



**FACILITIES UPGRADE TO  
THE SHOALWATER BAY TRAINING AREA  
ROCKHAMPTON, QUEENSLAND**

**STATEMENT OF EVIDENCE  
TO THE  
PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS**

**DEPARTMENT OF DEFENCE  
CANBERRA, ACT  
APRIL 2006**

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## ATTACHMENTS

1. Location Plans
2. Layout Plan - Urban Operational Training Facility
3. Concept Diagrams - Exercise Control Building
4. Concept Diagrams - Urban Operational Training Facility

# **FACILITIES UPGRADE TO THE SHOALWATER BAY TRAINING AREA ROCKHAMPTON, QUEENSLAND**

## **PART A – JUSTIFICATION**

### **INTRODUCTION**

#### **Background**

1. This evidence to the Parliamentary Standing Committee on Public Works presents a proposal for facilities upgrades to the Shoalwater Bay Training Area. A location plan and a plan of the Shoalwater Bay Training Area are at Attachment 1.
2. Shoalwater Bay Training Area is an area of approximately 454,500 ha, located about 80 km north of Rockhampton, Queensland. The first evidence of usage of the area is that of the Darumbal people, who have a long historical affiliation to the Shoalwater Bay region.
3. European settlement of the central Queensland coast occurred after 1855, following reports from explorer Ludwig Leichardt on the value of land surrounding the Fitzroy River. After settlement, the area was leased for logging and grazing, and to a lesser extent, sub-tropical agriculture. The Commonwealth Government acquired the area for Defence training purposes in 1965.
4. The Department of Defence manages the Shoalwater Bay Training Area. The Shoalwater Bay Training Area is a strategic Defence site, used as a training area for the maintenance of combat skills, through continuous individual and collective capability training.
5. The Shoalwater Bay Training Area provides a highly effective training location for the Australian Defence Force's three Services. Training cycles in Shoalwater Bay

Training Area are of varying scales and frequency, and most weapons systems can be employed and integrated using live ammunition. Training units may operate singularly, jointly and combined with military forces of other nations. The Shoalwater Bay Training Area is commonly a focal point for the culmination of major national and multi-lateral combined arms exercises, such as those in the Talisman Sabre and Wallaby series. These exercises commonly involve defence forces of the United States, New Zealand, Republic of Singapore and others. These activities are critical to the development and sustainability of key Australian Defence Force capabilities and to facilitate strategic alliances and multi-lateral Defence agreements.

6. For the purpose of planning and managing Defence training activities, the Shoalwater Bay Training Area is divided into a number of sectors. The infrastructure within these sectors meet specific training requirements of the Australian Defence Force. Land Task Force operations are the most prevalent activity conducted at Shoalwater Bay Training Area. Land Task Force operations integrate the combat 'arms', of artillery, armoured, infantry, engineers, aviation and signals units, and 'services' providing medical, transport, supply and equipment repair.

## **OBJECTIVES**

7. The Joint Combined Training Centre project proposes to link live and simulated training to improve the effectiveness of bilateral training. The facility enhancements proposed in the Shoalwater Bay Training Area are a key part of the Joint Combined Training Centre project and will involve the construction of an Exercise Control Building and an Urban Operations Training Facility. These facilities will be constructed to support Exercise Talisman Sabre 2007 and will serve as the 'proof of concept' for the Joint Combined Training Centre.

8. The proposed Urban Operations Training Facility will be designed initially for combat team groups and provide a variety of terrain and building configurations to replicate the wide range of urban environments that Australian Defence Forces may encounter on operational service. The facility will be instrumented to track personnel movement through the facilities, improving the 'after action' feedback to participants, an

essential input for continuously improving performance. This facility is one of the critical deliverables meeting the requirement of providing realistic combat training (one of the four endorsed Joint Combined Training Center 'training pillars'). The Exercise Control building will be the focal point for the collection and display of data from live, virtual and constructive (computer based models and simulations that involve simulated people operating simulated equipment) systems and will improve exercise management, evaluation and safety. As such this facility provides an essential platform for the Joint Combined Training Centre's simulation architecture.

### **Date for Completion**

9. Subject to Parliamentary clearance of this project, construction could commence in September 2006. The facilities must be completed by April 2007 to enable the instrumentation and exercise management systems to be installed and tested prior to Exercise Talisman Sabre which starts in July 2007. Early works for the construction of the Exercise Control building and site preparation of the Urban Operations Training Facility were approved on 2 March and these works are included in this evidence.

## **THE PROPOSAL**

10. The aim of this proposal is to deliver the infrastructure to support networked simulation and training systems required to realise the objectives of the Joint Combined Training Centre while maximising, to the extent possible, facilities improvements to Shoalwater Bay Training Area. The proposal addressed in this evidence includes two key facility components: an Exercise Control Building, and an Urban Operations Training Facility, which incorporates an Urban Assault Range. These facilities are explained in detail in the following paragraphs.

### **Exercise Control Building**

11. An Exercise Control facility is required to accommodate the significant increase in personnel and systems that are required to control large joint and combined exercises.

The Exercise Control Building will be a large, flexible work space able to accommodate a range of Exercise management functions, including Exercise Control, Director of Practice, Umpire Coordination and After Action Review processing. The proposed Exercise Control Building will feature a large open plan work area, fitted with reconfigurable workspaces to maximise functional flexibility. Each workspace will be multifunctional. The workspaces will meet all Defence and legislative requirements regarding access control, Occupational Health and Safety and security requirements.

### **Urban Operations Training Facility**

12. The Urban Operations Training Facility will be designed to allow Combat Team training for defensive and offensive operations, screens, search and rescue operations, aid to the civil power and evacuation operations. This training will include realistic 'force on force' activities. The facility will provide a variety of urban terrain challenges, through representation of a small regional township, including primary and secondary roads and streets, a town centre (municipal area), business area, residential precinct (both low density and high density), shanty area, rubble area (destroyed suburb) and industrial precinct. Reconfigurable components will enable facades to be changed to create an environment with variable physical and geographic characteristics. The Urban Operations Training Facility instrumentation capability will incorporate Radio Frequency / Global Positional tracking systems and may include a small range of battlespace effects systems provided (sound percussion cannons, improvised explosive devices, smell effects etc).

13. A live fire capable Urban Assault Range will be also be provided. This facility complements the Urban Operations Training Facility and will be located in close proximity to this facility. The Urban Assault Range will be a mock up urban area, separated from the main Urban Operations Training Facility to allow live firing activities. The Urban Assault Range consists of an open area within the high explosive impact area, where a mock built environment can be set up expediently and in a range of configurations. The main building elements will be wall panels that can be interconnected to represent building's internal and external walls. The urban assault area

will be located on a cleared and drained hardstand (gravel) designed for light armoured vehicle traffic.

### **Location**

14. The proposals outlined in this evidence are confined to the Shoalwater Bay Training Area as indicated in Attachment 1.

### **Benefits Expected from this Proposal**

15. This proposal will provide the following enduring benefits:
- a. The Joint Combined Training Centre will provide an enduring mechanism to enhance high end, bilateral training, increase the current capability to measure operational preparedness, improve interoperability and contribute to future capability development.
  - b. A highly flexible, reconfigurable Exercise Control Building that meets the requirements for exercise management for the wide variety of training activities conducted at Shoalwater Bay Training Area.
  - c. An innovative Urban Operations Training Facility that:
    - can be reconfigured to meet changing operational requirements;
    - will facilitate realistic training activities at both the collective and individual level; and
    - will provide a logical and safe progression from simulated activities to high explosive, live fire training.

## **COSTS**

### **Capital Cost Estimates**

16. The estimated out-turn cost of the facilities upgrade to Shoalwater Bay Training Area project is \$11.0m excluding GST. The cost estimate includes construction costs,

professional fees, furniture and fittings, information technology equipment and a contingency sum.

## **ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS**

### **Economic Impacts**

17. This proposal will not produce revenue. Market research has indicated significant scope for Australian industry to contribute to both the facilities and systems components of the project. The majority of the project value is expected to be expended through Australian industry. More specifically, the construction work will be undertaken in part by contractors based in the central Queensland region, most likely based in Rockhampton, and will therefore contribute directly to the regional economy.

### **Environmental Impacts**

18. The proposed Exercise Control Building site is located adjacent to the existing Range Control Building and will replace existing concrete tent slabs. No significant environmental issues have been identified. Defence environmental managers will manage the construction and operation of the facility using existing environmental management protocols contained in Range Standing Orders, the Shoalwater Bay Training Area Environmental Plan and in the conditions attached to the Environmental Clearance Certificate that will be issued for the project.

19. A comprehensive environmental study has been prepared for the Urban Operations Training Facility by independent environmental consultants engaged by Defence. This study has included a detailed analysis of environmental issues including flora, fauna and heritage matters associated with both the construction and operations of the facility. A Public Environmental Report (PER) was produced for display during January and February 2006. Community meetings were held in the Rockhampton, Yeppoon and Stanage Bay areas to expose the proposal to the local community and to seek feedback. No significant environmental issues have been identified during the development of the PER or the consultation conducted to date. Environmental professionals working in Defence's Environment Heritage and Risk Branch will review the final PER and the



Public Submissions to determine whether any further consideration of the proposal is likely to be required under the EPBC Act.

20. The construction and operation of the Urban Operations Training Facility will be managed in accordance with the Shoalwater Bay Training Area Environmental Management Plan, Range Standing Orders and any conditions attached to Defence's Environmental Clearance Certificate. These conditions will include a requirement that a Construction Environmental Management Plan and an Urban Operations Training Facility Operations Environmental Management Plan be developed and implemented. Defence will ensure all contractors engaged during construction will comply with the range of environmental management controls put in place and follow up auditing of both compliance and effectiveness of the measures put in place will be undertaken.

### **Heritage Considerations**

21. Environmental impact assessment undertaken for the proposal also incorporated a comprehensive Heritage Assessment. The heritage Assessment concluded that the proposed facilities will not impact on any historical or heritage sites in the Shoalwater Bay Training Area.

### **Social Impacts**

22. As there are no communities within the Shoalwater Bay Training Area, this proposal is not expected to have any significant social impact. During the construction phase, there is likely to be some employment and business opportunities for local suppliers and tradespeople.

## **LONGER TERM PLANNING**

23. In 2005, a Range Siting Board was initiated to identify the long term requirements of the Shoalwater Bay Training Area. This study concluded that the Urban Operational Training Facility proposal was consistent with a long term development plan for the training area.

**ORGANISATIONS CONSULTED**

24. Discussions have been held, or are planned to be held with the following organisations:

- a. Federal Member for Capricornia,
- b. State Member for Yeppoon,
- c. State Member for Rockhampton,
- d. Mayor Livingstone Shire Council,
- e. Mayor Rockhampton City Council,
- f. Mayor Gladstone City Council,
- g. Mayor Calliope Shire Council,
- h. Mayor Fitzroy Shire Council,
- i. Mayor Broadsound Shire Council,
- j. Rockhampton Chamber of Commerce, and
- k. Rockhampton Regional Development Limited.

## PART B - TECHNICAL INFORMATION

### Scope of Works

25. The building form for the proposed facilities are summarised as follows:

- a. **Exercise Control Building.** The proposed building form includes a steel clad portal frame structure, with a concrete slab floor and entry verandah. The building will incorporate:
  - (i) A large open plan work area with reconfigurable workspaces to perform a wide variety of functions, including an operations centre and briefing area.
  - (ii) Access to Defence communications and other external communications systems.
  - (iii) A reliable uninterrupted power connection capable of operating under all environmental conditions.
  - (iv) A capacity to support 24 hours a day operations.
  - (v) Ablutions and services capable of supporting a minimum of 60 personnel.
  - (vi) The capacity for future expansion.
- b. **Urban Operations Training Facility.** The buildings proposed for this facility represent a small regional township, including primary and secondary roads and streets, a town centre (municipal area), business area, residential precinct (both low density and high density), shanty area, rubble area (destroyed suburb) and industrial precinct. The structures will be capable of being re-configured to create various physical classifications and geographic environments. Each building will have a high level of

instrumentation and battle effects systems that simulate realistic live fire or force on force training and an after action reporting capability. The buildings will be a mix of two types:

- (i) recycled containers – sea shipping containers adapted as modular building components; and
- (ii) light framed buildings using block work for the town centre.

The associated Urban Assault Range consists of an open area within the existing high explosive impact area, (see attachment 1) where a mock built environment can be set up expediently and in a range of configurations. The main building elements will be building wall panels that can be interconnected to represent building internal and external walls. The urban assault area will be located on a cleared and drained hardstand (gravel) designed for light armoured vehicle traffic.

### **Site Planning, Selection and Description**

26. All the proposed works are within the Shoalwater Bay Training Area. The sites for the proposed work are Commonwealth owned and Defence controlled. The facility enhancements do not require the acquisition of additional land.

### **Zoning and Approvals**

27. All of the assets referred to in this evidence will be constructed within the designated boundaries of the Shoalwater Bay Training Area, which is designated “Defence Special Purpose”. No civilian authority or design construction approvals are required, although works will comply with all relevant Standards and Regulations as applicable.

### **Codes and Standards**

28. Where appropriate design and construction of the proposed works and services will conform to the relevant sections of the following codes and standards:

- a. Building Code of Australia,
- b. Australian Standards and Codes,
- c. Commonwealth and State Legislation,
- d. Defence Manual of Fire Protection and Engineering,
- e. Defence Facilities Communications Cabling Standard, and
- f. Defence Security Publications.

29. A qualified and practising certifier will be required to certify that the design and finished construction of the proposed facilities meet the requirements of the Building Code of Australia, relevant Codes and Standards, the Defence Manual of Fire Protection Engineering and any additional State, Local Government and Defence requirements.

30. Successful tenderers will be required to produce a Project Quality Plan. This plan will clearly show how building codes, Australian standards and any additional Defence requirements in relation to security, fire protection and fire safety will be met and how the required standards for construction and installation are to be maintained.

### **Occupational Health and Safety**

31. The proposed facilities will comply with the requirements of the Occupational Health and Safety Act 1991, the Department of Defence Occupational Health and Safety manual and relevant Queensland Government Occupational Health and Safety legislation. Operation of the facilities will accord with an approved Occupational Health and Safety Plan.

### **Energy Conservation Measures**

32. The Commonwealth Government is committed to Ecologically Sustainable Development (ESD) and the reduction of greenhouse gas emissions. Defence reports annually to Parliament on its energy management performance and on its progress in meeting the energy efficiency targets established by the Government as part of its

commitment to improve ESD. This project addresses this policy by adopting cost effective ESD as a key objective in the design, development, and delivery of new facilities.

33. Preliminary design development for the Exercise Control Building has included an analysis of energy consumption. The energy efficiency of the new building will be audited within twelve months of occupancy. The preliminary design has adopted the following measures to reduce energy consumption in a cost effective manner:

- a. Siting buildings to make maximum use of prevailing winds and the sun for temperature control and lighting.
- b. Insulation and weatherproofing seals will be incorporated in the facility.
- c. Energy efficient lighting and lighting control systems will be incorporated in the facility.
- d. Energy efficient plant and equipment will be incorporated in the facility.

### **Planning and Design**

34. The design of the new exercise control facilities will provide a safe, efficient and productive workplace. The design will offer economies in relation to floor area, construction techniques, buildability and finishes, while achieving the necessary functional requirements and work flow patterns. The Urban Operations Training Facility will be functionally designed by using shipping containers as the primary building blocks of the facilities. This will allow the configuration of the Urban Operations facilities to be changed to meet training needs.

### **Electrical, Mechanical, Hydraulic and Communication Services**

35. The following services will be provided to the proposed facilities:

a. **Exercise Control Building:**

- (i) Water supply - two ground mounted 9000 litre rain water tanks plumbed to the building roof will be installed.
- (ii) Sanitation - the existing site septic system will be upgraded to include the new ablutions.
- (iii) Electrical Power - two 25 KVA generators with synchronisation and controls and appropriate housing will be installed to provide power.
- (iv) Data Cabling - data cabling system is to be designed to provide access to all the Defence information and voice systems. Each work station will have access to a data connection point and spare capacity will be provided to facilitate varying floor layout configurations.
- (v) Mechanical - Climate Control – the building will have a single packaged air conditioning plant to service the open plan area and a small split air conditioning unit to service the Communications Room.

b. **Urban Operations Training Facilities:**

- (i) Drainage and Sediment Control – the facility will have a single centre “v” drain to all paved areas, the market area and minor streets. The main and secondary roads will have swale drains and all storm water will flow into a sediment control dam.
- (ii) Electrical Power - a central generator will be provided in the industrial precinct and will reticulate power to the Town Centre and residential precincts via underground low voltage mains along the street network.
- (iii) Water supply – the facility will have two 10,000 litre rainwater storage tank connected to the Town Centre buildings, within the Urban Operations Training Facility. There will also be an additional 4500 litre tank to service the septic toilet location.

- (iv) Sanitation – the facility will have three double composting toilets.
- (v) Data Cabling and Instrumentation – the facility will have two 75 - 100 mm communications conduits, servicing the Town Centre (including control tower), residential precincts and industrial precincts. These services will be installed in trenches with the proposed power reticulation. A separate conduit will connect the server room to the optic fibre site network.

### **Civil Works**

36. The proposed sites for the new facilities do not present any particular civil engineering problems, as each site has been the subject of survey and geotechnical investigation during the design phase. Stormwater management is being incorporated into the designs of the Exercise Control Building and the Urban Operations Training Facility.

### **Landscaping**

37. Landscaping works will be directed towards the restoration of areas disturbed during construction and general improvement of the built environment.

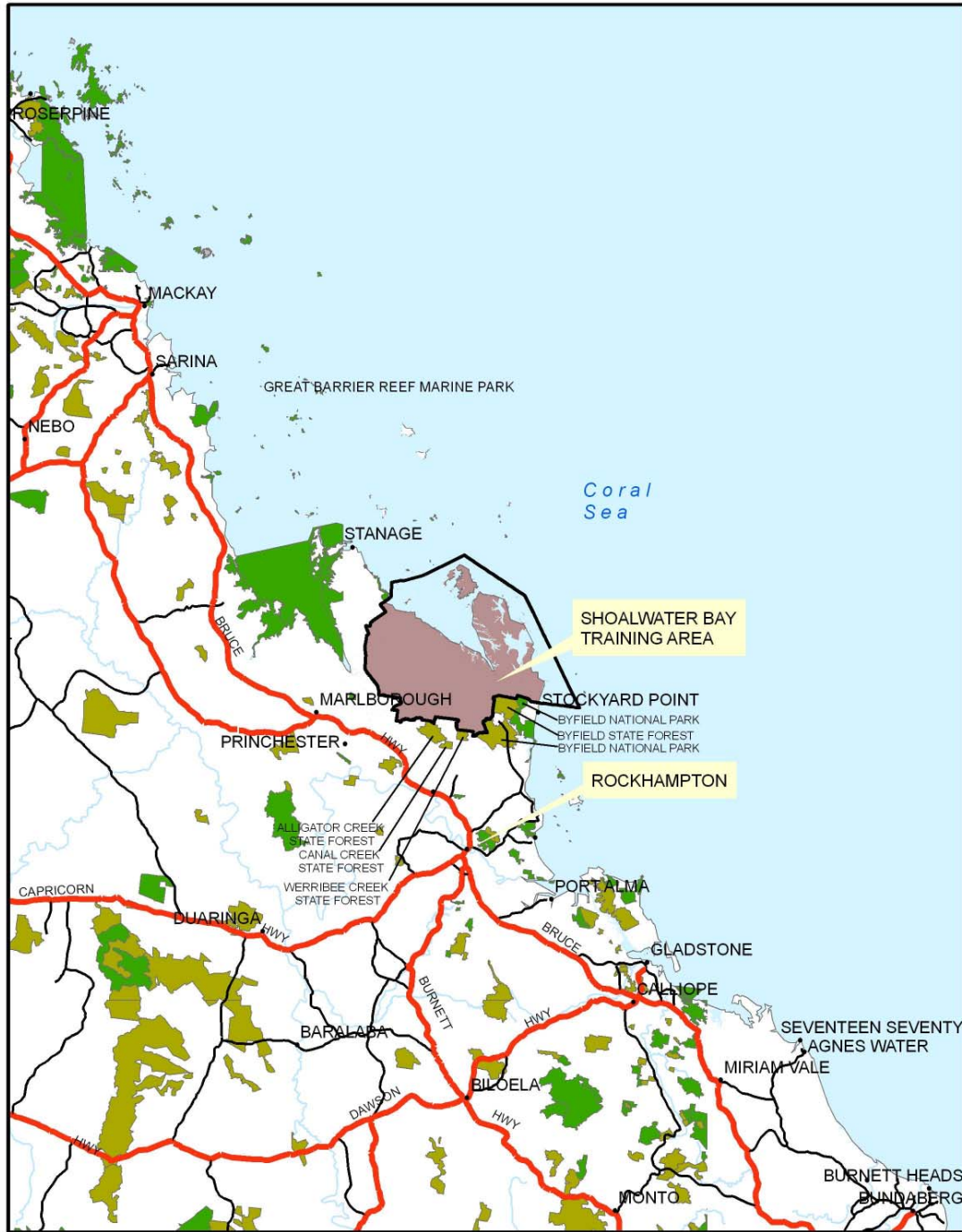
### **Project Delivery System**

38. A traditional delivery system by three Head Contracts is proposed for this project. The Head Contractor form of delivery is particularly well-suited to projects where the scope is well defined and can be constructed unhindered by operational constraints. Furthermore, a Project Manager has been engaged to represent Defence and to act as the Contract Administrator for the development of the proposed facilities.

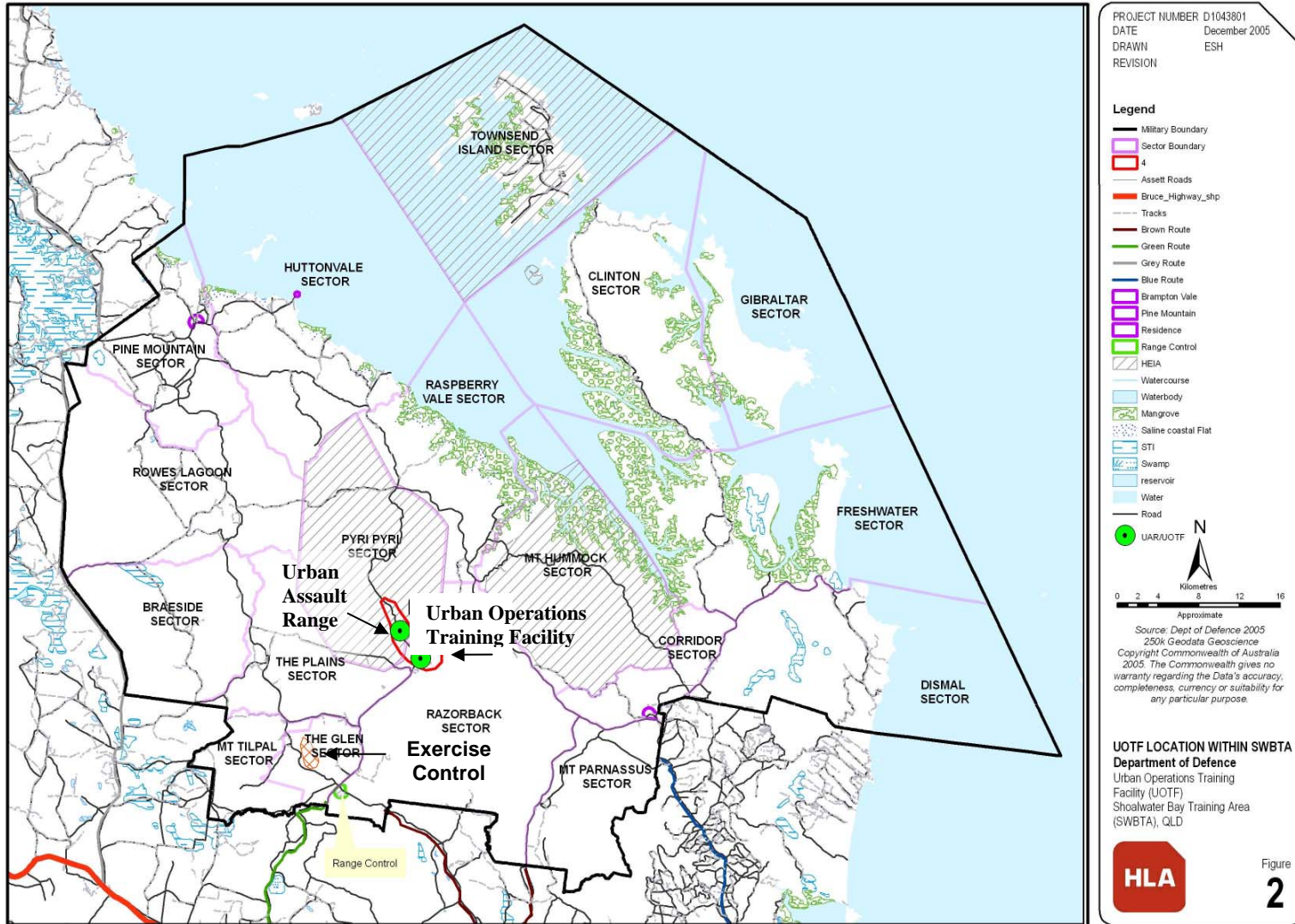
39. Attachments 3 and 4 provide preliminary design concepts for the Exercise Control Building and the Urban Operations Training Facility outlined in this evidence.



**LOCATION PLANS**



	<b>REGIONAL CONTEXT</b> Department of Defence Urban Operations Training Facility (UOTF) Shoalwater Bay Training Area (SWBTA), QLD	<b>Legend</b> Military Boundary Military Area Highway Main Road	Watercourse Forestry Reserve Nature Conservation Reserve	0 5 10 20 30 40 Approximate Kilometers Source: 250k Geodata Geoscience Copyright Commonwealth of Australia 2005 The Commonwealth gives no warranty regarding the Data's accuracy, completeness, currency or suitability for any particular purpose.	N 	Figure <b>1</b>
	PROJECT NUMBER D1043801	DATE December 2005	DRAWN ESH	REVISION		



**LAYOUT PLAN**  
**URBAN OPERATIONS TRAINING FACILITY**



**CONCEPT DIAGRAMS**  
**EXERCISE CONTROL BUILDING**



NOT BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT

NO.	REV.	DATE	DESCRIPTION

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**0110**  
 EXERCISE CONTROL BUILDING - SHOALWATER BAY

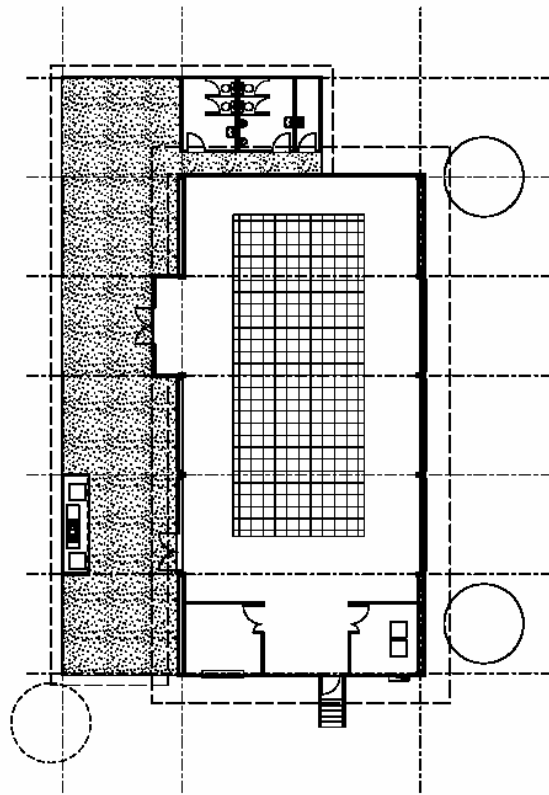
**EXERCISE CONTROL BUILDING - SHOALWATER BAY**



Australian Government  
 Department of Defence

Drawn: Title  
 FLOOR PLAN

NO.	REV.	DATE	DESCRIPTION



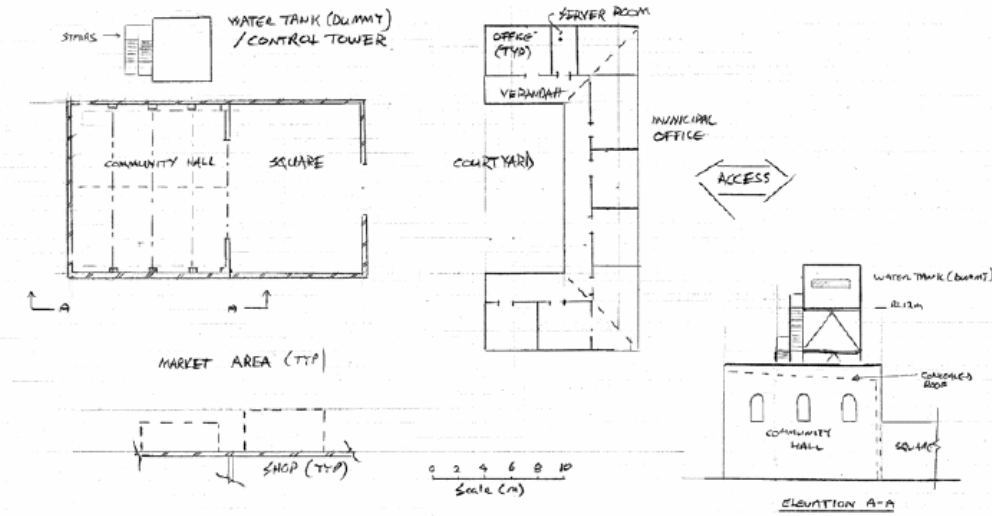
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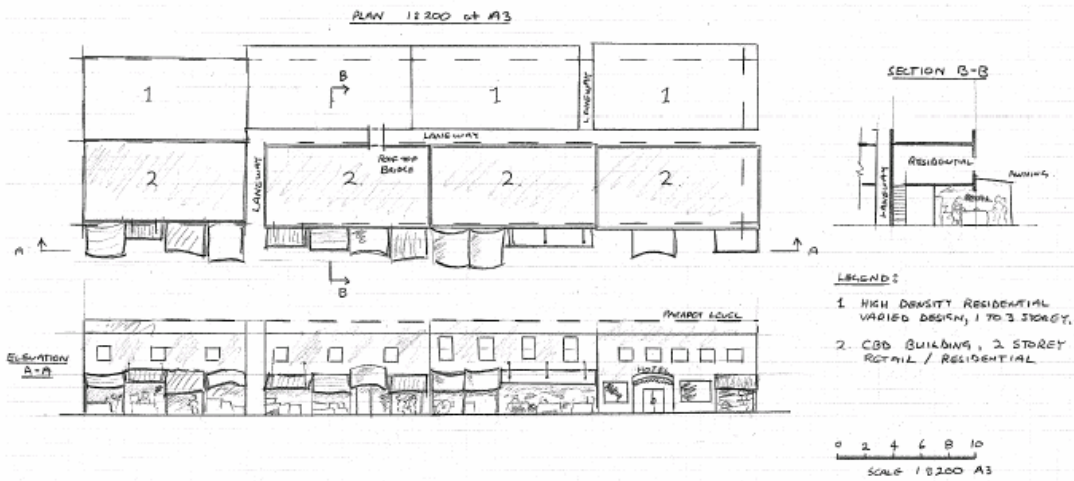
**CONCEPT DIAGRAMS**  
**URBAN OPERATIONS TRAINING FACILITY**

**Town Centre Precinct**

1. The key elements of the Town Centre are illustrated in Figure 1 and Figure 2. The proposed footprint is approximately 80m x 80m. The community facility and walled square form the nucleus of the precinct. The municipal offices and market areas immediately adjoin the community facility. The town centre is defined by rows of shop/residential buildings on three sides and a main town road. The desired effect is a populous and diverse business district with single storey central buildings surrounded, dominated and enclosed by two storey structures on three sides. The layout is designed to maximize training challenges.



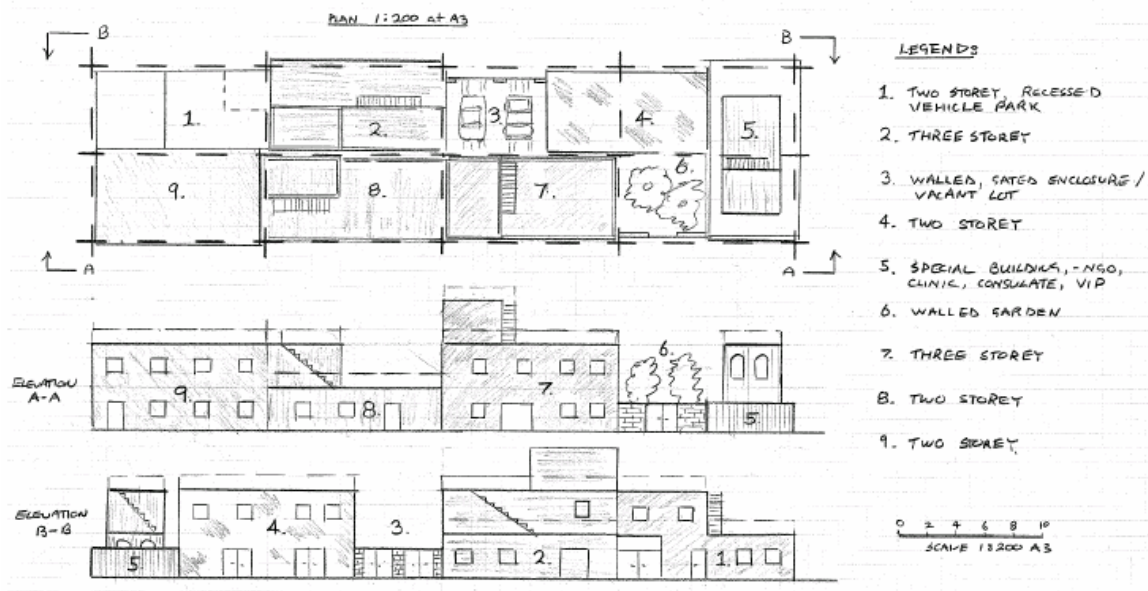
**Figure 1: Town Centre – Concept for Community Facility and Municipal Office**



**Figure 2: Town Centre – Concept for Central Business District**

## High Density Residential Precinct

2 The high density residential precinct represents an inner city, high rise, densely populated area. Its configuration will include residential blocks of varying shapes, which represent significant command and control challenges for patrolling and attacking forces. The road systems must include high walls and fences that channel foot and vehicle lanes and streets. The concept of a high density residential precinct is based on urban blocks nominally 48m in length and 12 m wide. Blocks are divided into 8 lots (2 lots deep by 4 lots long) as the basic building grid. These lot sizes were also adopted to accommodate use of shipping containers as a cost effective method of delivering some portion of the requirement, without precluding conventional construction for some building elements. An example concept residential block is shown in Figure 3.

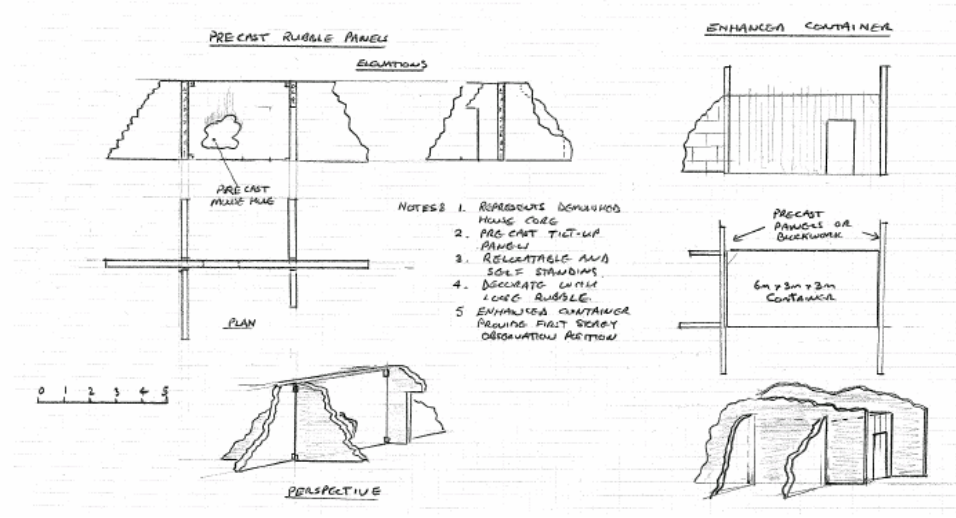


**Figure 3: Example High Density Residential Block**

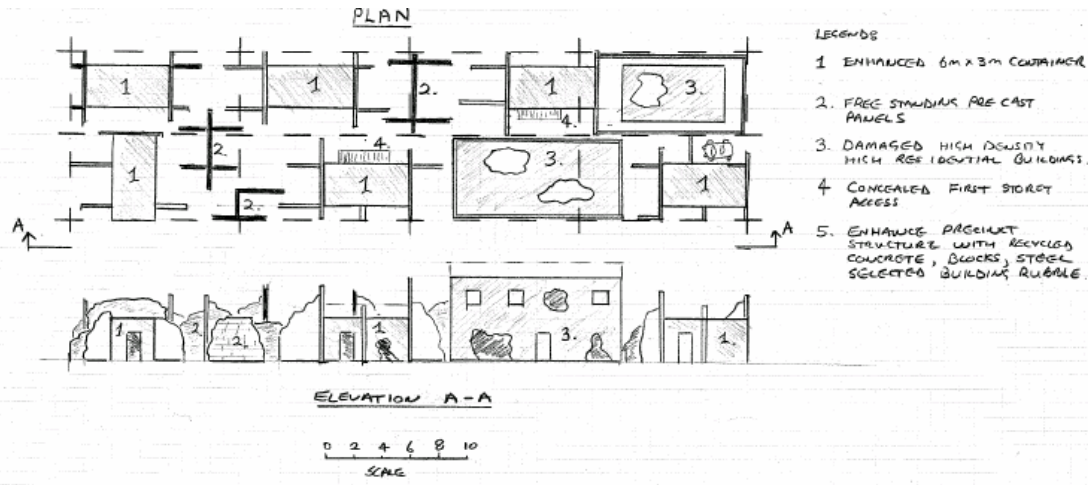
## Rubble Precinct

3. The aim of the Rubble Precinct area is to represent a zone in which a determined enemy has chosen to either hide or fight. It is an area from which the civilian population has chosen to flee, and it has received significant collateral damage from both indirect and direct fire. This precinct will enable the training forces to engage in offensive

operations against a determined enemy in highly challenging terrain. The road system and block layout of the rubble precinct should duplicate the high density residential precinct which should also adjoin the high density precinct. The road system in this area will be blocked / restricted by building debris. Figure 4 represents the construction concept for the precinct and Figure 5 represents the layout concept for the precinct.



**Figure 4: Rubble Precinct - Concepts for Destroyed and Partially Destroyed Building Elements**



**Figure 5: Rubble Precinct Concept Block Layout**