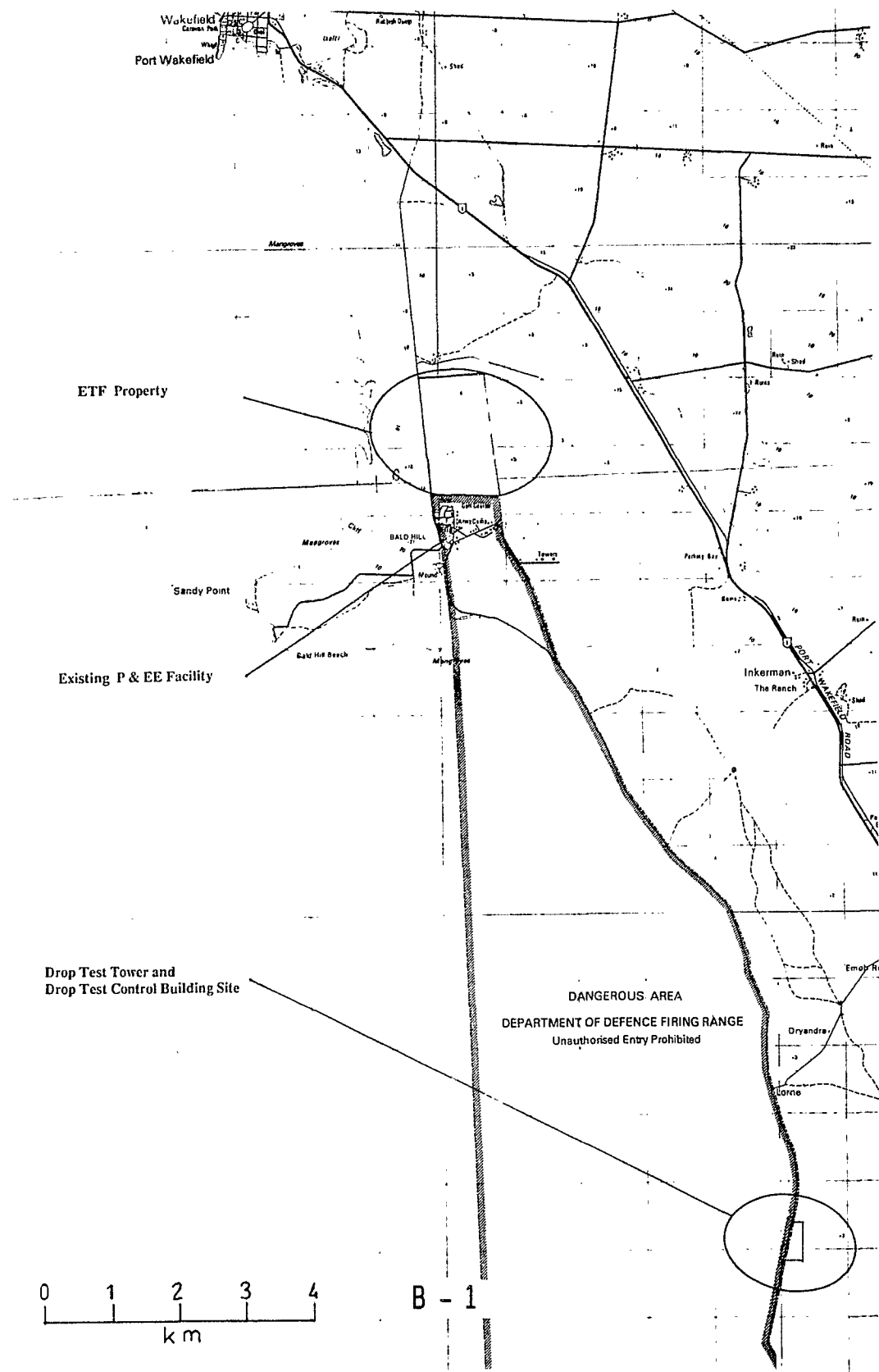
Isolation Magazine

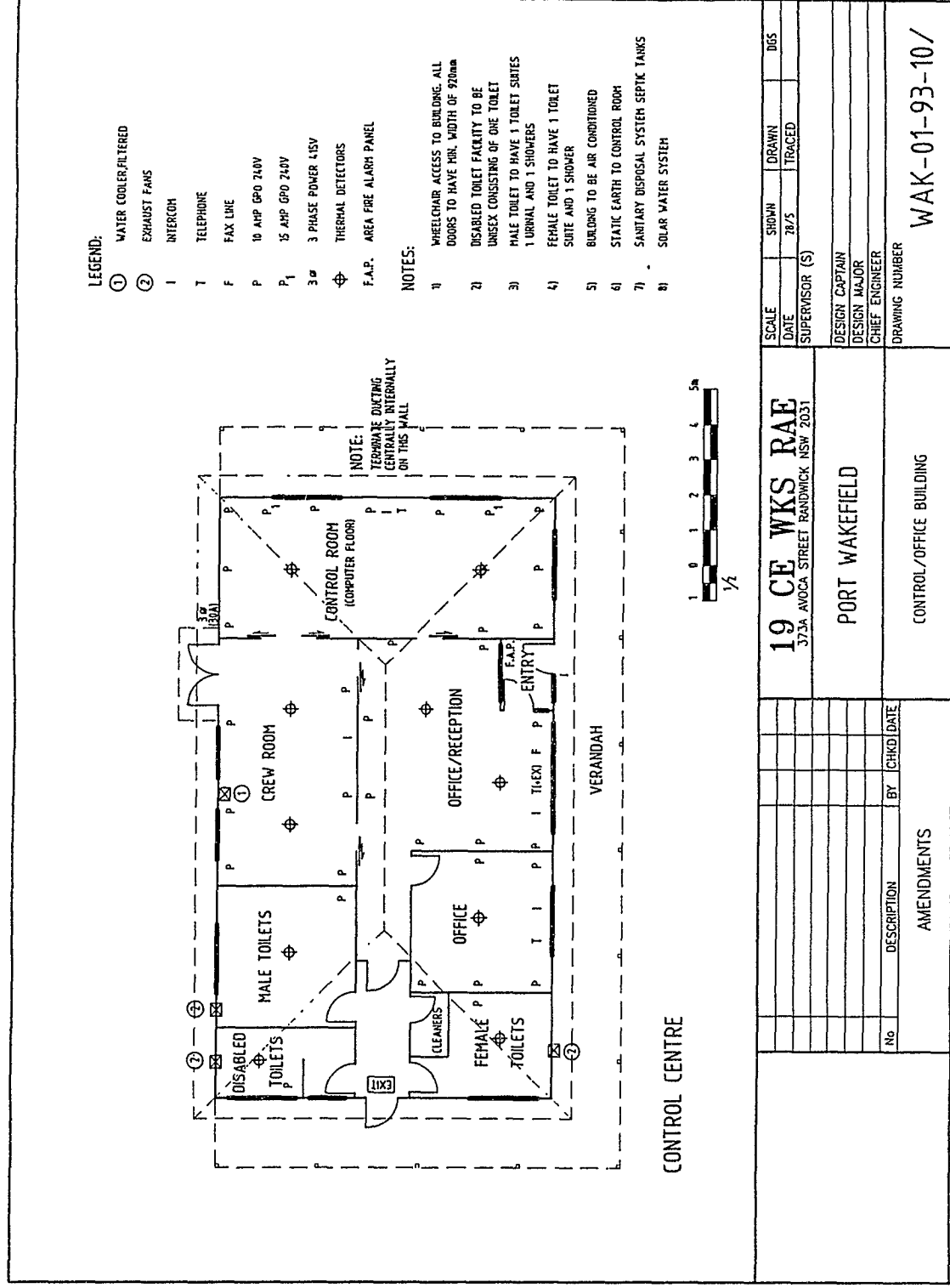
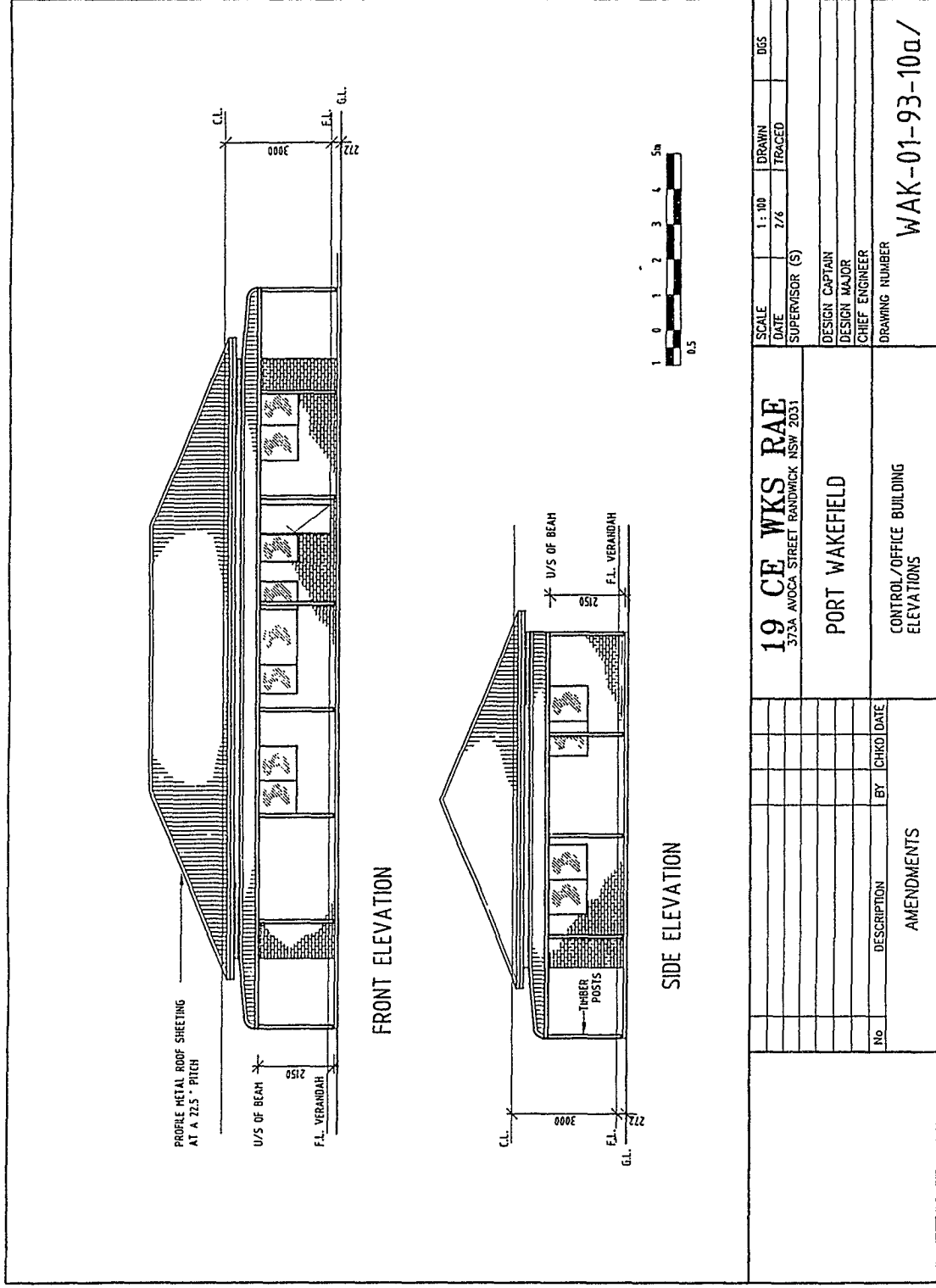
. Front Elevation and Section	B - 19
. Plan	B - 20

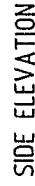
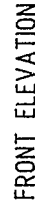
Drop Tower

. Elevation and Plan	B - 21
. Control Building - Plan	B - 22

ST.
NT







WAK-01-93-05b/



- | | |
|----------------|-------------------------|
| T | TELEPHONE |
| P | 10 AMP SINGLE GPO 240V |
| P ₁ | 10 AMP DOUBLE GPO 240V |
| P ₂ | 15 AMP SINGLE GPO 240V |
| I | INTERCOH |
| A | AIR |
| 3Ø | 3 PHASE POWER 415V |
| WB | WASH BASIN |
| ⊕ | THERMAL DETECTORS |
| --- | CHAIN WIRE WALL TO 3000 |

- 1) MINIMUM HEIGHT BELOW BLOCK AND TACKLE MANUAL SYSTEM TO BE 250mm
- 2) CEILING HEIGHT TO BUILDING TO BE NO LOWER THAN 4000 mm
- 3) DOUBLE HUNG DOORS TO WORKSHOP, RIGS AND PACKAGE STORES TO HAVE DIMENSIONS OF 3000 x 3000 Ht
- 4) DOUBLE HUNG DOORS TO BOND STORE TO HAVE DIMENSIONS OF 2500 x 3000 Ht
- 5) DOUBLE HUNG DOORS TO INSTRUMENT AND WORKSHOP STORE TO HAVE DIMENSIONS OF 1800 x 2020 Ht



WAK-01-93-05/



1)	BUILDING TO BE HARDENED CONSTRUCTION
2)	CEILING HEIGHT TO VIBRATOR AND CLIMATE SUPPORT TO BE NO LOWER THAN 3000mm
3)	DIMENSIONS OF ALL PLANT IS UNKNOWN AT THIS POINT IN TIME
4)	WORKING AREA TO BUILDING WHERE AIR HORST IS LOCATED IS TO BE NO LOWER THAN 5000mm BELOW HOOK AND APPROX. 2000mm ABOVE BOTTOM OF HOOK
5)	STATIC EARTH TO PERIMETER OF BUILDING
6)	VIBRATOR DIMENSIONS 1400 L x 1000 W x 1000 H
7)	CLIMATE CHAMBER (NEW) 5000 L x 3000 W x HEIGHT UNKNOWN
8)	R.L. (APPROX) 643
9)	WORKING AREA TO BUILDING TO HAVE DOUBLE HINGED DOORS WITH DIMENSIONS OF 3000 W x 3000 H
10)	VIBRATOR AND CLIMATE SUPPORT TO HAVE DOUBLE HINGED DOORS WITH DIMENSIONS OF 1800 W x 2650 H
11)	MACHINER PLATE WILL REQUIRE TO BE VACCURED, DRILLED AND TAPPED TO A PATTERN YET TO BE DETERMINED AND NEAR FLUSH TO FLOOR LEVEL

WAK-01-93-01/

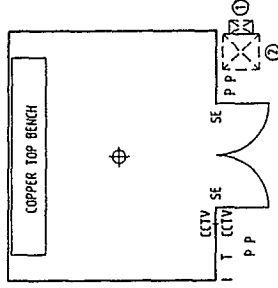


- 1) BUILDING TO BE HARDENED CONSTRUCTION
- 2) CEILING HEIGHT TO PLANT ROOM, CONTROL AND ROUGH HANDLING TO BE 3000mm HIGH
- 3) WORKING AREA TO BUILDING WHERE AIR HOIST IS LOCATED IS TO BE NO LOWER THAN 3000mm BELOW HOOK
- 4) LARGE BOWDIE MACHINE HAS DIM. 2000 l x 1550 w x 1100 h
- 5) PORTABLE CHAMBER INCHW HAS DIM. 2750 l x 1700 w x HEIGHT UNKNOWN
- 6) DROP MACHINE HAS DIM. 2000 50 x 2600 h
- 7) R.LT. (APPROX) 12.71
- 8) VIBRATOR AND DROP TEST STEEL PLATES WILL REQUIRE TO BE DRILLED AND TAPPED TO A PATTERN YET TO BE DETERMINED
- 9) LARGE OPENINGS IN WORKING AREA TO HAVE DOUBLE HINGED DOORS WITH DIMENSIONS OF 3000 x 3000 IN
- 10) EXTERNAL OPENINGS TO LOCAL CONTROL ROOM AND CLIMATIC CONDITIONING TO HAVE DIMENSIONS OF 3000 w x 2143 IN
- 11) DOUBLE GLAZED WINDOW TO LOCAL CONTROL ROOM

WAK-01-93-03/

LEGEND:

- ① HAND BASIN
- ② SAFETY SHOWER
- ⊕ THERMAL DETECTORS
- P 10 AMP SINGLE GPO 740V
- SE STATIC EARTH WITH A FLEXIBLE CONNECTION POINT
- T TELEPHONE
- I INTERCOM
- CCTV CLOSED CIRCUIT TELEVISION POWERED FROM EXTERIOR OF BLDG



NOTES:

- 1) BUILDING TO BE HARDENED CONSTRUCTION
- 2) CEILING HEIGHT TO BE NO LESS THAN 3000mm INTERNALLY
- 3) R.L. (APPROX) 9.69
- 4) DOOR DIMENSIONS 750(W) x 3000(H) INTERNAL DOOR DPM
- 5) TESTING TO BE CONTROLLED FROM THE REMOTE BREAKDOWN CONTROL ROOM
- 6) DUST SEAL IS IMPORTANT TO HINGED DOOR

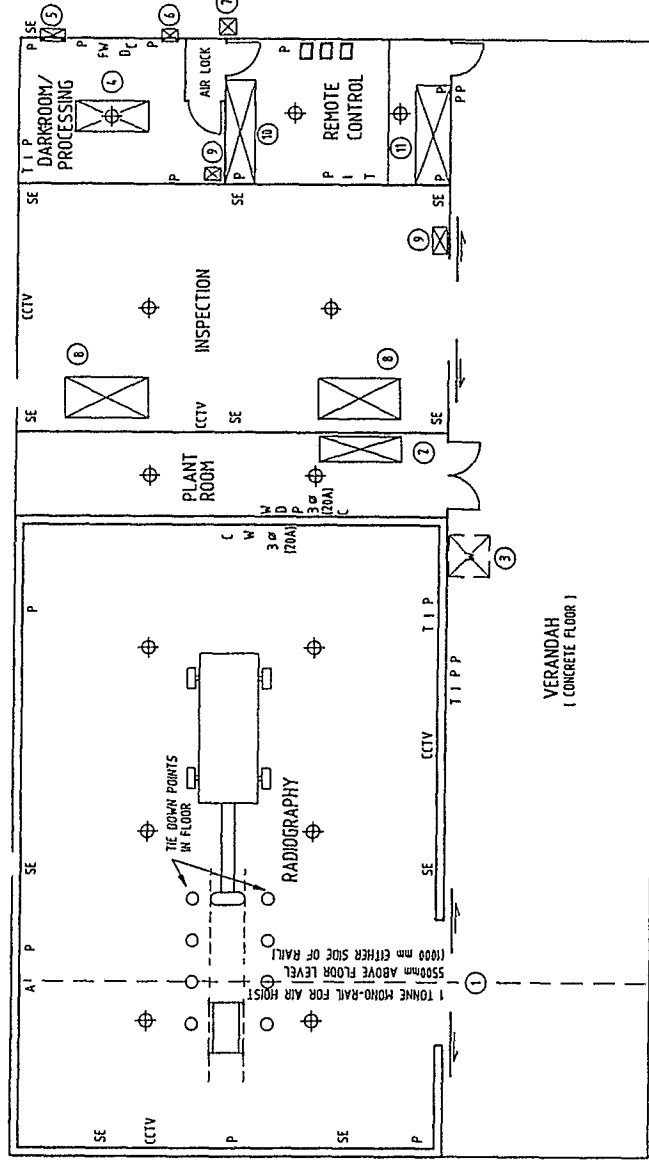
BREAK DOWN BUILDING



	19 CE WKS RAE 373A AVOCA STREET RANDWICK NSW 2031				SCALE	SHOWN	DRAWN	DGS
					DATE	78/5	TRACED	
	PORT WAKEFIELD				DESIGN CAPTAIN DESIGN MAJOR CHIEF ENGINEER			
					DRAWING NUMBER WAK-01-93-04/			
					AMENDMENTS			
					No	DESCRIPTION	BY	CHKD DATE


VERANDAH
(CONCRETE FLOOR 1)

RADIOGRAPHY, INSPECTION AND
REMOTE CONTROL BUILDING

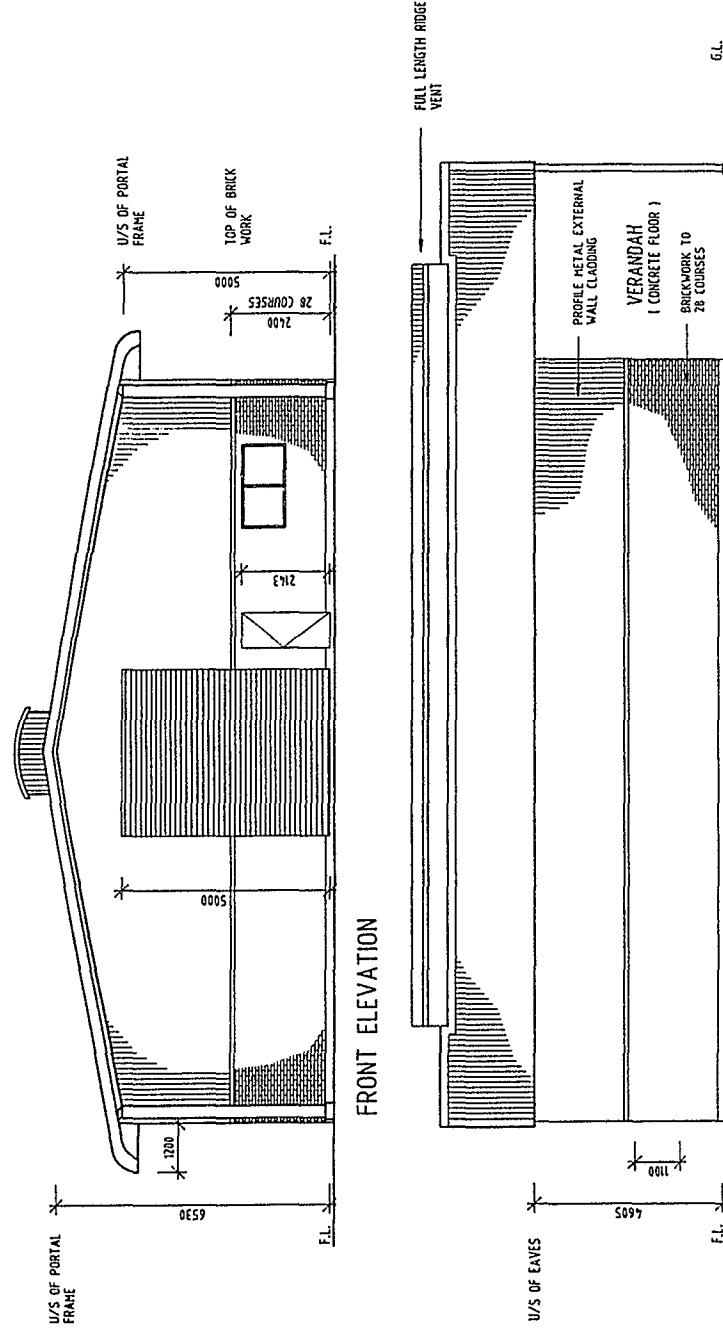


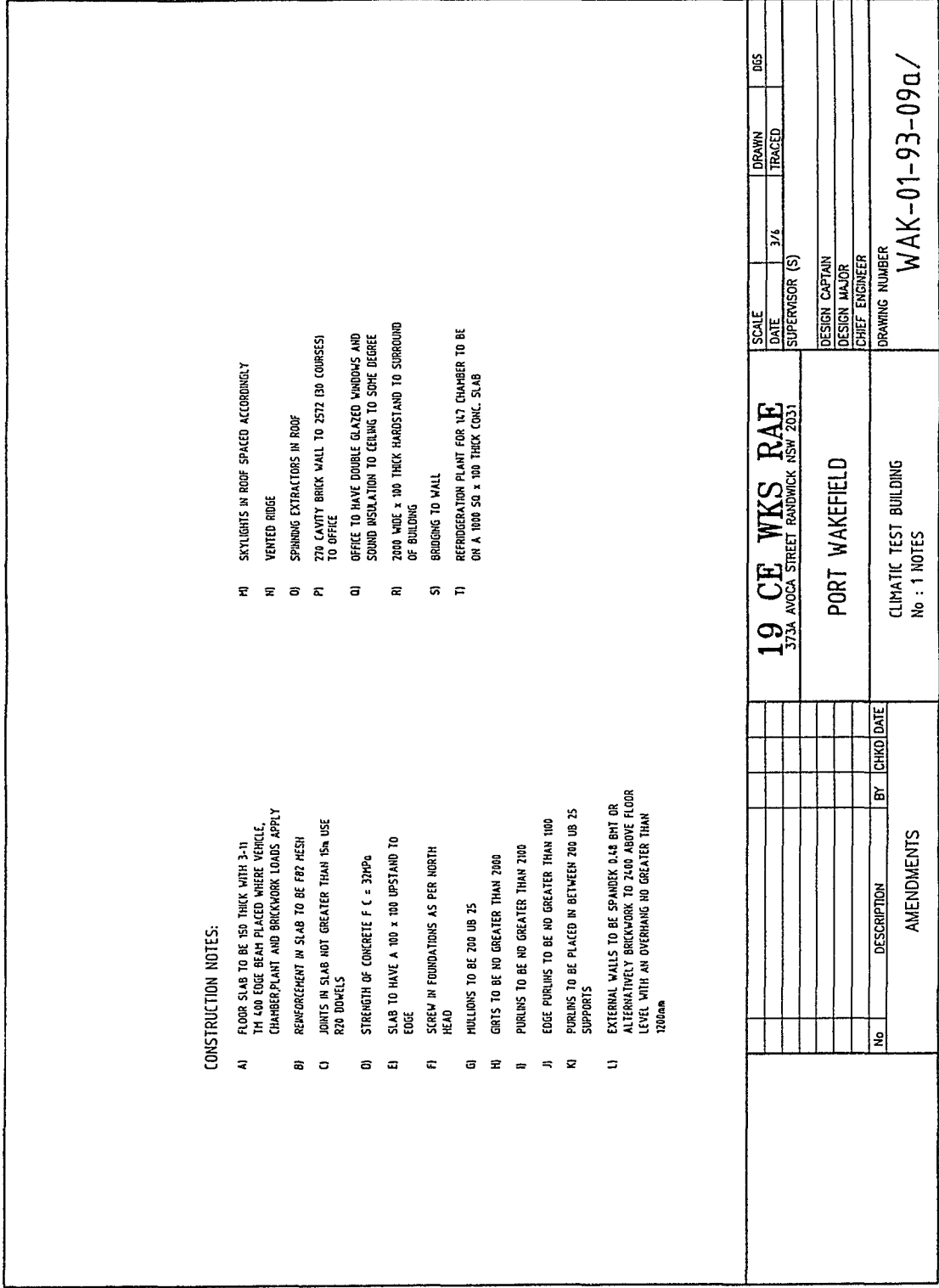
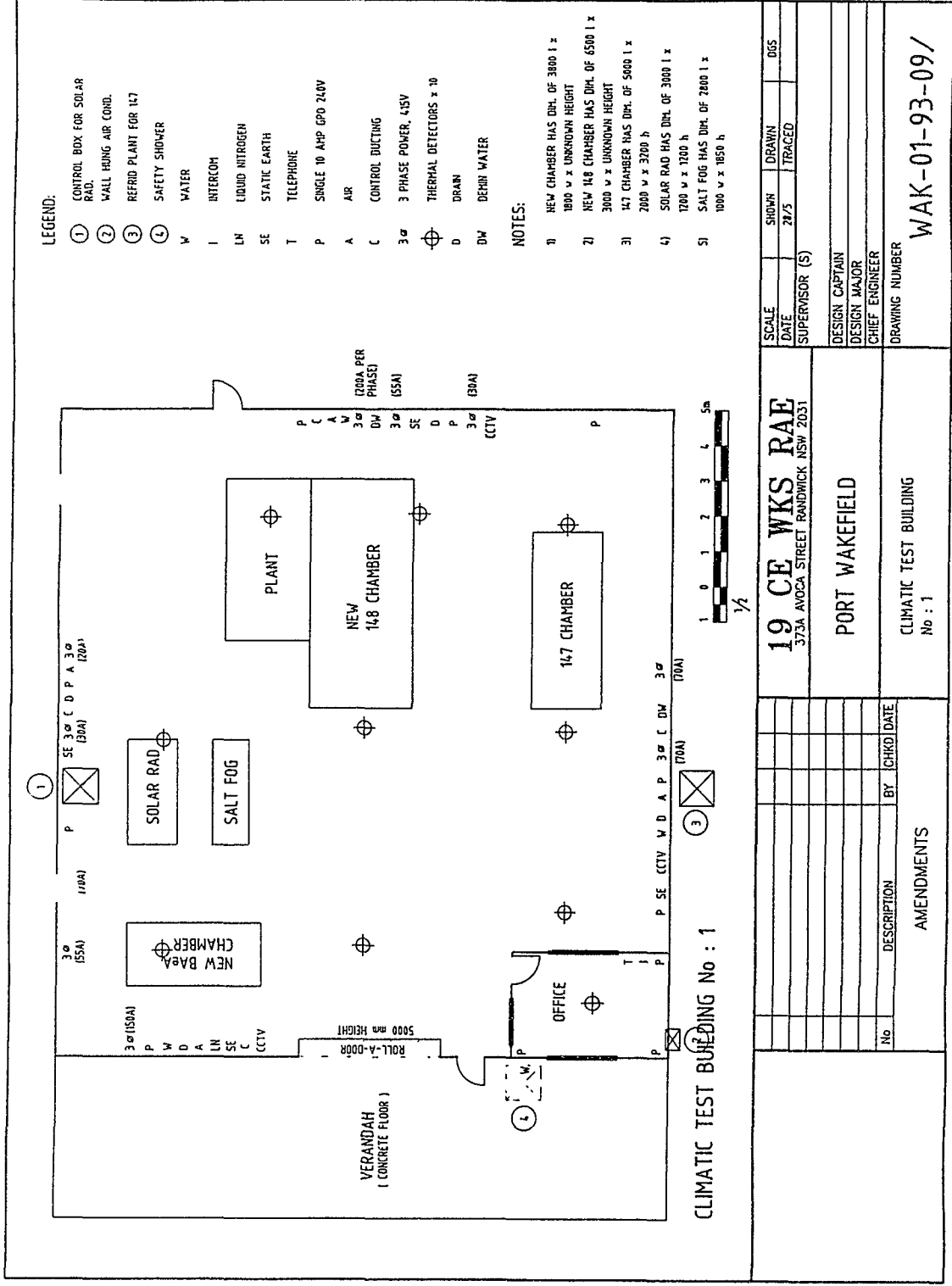
	19 CE WKS RAE 373A AVOCA STREET RANDWICK NSW 2031				SCALE	SHOWN	DRAWN	DGS
					DATE	78/5	TRACED	
	PORT WAKEFIELD				DESIGN CAPTAIN DESIGN MAJOR CHIEF ENGINEER			
					DRAWING NUMBER WAK-01-93-06/			
					AMENDMENTS			
					No	DESCRIPTION	BY	CHKD DATE

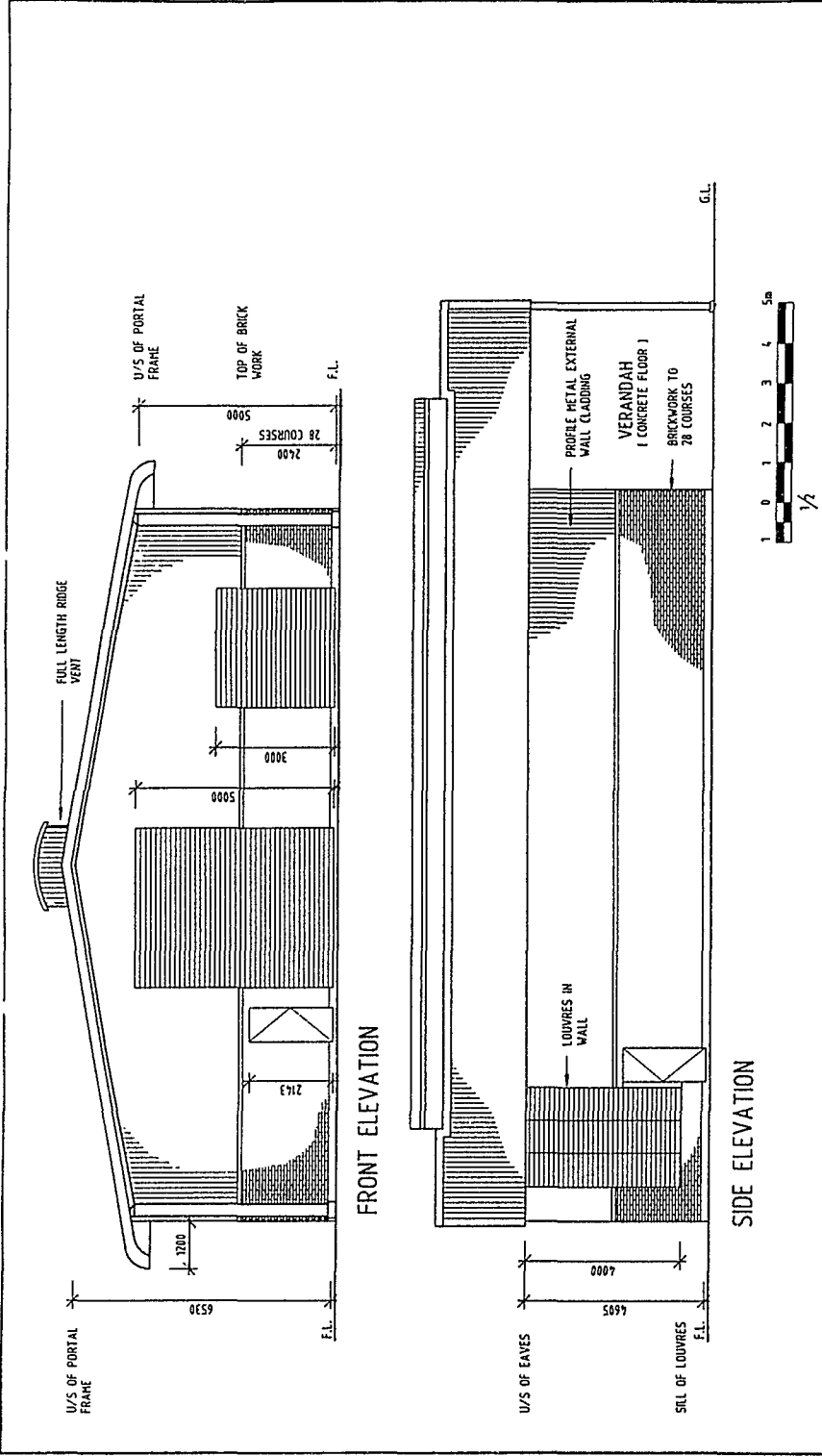
1	LEAD LINED SLIDING DOOR
2	PLANT FOR X-RAY MACHINE
3	SAFETY SHOWER
4	PROCESSING MACHINE
5	AIR CONDITIONER IN WALL
6	EXHAUST FAN IN WALL
7	HOT WATER SYSTEM
8	COPPER TOP BENCHES
9	SINK WITH HOT AND COLD WATER
10	FITTED BENCH 2500 L x 700 W x 950 MM WITH FITTED DRAWER
11	FITTED DESK UNIT 2000 L x 800 W x 740 MM WITH 2 FITTED DRAWER SETS
W	WATER
I	INTERCOM
SE	STATIC EARTH

T	TELEPHONE
P	10 AMP SINGLE PHASE 240V
A	AIR
C	CONTROL DUCTING
3 α	3 PHASE POWER 415V
\oplus	THERMAL DETECTORS
D	DRAIN
DW	DEMIN WATER
D _C	CHEMICAL DRAIN
FW	FILTERED WATER
CCTV	CLOSE CIRCUIT TELEVISION
	CLOSE CIRCUIT TELEVISION

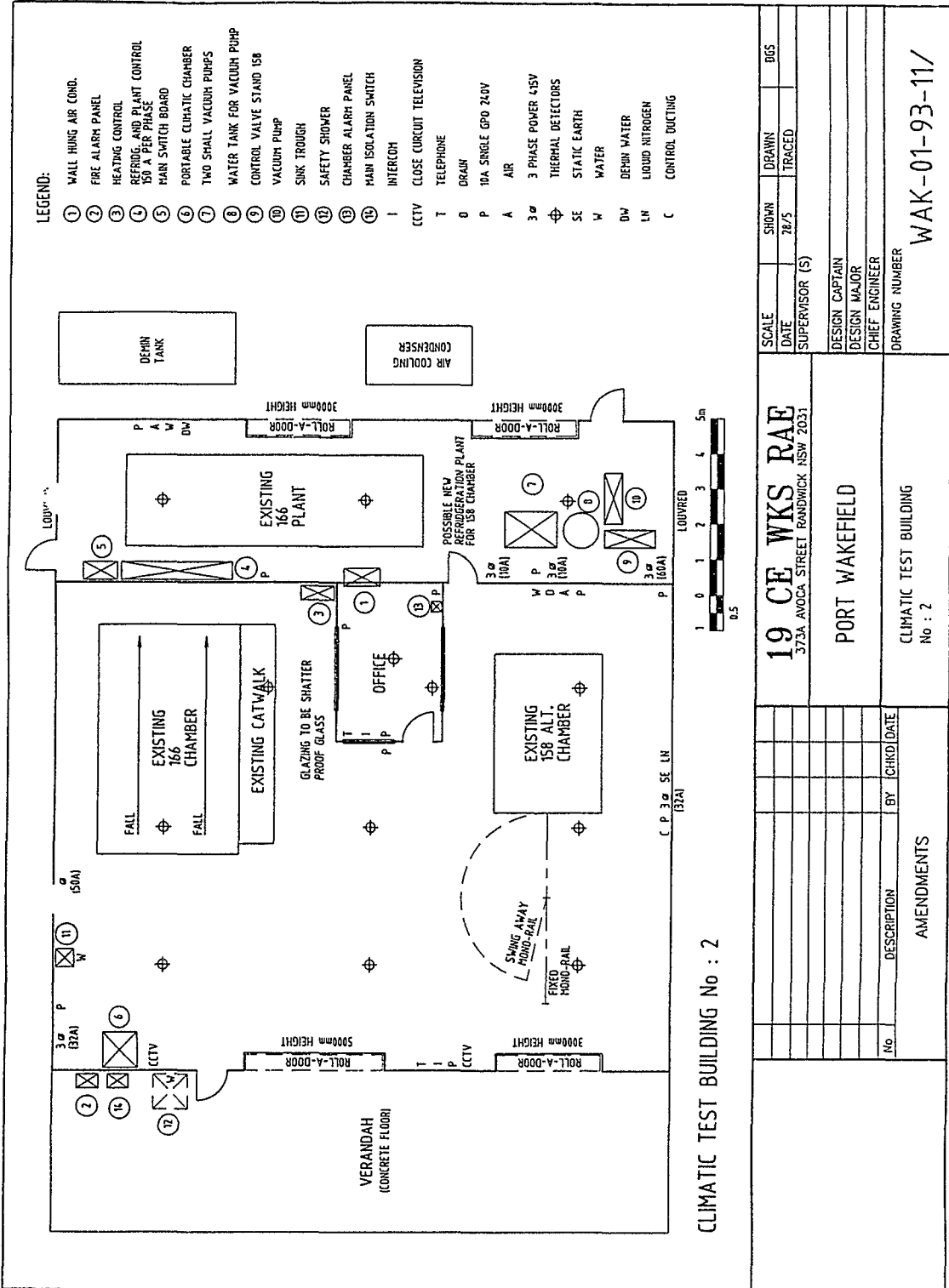
- 1) RADIOGRAPHY ROOM HAS INTERNAL DIMENSIONS OF 5000 l x 10000 w x 5500 ht.
- 2) INSPECTION ROOM HAS INTERNAL DIMENSIONS OF 6000 l x 10000 w x 3000 ht
- 3) DARKROOM AND PROCESSING ROOM HAS INTERNAL DIMENSIONS OF 3500 l x 5000 w x 3000 ht
- 4) REMOTE CONTROL ROOM HAS INTERNAL DIMENSIONS OF 3500 l x 5000 w x 3000 ht
- 5) VERANDAH HAS DIMENSIONS OF 7000 l x 5000 w
- 6) OPENING IN RADIOGRAPHY TO HAVE DIMENSIONS OF 3000 w x 3000 ht
- 7) OPENING IN INSPECTION ROOM TO HAVE DIMENSIONS OF 2500 w x 3000 ht (MUST PROOFED SEAL TO DOORS)
- 8) OPENING IN PLANT ROOM TO HAVE DIMENSIONS OF 1810 w x 2143 ht

[illegible][illegible]

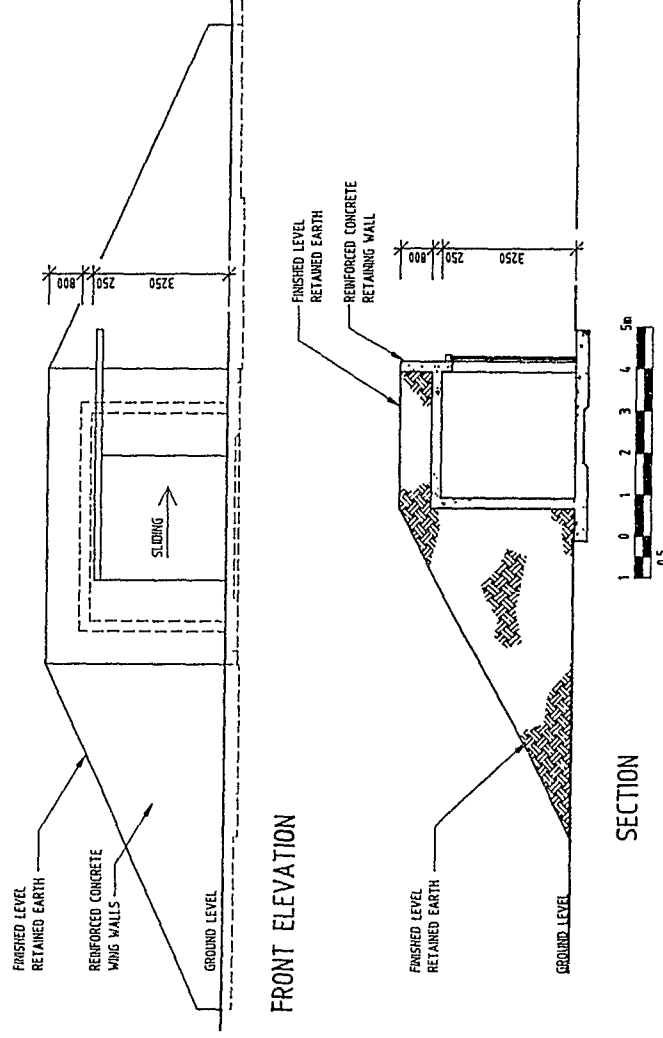
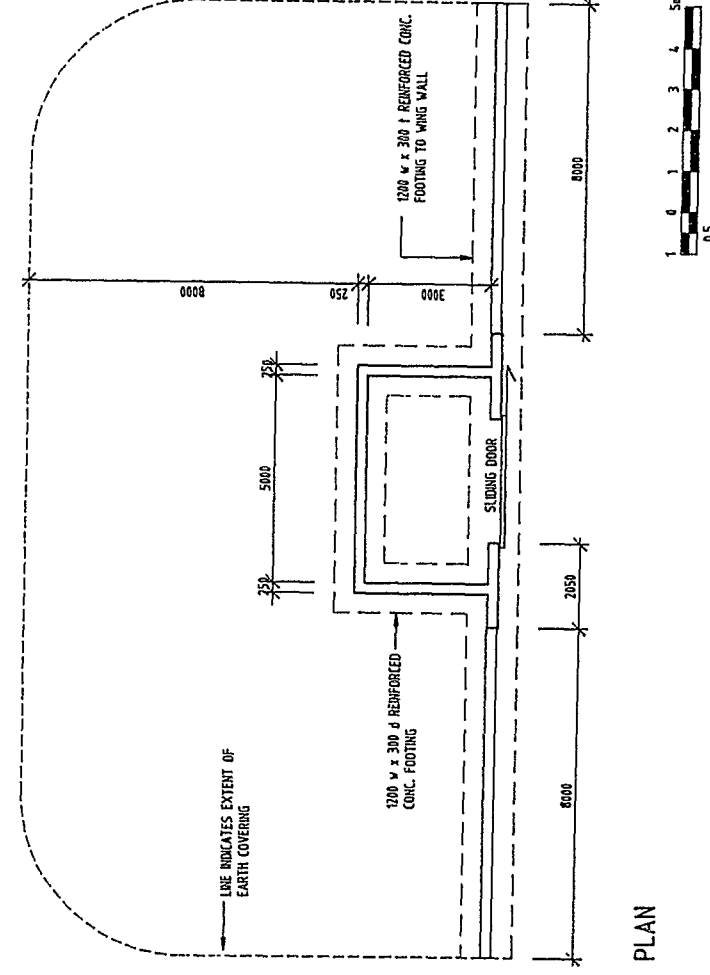




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