REDEVELOPMENT OF PROPELLANT MANUFACTURING AND OTHER SPECIFIED CAPABILITIES AT MULWALA

STATEMENT OF EVIDENCE

TO THE

PARLIAMENTARY STANDING COMMITTEE

ON PUBLIC WORKS

DEPARTMENT OF DEFENCE

CANBERRA, ACT

October 2006

Table of Contents

i. Abbreviations/Acronyms

ADF	Australian Defence Force
ADI	Australian Defence Industries
C'th	Commonwealth
DI	Direct Investment
DIPNR	the Dept of Infrastructure Planning and Natural Resources
LOVA	Low Vulnerability Ammunition
NSW	New South Wales
OH&S	Occupational Health and Safety
PBX	Polymer Bonded Explosive
PFI	Private Finance Initiative
RDX	Royal Demolition Explosive
SA	South Australia
SPV	Special Purpose Vehicle
TNT	Tri-nitro Toluene
UK	United Kingdom
VIC	Victoria
WWI	World War 1
WWII	World War 2

1. Identification of the need

1.1 Introduction

1. In July 2001, the Commonwealth announced that, for strategic purposes, Australia would retain an indigenous capability to manufacture propellants and high explosives, and therefore the Commonwealth owned and ADI operated Mulwala facility should be upgraded.

2. The Mulwala facility is the sole Australian manufacturer of propellant and high explosive for use in the Australian Defence Force munitions. The facility is owned by the Commonwealth and leased to ADI Limited under the terms of the *Mulwala Agreement*, signed between the two parties in July 1998 and as amended in November 1999. The Mulwala facility processes raw materials to produce the propellant and high explosives for various types of ammunition manufactured at ADI's munitions factory at Benalla, Victoria.

3. The key issue which has significantly influenced the planning and design of the project is the requirement to maintain explosive safety distances between buildings and boundaries and to minimize the impact on the continued production of propellant and high explosives during construction.

1.2 Project objectives

4. In 2001 when the Government agreed to retaining long term domestic production of propellant and high explosives at Mulwala and munitions at Benalla it also agreed to upgrade the Mulwala's propellant production capability.

5. The objective of the Project is to deliver a modernised propellant plant capable of manufacturing a minimum of 360 tonnes per annum of propellant under a single shift production program.

6. The project scope comprises:

- Construction of new nitrocellulose, solvent and propellant production plant;
- Construction of a confined burn facility;
- Provision of associated training, documentation and spares;
- Decontamination, demolition and disposal of plant and infrastructure necessary to construct the works;
- Upgrading of associated engineering services infrastructure including, utilities and communications systems;
- The works are to be executed while minimising interference with the continued production of propellants at Mulwala until the new plant is commissioned.

1.3 Historical background

7. Historically the market for propellants and explosives has been governed by Australia's military tempo. After WWI, general winding down of military expenditure by the major powers reduced Australia's propellant and explosive producing capability. By 1928 the only production capability that remained was the Maribynong Cordite Factory and Explosive Factory. With the outbreak of WWII and a realised need for greater propellant production capacity more factories were commissioned at Albion and Ballarat (VIC), Villawood (NSW) and Salisbury (SA).

8. On September 16, 1941 the UK Ordnance Board determined that more emphasis was needed on the manufacture of American smokeless powder (nitrocellulose powder) rather than traditional cordite and recommended that any new factories built should be dedicated to its production. An Australian study mission was dispatched to the US and in May 1942 approval was given to proceed with the construction of a propellant plant at Mulwala, NSW. Construction started in late 1942 and production started at the factory on 1 December 1943.

9. The site for the Mulwala facility was a greenfield site near the township of Mulwala on the Murray River (100 kms west of Albury). The Mulwala site was selected for its ample supply of fresh water, close proximity to the Sydney and Melbourne rail links (and their different gauges) and the availability of a labour force from both Mulwala and Yarrawonga. The site was also considered safe from possible air and naval attack. The production equipment and bulk steel was almost completely US in origin.

10. Most of the initial 1942-era equipment and works remain and are used for day to day production. With the 1986 – 1991 closures of the other explosives and ordnance factories, production capabilities for double and triple base propellants (inclusion of nitroglycerine and nitroguanadine), high explosives and rocket motors were transferred to Mulwala. The manufactured propellant and explosive is either transported to the ADI owned and operated ammunition factory at Benalla or sold commercially.

11. Production at the Mulwala facility is assisted through the division of the site into specialist production precincts. Each precinct houses a component of the total production sequence and contains the required in-use and surge capacity plant and equipment.

1.4 Need for the work

12. The Mulwala facility buildings, plant and machinery involved in propellant manufacture have been operating with minimum technology improvements or process upgrades since 1942-43. Despite the addition of production capabilities to produce high explosive and rocket motors, from 1986 - 1991, the propellant plant has remained largely unaltered.

13. In 1999 Defence commissioned a risk, safety and environmental assessment of operations at Mulwala. This assessment, conducted by the U.S Naval Surface Warfare Centre, Indian Head Division, found:

"The overall impression was that the Mulwala facility was a safe manufacturing plant being operated by well-trained employees at all levels of both operations and management. There is no pervasive safety or environmental problem that would suggest that the Mulwala facility be closed down. However, there are environmental and safety problems that will require outlays of resources to correct."

14. Audits of the groundwater conditions at the facility since 1987 identified sulphate and nitrate contamination plumes that have originated from past operations on the southern section of the site extending under a number of residential properties. Defence has engaged a number of consultants, most recently HLA Envirosciences, and allocated an indicative budget of $63 million to address the groundwater contamination issues. The NSW and Victorian Environment Protection Authorities and local stakeholders have been engaged through a number of public meetings to advise on the progress of investigations and the publication of reports and information sheets on a website (http://www.defence.gov.au/id/mulwala/default.htm). This remediation does not form part of the scope of work for the redevelopment project and will continue to be managed, and financed, separately by Defence. However, the two tasks will be managed concurrently to ensure any synergies and/or cost savings that might be available through coordination of design and management of work are maximized.

15. Although the old plant is still operating safely, the ageing plant and buildings are placing increasing demands on the Department of Defence budget for repairs and maintenance expenditure as the assets approach, or exceed, their useful working life. In general, the Commonwealth's propellant manufacturing assets at Mulwala are obsolete. Additionally, more stringent environmental and work safety legislation will require improvements at the site, many of which can only be resolved with significant new investment.

16. The facility must be modernised and redeveloped to enable production operations to meet safety and environmental requirements, or the facility must be decommissioned. Decommissioning the facility would leave the Australian Defence Force without the indigenous capability to produce military grade propellant, required for the production of munitions. A reliance on an overseas import of propellant would

expose Defence to unacceptable risks to supply, transport and integrity in the qualification of the product for Australian Defence Force use.

17. The project contributes to Navy, Army and Air Force Capabilities.

1.5 Description of the proposal

18. The proposed redevelopment of the Mulwala facility will provide new Propellants, Nitrocellulose and Solvents Plants with a minimum production capacity of 360 tonnes per annum of single base propellant under a single shift production program. Ancillary services and buildings essential to support the new processes in conjunction with the new manufacturing plant will also be constructed. Some refurbishment of existing structures and infrastructure is also required. To meet environmental requirements, a Confined Burn facility will be constructed to destroy energetic waste.

19. Ancillary engineering services works will include;

- upgrading of other existing infrastructure including roads and utility services affected by the redevelopment;
- landscaping of site works and buffer zones between storage areas;
- upgrading and integrating security, fire and evacuation infrastructure; and
- integrating new data inputs into existing information management systems.

1.6 Options considered

20. The Strategic Review of the Mulwala Facility conducted in 1999 considered five options for providing Defence with an indigenous munitions manufacturing capability:

1. Refurbishment of existing plant, machinery and buildings at Mulwala;
2. Closure of the Mulwala facility and the transfer of all capability to the Benalla ammunition factory;

3. Partial closure of the Mulwala facility and the transfer of capability for the manufacture of nitrocellulose, propellant and solvent to the Benalla facility;
4. Total replacement of the nitrocellulose, solvent and propellant processes at Mulwala and implementation of improvements in the other areas that were identified in earlier studies; or
5. Replacement of the essential areas of the nitrocellulose, solvent and propellant processes at Mulwala and implementation of improvements to the more recently acquired production areas.

1.7 Reasons for adopting the proposed course of action

21. Option 4 was considered by the Strategic Review as the preferred option for retaining an indigenous munitions product capability. This option provided the most effective use of capital, reduction of the Commonwealth's risk and consideration of whole of life costing. This option was approved by Government.

1.8 Project delivery system

22. Two delivery systems were considered for the project, a Private Finance/Public Private Partnership (PPP) approach and the traditional Government funded direct investment approach. After consideration and evaluation of the two approaches the Government made a value for money decision in early 2006 to pursue the project as a Government funded direct investment with a reduced scope of work.

23. During the project development phase NSW Government and Commonwealth Government planning approval was received for the proposed PPP redevelopment option. Whilst the scope of work has been partly reduced from that considered under these approval processes, the overall environmental risk profile and likely impacts remain essentially the same. Accordingly this earlier work remains current and relevant to the evolved direct investment form of the Mulwala project.

1.9 Current and future works outside the scope of this project.

24. There are currently no firm proposals for further future works projects at Mulwala. However, further works will be required at the Mulwala site for it to operate effectively over the next twenty to thirty years. Further works will have to compete for funding in future years programs and may include additional site remediation (above and below ground), upgrade of other elements of the site, inclusion of additional capabilities (such as the ability to manufacture insensitive explosives) and propellants and heritage management.

25. In addition to these future works, there is yearly expenditure on ongoing maintenance and capital improvement.

1.10 Project Cost

26. The estimated outturn cost of this project is $338.7 million excluding GST. The cost estimate includes facility construction costs as well as the cost of installation and commissioning of propellant, nitrocellulose and solvent production plant and equipment.

1.11 Environmental Impact Assessments

27. URS Pty Ltd conducted an Environmental Impact Assessment. Under the *Environment Protection and Biodiversity Act 1999 (C'th)* and in accordance with Environment Australia guidelines, the draft Environmental Impact Statement was published in June 2002 and put on public display for a minimum of 30 days to allow submissions from stakeholders and the community. This feedback was then used to finalise the final Environmental Impact Statement (EIS) for consideration by State and Commonwealth regulators.

28. The current scope of the Mulwala Redevelopment Project is less extensive than the proposal considered in the 2002 EIS and is therefore considered to have less impact on the environment. The key changes included a reduction in manufacturing

capacity, exclusion of the capability to produce insensitive explosive and LOVA propellants and a number of support facilities will not be refurbished or replaced.

29. The 2002 Environmental Impact Assessment process considered the following environmental, heritage, social and cultural issues:

- Hazards and Risk;
- Meteorology and Air Quality;
- Noise;
- Traffic and Transportation;
- Hydrology and Water Quality;
- Landscape and Visual;
- Terrestrial Ecology;
- Landform, Geology and Soils;
- Social and Community;
- Economic;
- Land Use;
- Archaeology and Heritage; and
- Waste and its Management;

30. State environmental regulatory and planning approvals were sought and received from the NSW Minister for Infrastructure, Planning and Natural Resources under the *Environment Planning and Assessment Act 1979 (NSW)* on 24 November 2003, to ensure the PPP option could proceed if selected by Government.

31. The Minister for Environment and Heritage under *the Environment Protection and Biodiversity Conservation Act 1999 (C'th)* on 16 February 2004 also approved the proposal, imposing a number of conditions to reflect the potential PPP approach. The following conditions were imposed:

a. action is required in accordance with the conditions contained in the NSW Planning Approval;

b. prior to finalising design documentation, a construction and demolition plan addressing heritage, noise, vegetation, safety and stakeholder consultation must be submitted;

c. a plan for managing the impacts of any new or upgraded operations on the environment must be submitted;

d. a decommissioning plan must be submitted to the Minister one year prior to the decommissioning of any upgraded component facilities;

e. a report of compliance with these conditions must be submitted to the Minister at 12 monthly intervals after the commencement of construction;

f. a revised environmental impact plan (See c. above) may be submitted to the Minister at any stage, but that plan would be binding; and

g. At the Minister's discretion, the plan may be revised if deemed to be in the best interests of the environment.

32. The evolved Mulwala Redevelopment Project will now be delivered through direct investment by the Commonwealth Government. Under a direct Commonwealth investment model, Local and State Government environmental and planning approvals that had formerly been obtained may not strictly apply to the evolved proposal. Defence environmental management staff will reconsider the environmental risks and impacts associated with the evolved proposal to determine whether they remain essentially unchanged. Regardless of whether or not there is any legal obligation to do so, Defence intends to engage with State and Commonwealth environmental regulatory agencies in a further round of consultation and will undertake to meet the spirit and intent of previously agreed Local and State regulatory obligations where these remain relevant.

33. The construction contractor will be required to develop an Environmental Management Plan (EMP) for the project. Once an agreed EMP is in place Defence environmental management staff will issue an Environmental Clearance Certificate, requiring the proponent to meet all the conditions relating to the construction of the facility. This will be in place before commencement of construction. The contractor's compliance with procedures contained in the EMP will be regularly

monitored by Defence's Project Manager and periodically audited by Defence environmental managers.

1.12 Heritage considerations

34. In 2003, Environmental Resource Management Australia Pty Ltd was engaged by Defence to undertake a Heritage Assessment of the Mulwala Facility and to develop a Heritage management plan for the site.

35. The Heritage Assessment assessed the Mulwala facility as being of national significance for its role in the production of propellant during WWII, and for the integrity of the original buildings, machines and layouts that survive from that period. The facility is unique in Australia as an example of American defence production technology imported during WWII. It is among the earliest examples of Australia moving its defence reliance onto US rather than British sources. Because the factory has remained operational since its construction in 1943 many of these buildings and original machines remain in use. Within the boundaries of the facility site is the Mulwala Homestead and Woolshed complex, also of heritage significance due to its history in the pioneering of the area.

36. Defence is developing a Heritage Conservation Plan that will assist Defence to manage heritage considerations during the transition from current operation of the existing facility through construction and commissioning of the redevelopment. This plan will ensure the heritage of buildings that might be demolished over the life of the facility are not lost through processes including visual archival, maintaining original facades or maintaining original building footprints.

1.13 Stakeholder consultation

37. Community and stakeholder consultation has primarily occurred through the implementation of the 2002 Environmental Impact Assessment process. Consultation with the appropriate stakeholders will be continued throughout the design, delivery and operation phases of the project. Community involvement will be particularly

important in maintaining the heritage and history through the archival of parts of the plant that are due to be demolished.

38. Community consultation was initiated with a community forum held at the Mulwala Community Hall on the 6th of December 2001. This forum explained the start of the Environment Impact Assessment and allowed members of the community to discuss their views and issues. A follow up forum was held at the same venue on the 7th of May 2002, once the impact assessment studies were well under way. ADI employees at the Mulwala facility were also briefed on the redevelopment plans and processes on these same dates.

39. The community and employees were encouraged to stay involved in the process throughout the assessment studies. Project newsletters were distributed to 400 households adjacent to the facility and a toll free information line, website and email address was dedicated to the project.

40. The community has been advised and kept informed of the Defence current operations to remediate the groundwater plumes. ADI and Defence (but in particular ADI) have continued to provide updates on the progress of the redevelopment to its staff and the wider community through its regular news bulletins, and seek appropriate amendments to planning approvals where required.

41. The following stakeholders have been engaged during the project development phase:

- NSW Environment Protection Authority;
- NSW Roads and Traffic Authority;
- NSW Department of Land and Water Consultation;
- NSW National Parks and Wildlife Service;
- Environment Australia;
- Corowa Shire Council;
- Moira Shire Council;
- Benalla Shire Council;

- Mansfield Shire Council;
- NSW Fire Brigades;
- Albury Aboriginal Land council;
- Yota Yota Local Aboriginal Land Council;
- Department of the Environment and Heritage;
- Mulwala and Yarrawonga community;
- ADI facility employees; and
- Local, state and federal members of government.

1.14 Revenue

42. The existing arrangement between Defence and ADI regarding the provision of propellant is contained within the *Mulwala Agreement of 1998*. This Agreement covers the terms and conditions of propellant production and the supply to the Benalla munitions factory, and the capability payment made to ADI by the Commonwealth for its manufacture. Payment for product is not made to ADI until the completed munition is produced in Benalla.

43. Under the *Mulwala Agreement 1998;*

> *"ADI receives the benefit of that part of the Mulwala Facility funded by the Commonwealth, for the purpose of Commercial Work for a share of the profit earned on that work"*

44. This agreement promotes commercial sales of propellant to third parties with the Commonwealth share being used to offset the capability payment to ADI.

2. Technical Information

2.1 Project Location

45. The Mulwala facility is situated at the western edge of the township of Mulwala in New South Wales. Mulwala lies on the Murray River, 215km north-east of Melbourne and 100kms west of Albury. The neighbouring township of

Yarrawonga lies adjacent on the Victorian side of the Murray River. The main entrance is off Lucan Street, with other vehicular access points directly off Bayly Street. (See Drawing A1).

2.2 Site Description

46. The current Mulwala facility site covers some 1029 hectares at the location above. The facility was originally developed from a greenfield site in 1942 and today comprises approximately 300 buildings in degrees of use varying from functional to redundant. The site is sectioned into four production areas that are supported by the process precincts (para. 9). These production areas are easily recognisable on the site:

- Acid/nitrocellulose/nitroglycerine;
- Propellant;
- High explosive; and
- Cast composite propellant.

47. Though the site is vast, the bulk of buildings and facility processes are concentrated in the southeast corner occupying approximately 25 hectares. It is in this area that the current propellant, nitrocellulose and solvents process precincts outlined previously are located. These precincts are laid out geometrically in line with the production sequence of propellant manufacture. Within each precinct, sequential buildings within each process are located in line along roadway or light rail line. In some areas redundant or back up buildings have been constructed in parallel with each other. The buildings used in each of the precincts are representative of the construction methods and materials used at the time of their construction, ranging from brick and asbestos cement sheet to concrete and Colorbond steel.

48. The remainder of the site is vast, moderately vegetated and the buildings, mostly magazines, are well spaced out to comply with blast radius restrictions. Around these magazines, well-grassed blast mounds rise to heights of up to three metres. In the northeast corner of the site lies the historic Mulwala Homestead, dating back to the region's pioneering days.

49. Within this site, the new works will be constructed in a relatively clear area, sited to keep the construction works outside the blast radius restrictions of the operating plant. The proposed site layout is at Attachments 2 and 3

2.3 Project Scope

50. The proposed works include the construction of 28 new buildings, refurbishment/modification of ten existing buildings, relocation of an existing function and demolition of one building.

51. The detailed scope of the redevelopment project is outlined below.

i. Propellant Manufacturing

52. The existing facilities for nitrocellulose, solvent and propellant manufacturing are unsatisfactory for upgrade due to their scale, obsolescence, environmental and Occupational Health and Safety problems. These facilities are being replaced to provide a capability to produce at least 360 tonnes of propellant per annum on a single shift basis.

53. Other features of the new propellant manufacturing plant include:

- the decontamination, recycling and disposal of all production residues without release of hazardous substances;
- the use of cost effective recycling (versus procurement) of products as process inputs;
- the use of closed circuit television in high-risk areas to be monitored in main control room; and
- the reduction of physical personnel involvement in high risk production and handling activities.

54. The buildings housing the nitrocellulose and solvent manufacturing equipment will generally be steel framed structures built on concrete slab floors with insulated clad external walls and roof. The concrete slab floors will have acid resistant or conductive epoxy linings applied, depending on the function of the building and bunding sufficient to contain any accidental spillage.

55. Buildings associated with propellant manufacture will generally be built on concrete slab floors with conductive epoxy floors, self-supporting 175mm precast concrete panel walls, insulated clad roofing and perimeter bunding.

ii. Supporting Facilities

56. Other support facilities provided in the redevelopment include:

- The Operations Support Facility accommodates management, technical and clerical support/systems for the Modernised Mulwala Facility. The Operations Support Facility (accommodation for personnel, equipment, systems and facilities) is required to:
  a. Manage and operate the new propellant plant.
  b. Provide a common support facility to manage the operation of the existing acid, nitroglycerine and cast composite plants.

  A preliminary plan of the proposed facility is at Attachment 4.
- Production Process Support Facility (PPSF) – a small scale facility to trial the manufacture of propellant without impacting on the operation of the main production facility. The existing PPSF will be modified to be representative of the new process;
- Performance and Safety Testing Centre (PSTC) – for the production and compliance proofing of the propellant plus development testing of new products. The PSTC shall permit the safe, complete and repeatable conduct of tests to ensure production compliance at the Mulwala facility. A preliminary plan of the proposed facility is at Attachment 5;
- Disposal Facilities for explosive contaminated waste – a confined burn facility for the minimisation and responsible disposal of waste produced

during operations. It shall replace the current practice of burning waste explosives and discharging emissions to the atmosphere. It will produce a waste that is both safe and economical to dispose;

- Propellant storage - magazines for both in-process and finished product storage. The storage facilities will provide a buffer for in process capacity and a supply buffer for propellant usage in ammunition production at ADI's Benalla facility;
- Raw material storage – the existing building to store cellulose rolls will be refurbished to incorporate environmental control, fire protection and asbestos removal; and
- Decontamination facilities – to allow the decontamination of explosive residue on manufacturing equipment and tooling enabling safe maintenance.

iii. Engineering services

57. Engineering services to be provided or upgraded includes:

- Potable water reticulation;
- Fire water;
- Electricity;
- Steam;
- Effluent water
- Gas; and
- Compressed air.

iv. Control and Information Systems

58. An Office Information system including an Ethernet Local Area Network will be installed throughout the entire facility redevelopment. This will allow communication connection between the existing office and administration precinct and each of the plant rooms, in keeping with a modern technology facility and allow effective monitoring of production processes from main support facility.

v. Communications

59. Both audio and visual communications systems are to be integrated through the redevelopment project. General communications will be provided through the facility by providing a new voice telephone/fax system and a public address system. Closed Circuit Television will be used for both security monitoring and production process safety and operations monitoring.

vi. Engineering services infrastructure

60. The Mulwala redevelopment project will require both upgrading of existing, and provision of new engineering services infrastructure. Temporary construction roads and access pathways will also be required. The main infrastructure to be provided with this large scale redevelopment includes:

- On-site roads, pavements and access paths;
- Landscaping;
- Storm water management;
- Sewerage and Effluent transportation for both standard and trade wastes to existing treatment plants;
- Fire detection and suppression systems;
- Access control including modifications to the guardhouse and security fencing; and
- Site wide optic fibre network.

vii. Decontamination and Demolition

61. One building and its magazine will require demolition to allow construction of the new facility. The building is not believed to be heavily contaminated. Before demolition by the contractor, the building will be checked for explosive residue and decontaminated as necessary. The contractor will then demolish the building, including taking appropriate precautions and disposal of asbestos and lead products in the building.

2.4 Planning and Design Concepts

i. Project Planning

62. The Mulwala facility redevelopment project strategy places a priority on a value for money outcome in achieving:

- compliant occupational health and safety for the operators of the facility;
- minimising human exposure to hazardous operations;
- optimum life cycle costing;
- reliability;
- flexibility of operation;
- heritage and environmental compliance;
- technically sound solution; and
- redevelopment of the site in the shortest time practicable.

ii. Ecologically Sustainable Development

63. The Mulwala facility redevelopment will be designed in accordance with the following Ecologically Sustainable Development principles:

- efficient and effective use of natural resources in a way that maintains the ecological processes on which life depends;

- increased energy conservation and efficiency;
- sustainable use of renewable energy resources;
- reduction or elimination of toxic and harmful substances in facilities and their surrounding environments;
- improvements to interior and exterior environments leading to increased productivity and better health;
- efficiency in resource and materials utilisation, especially water resources;
- selection of materials and products based on their life-cycle environmental impacts;
- recycling of construction waste and building materials after demolition;
- reduction in harmful waste products produced during construction; and
- maintaining the cultural, economic, physical and social wellbeing of people and communities.

iii. Landscaping

64. Cost-effective landscaping will be provided across the redevelopment project. This landscaping will be in fitting with the existing vegetation and will provide:

- assistance to site drainage;
- screening and shading to buildings for visual improvement and to reduce energy usage; and
- a barrier to erosion;

65. All unpaved cut and fill areas disturbed during construction will be top-soiled and landscaped to eliminate erosion.

2.5 Heritage issues

66. Archival photographic and plan records will be taken of the building to be demolished and those scheduled for refurbishment. In addition, archival films recording the processes, plant and people (the human story) will be made.

67. Defence is examining options to undertake the demolition and decontamination of existing buildings not required following the redevelopment. Environment, Heritage and on-going operational consideration will be taken into account in determining which buildings might be demolished and when to ensure the safe disposal of such buildings without the loss of knowledge and historical significance. Given the previous use of such buildings, and based on United States Government experience in decommissioning its older ammunition plants, it is unlikely many of the production buildings can be preserved. Extensive precautions will be taken to ensure they are free from explosive and hazardous material prior to demolition activities commencing. The demolition and decontamination of these other redundant buildings are not within the scope of this project.

2.6 Fire protection and security

68. The Mulwala facility fire protection strategy integrates:

- fire detection; and
- fire suppression.

69. The fire detection and alarm system will be an independent addressable detection system, on an inter-connected fire panel circuit. This will include smoke and thermal detectors, manual call points, 'plain English' address, manual and automatic response and flame detectors.

70. The suppression system will be a fixed pipe system with automatic or manual operation. The suppressant will either be wet pipe deluge or gaseous suppression systems, depending on the class and usage of the building. (eg. personnel, electrical, chemical).

71. All construction and fire protection requirements will, as a minimum, be in accordance with the provisions of the Building Code of Australia (BCA), the Defence Manual of Fire Protection Engineering (MFPE) and all other applicable Codes and Standards. The levels of fire protection specified are above BCA requirements and

have been determined by a risk assessment and risk management approach to fire protection.

72. Defence will require certification from a suitably qualified and accredited building surveyor, that the design and construction meet the requirements of the BCA, the MFPE, relevant Codes and Standards and any additional State, Local Government and Defence requirements.

73. The NSW Fire Brigade will be invited to comment on the project, visit the site and offer comment throughout the construction phase to ensure that the Brigade's operational requirements are met.

74. A high security fence, to prevent the unauthorised entry of persons to site surrounds the Mulwala facility. Access is via the guardhouse, which is manned on a 24/7 basis. Security personnel undertake regular perimeter and building security checks. The redevelopment area will be fenced to provide segregation between the construction and operational activities. Electronic surveillance will be provided on all new magazines, production buildings, and the Performance and Safety Testing Centre.

75. Buffer zones are implemented at fixed radius between all magazines and propellant stores to protect against unintended detonation of ordnance or materials. A buffer zone of embankments and vegetation is also in place between the facility and the township of Mulwala.

2.7 Occupational Health and Safety Measures

76. ADI and their predecessors have been subject to the Commonwealth Explosive Act 1961 and the Commonwealth Explosives Transport Regulations 2002 and NSW state legislation. In the early 1990's the Commonwealth also introduced the Australian Department of Defence – Safety Principles for the Handling of Explosive Ordnance (OPSMAN 3).

77. The redevelopment of the facility will be undertaken subject to this legislation as well as other Commonwealth and NSW Occupational Health and Safety legislation. Elements of Explosives and non-explosives safety that have been addressed in the tendered designs include:

- manual handling in accordance with OH&S requirements;
- buildings and equipment to be easy to clean, access and maintain with particular attention paid to avoiding the build up of flammable propellant dust;
- minimising personnel contact with chemicals and propellant product;
- plant and equipment subject to an ergonomic design philosophy for both operational and maintenance usage; and
- fast reaction fire detection and suppression systems where an explosive safety assessment deems necessary.

78. These design principles and initiatives are the result of extensive risk identification and analysis by the Commonwealth, ADI and the tenderer.

2.8 Consultation with relevant authorities

79. Consultation with the relevant statutory authorities has been conducted primarily at two stages during the project development phase:

- through the statutory planning phase; and
- Environmental Impact Assessment.

80. At a Commonwealth statutory level the Mulwala redevelopment project is subject to the Environment Protection and Biodiversity Act 1999.

81. While the application of State planning laws to Commonwealth proposals on Commonwealth land is a complex jurisdictional matter the following state legislation is likely to be relevant and will need to be considered:

- Environmental Planning and Assessment Act 1979;

- Protection of the Environment Operations Act 1997;
- National Parks and Wildlife Act 1974; and
- Roads Act 1993.

82. At a minimum Defence will use its best endeavours to meet the spirit and intent of the legislation in accordance with Defence's long standing commitments under its good neighbour policy.

83. Local and state government have been consulted. While the Corowa Shire Council is the local and regional planning authority, the project was deemed too large for Shire approval and passed up to the Dept of Infrastructure Planning and Natural Resources (DIPNR) for approval at the State level. At a local level the site of the redevelopment is zoned as; 5 (a) – Special Uses Zone (Munitions Factory). The proposed redevelopment works (in its original form) have been approved by DIPNR.

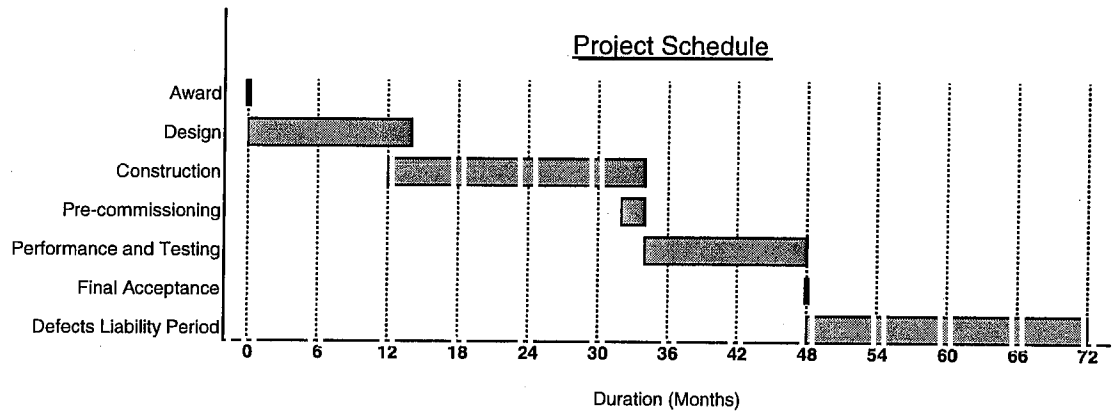
84. During implementation of the Environmental Impact Assessment, the following statutory authorities were consulted:

- Corowa Shire Council;
- NSW Department of Land & Water Conservation;
- NSW Department of State and Regional Development;
- Corowa State Emergency Service;
- Murray Darling Basin Commission;
- NSW National Parks and Wildlife Service; and
- NSW Fire Brigades.

2.9 Project schedule

85. Subject to Parliamentary approval, it is anticipated that Defence will be in a position to award the contract for the redevelopment by mid 2007. Following contract signature it is anticipated the project schedule will be as shown below, with a total design and construction period of almost 3 years. This indicates the new facility will be practically completed by mid 2010. A test process will then be undertaken on

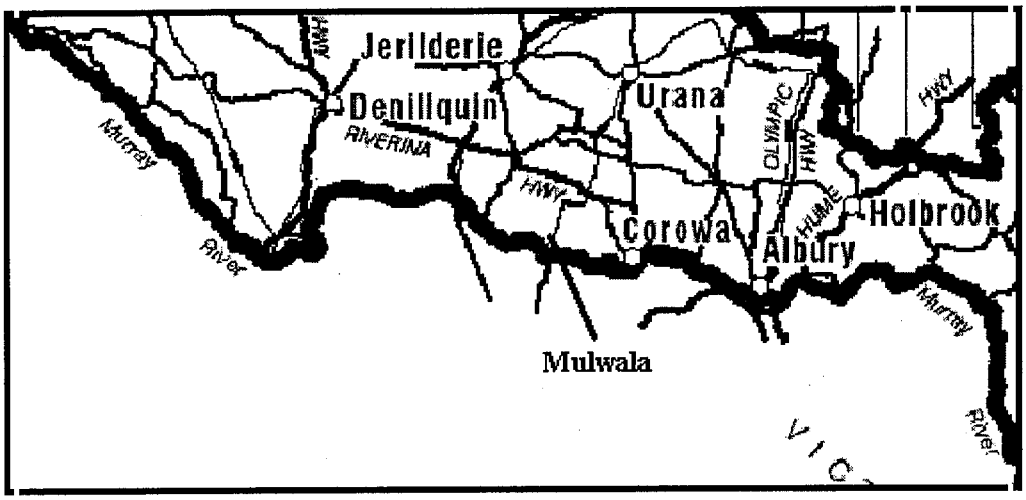
ADF munitions filled with product from the new facility to ensure that certain safety and ballistic characteristics of the propellant are satisfied. This will entail testing at Commonwealth owned test ranges. It is expected this process will be complete around mid 2011 culminating in Final Acceptance of the facility. Further testing by the Commonwealth will be conducted to ensure the propellant, when used in ADF munitions will be safe and suitable for use in the each of the applicable ADF weapons. The transition from old to new plant will need to be carefully planned to minimise the cost of running the old facility but also to minimise the risk of impairing munitions supply to the ADF until product from the new plant is cleared for use in ADF munitions.

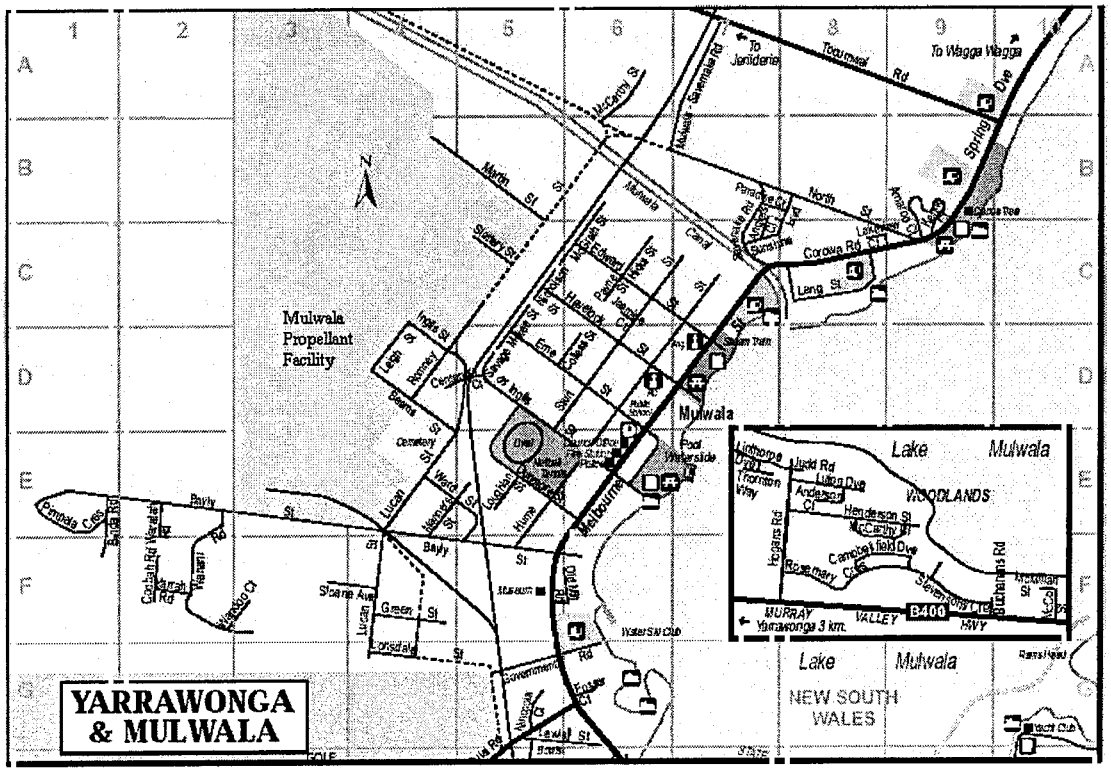


2.10 Attachments

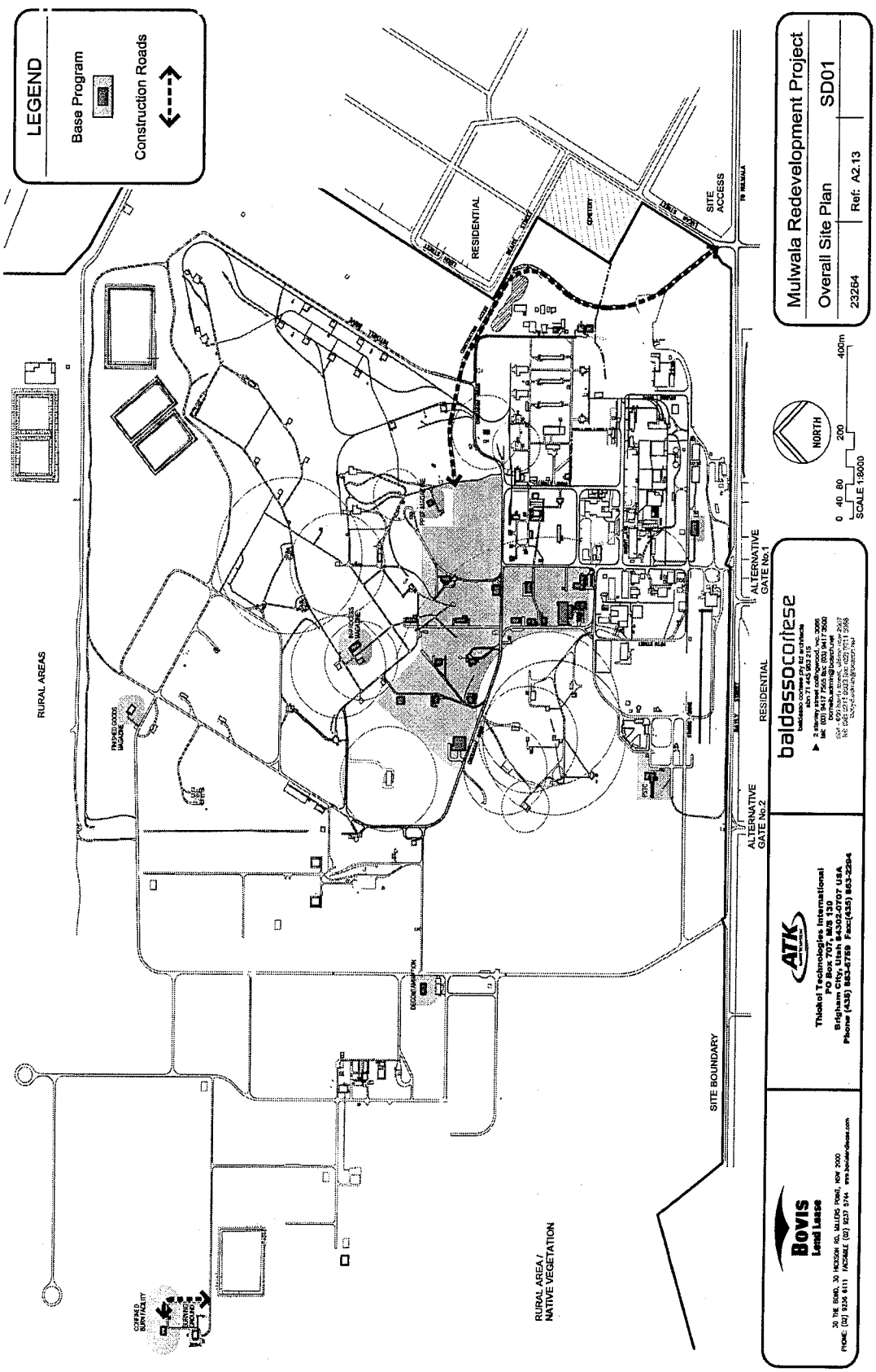
- A1 Location.
- A2 Facility Site Layout.
- A3 Facility Precinct Layout
- A4 Operations Support
- A5 PSTC (Ballistics)

A1. Location

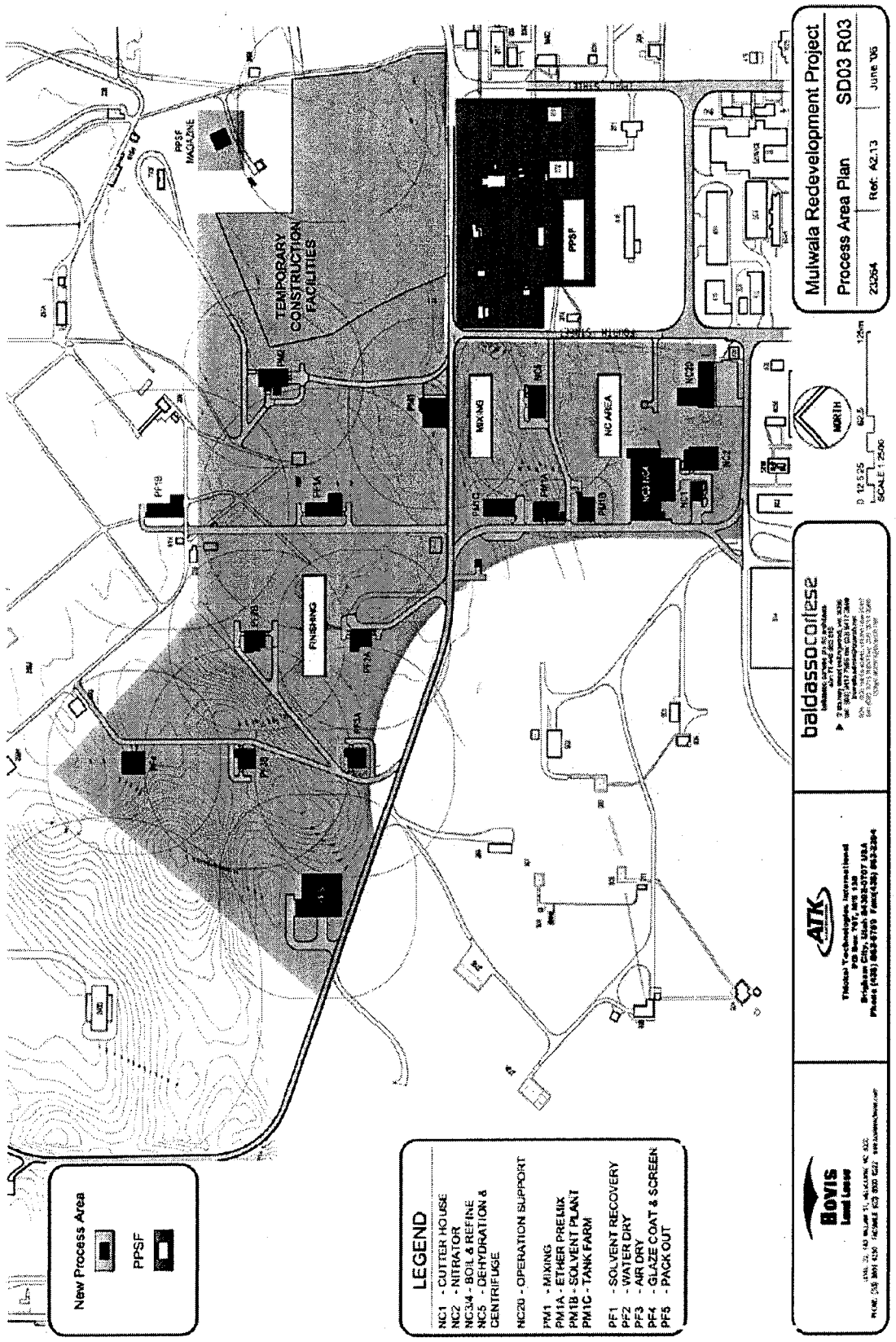

Jerilderie
Deniliquin
Urana
RIVERINA
HWY
Murray
River
Corowa
Albury
Holbrook
HUME
OLYMPIC
Mulwala
VIC


Mulwala
Propellant
Facility
Lake Mulwala
WOODLANDS
MURRAY VALLEY HWY
B400
Yarrawonga 3 km
NEW SOUTH WALES
YARRAWONGA & MULWALA

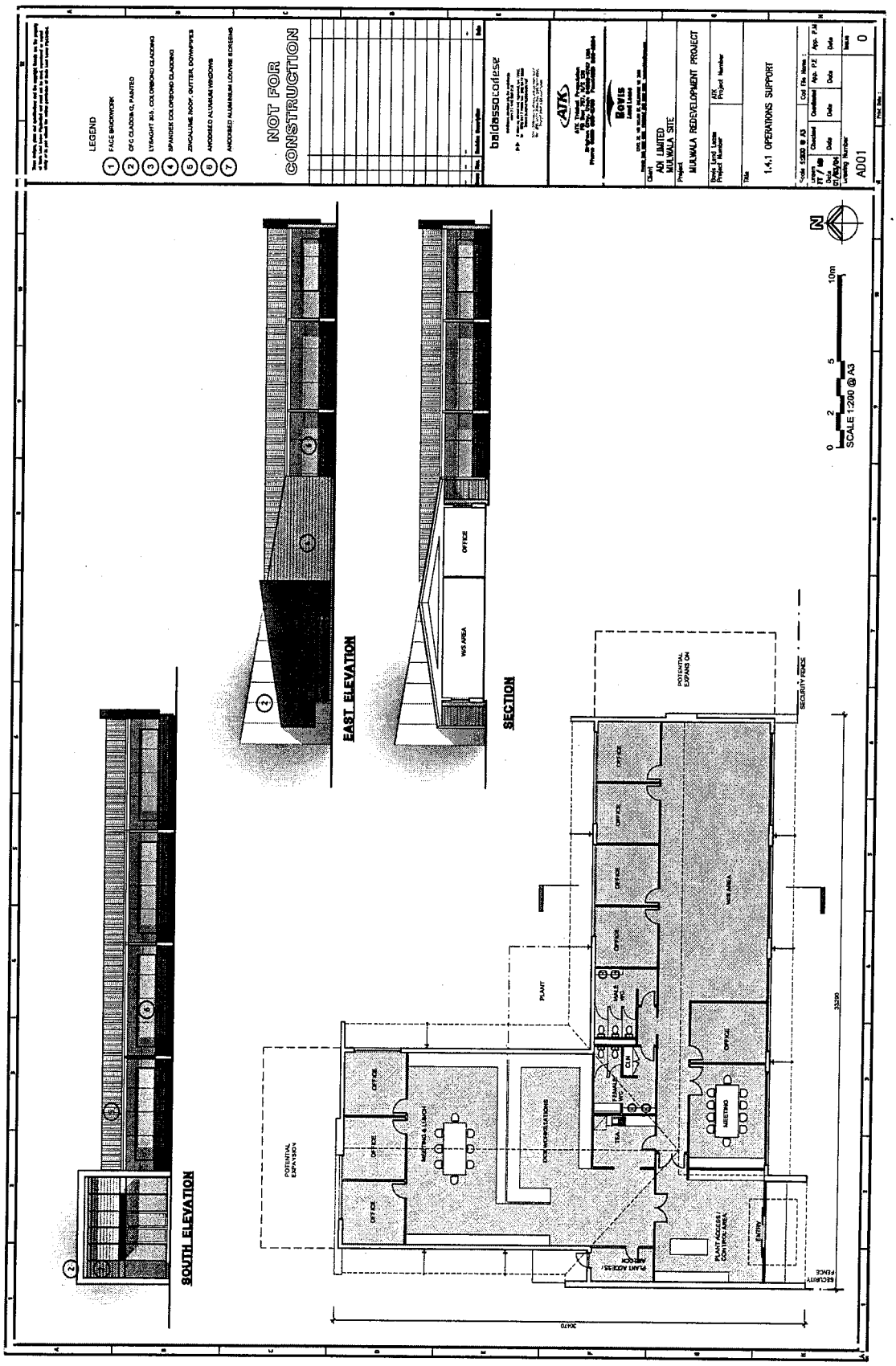
A2. Facility Site Layout



A3. Facility Precinct Layout



A4. Operations Support



A4. PSTC (Ballistics)