



Australian War Memorial

AUSTRALIAN WAR MEMORIAL

Construction of East Building

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

June 2004



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INTRODUCTION

1 The Australian War Memorial is a unique national institution. The current proposal is to construct a new storage/staff facility to allow the redevelopment of the existing Post 1945 Conflicts Galleries. This reflects a continuation of the vision in the Memorial's current Corporate Plan which states:

“Our vision is for an outstanding Memorial that is acclaimed for its commemorative activities and exhibitions; engages with the greatest possible number of people; undertakes continuing revitalisation; and is recognized as a pre-eminent national institution.”

2 The Australian War Memorial began an ambitious program to revitalise its galleries several years ago. The exhibitions had become dated, were not communicating as well as they might, and were not using modern display techniques, particularly in the use of multi-media. The Memorial turned to its founder Charles Bean and his original vision for the institution:

“We are out to make our war museum, our war gallery, and our war library, if possible, not merely fine museums for Australia, but the finest that the world contains...”

3 The Australian War Memorial has completed the first stage of revitalising its galleries and facilities in the heritage-listed main building with enhanced visitor orientation, coherent circulation paths, and world class displays in the galleries. In addition, it has also successfully developed ANZAC Hall (made possible by a Centenary of Federation grant), a 3000 square metre large technology exhibition space that features the latest in museum experiences, “object theatre”. The latest and most exciting of these new experiences is *Striking By Night – Lancaster bomber ‘G for George’*, that recreates the drama of a bombing raid over Berlin in December 1943. The Memorial's new exhibitions are at the cutting edge of museum presentation and interpretation. Visitation and length of stay has increased significantly due to this redevelopment strategy. This success culminated in the Memorial being recognized for the past three years as Australia's Major National Tourism award winner.

4 Redevelopment has now come to the point where the Post 1945 conflicts, particularly Vietnam, Korea and Peacekeeping, need to be brought up to the same world class standards. Australia's involvement in recent conflicts in East Timor, Afghanistan and Iraq need to be commemorated through exhibitions that tell the stories of those involved. The current galleries are very small and inadequate, leading to considerable and long standing criticism from veterans and visitors.

5 The most cost efficient way to create sufficient gallery space for these galleries is to relocate some collection, staff and back of house functions. This would free up over 1700 square metres of exhibition space for the Post 1945 Conflicts Galleries and the Discovery Room. A new building will be located on the east side of the Memorial building. It will provide collection storage space, staff offices, photographic laboratories and a workshop.

IDENTIFICATION OF THE NEED

Objectives

6 This submission seeks approval for the Australian War Memorial to construct a new building of approximately 3000 square metres to the east of the main Memorial building to house 65 staff and paper based Research Centre collections.

7 The East Building will also make provision for expansion of the research collections as well as providing enhanced facilities for the photographic laboratories, workshop and staff. The East Building will be connected to the Memorial building by an underground tunnel which allows for the safe movement of collections for researchers and programs.

Historical background

8 The Memorial was established by the Australian War Memorial Act 1925 as a national memorial to those Australian men and women who have died while on active service. In 1980 the Memorial's functions were re-defined to reflect the Memorial's role in commemoration, as a museum and as a research centre housing a rich and diverse collection of seminal events in Australian history. Since its opening in 1941, the main building has been modified and extended on several occasions to accommodate a growing collection and to provide space for new exhibitions.

9 The Australian War Memorial's Re-development program Stage 2 includes new facilities such as a 400sqm Discovery Room directed at engaging young Australians, improved building services that continue to make the main building fully code compliant, as well as new exhibitions and galleries. The Australian War Memorial plans to complete the East Building by March 2006. Staff and functions will move into the East Building allowing building work on the new galleries and visitor facilities to commence by May 2006. The new Post 1945 Conflicts Galleries and Discovery Room will be ready for opening by the end of October 2007.

Need

10 Visitor evaluation undertaken in relation to Post 1945 Conflicts galleries indicates that 45% of those surveyed had some kind of personal connection to the over 110,000 Australians who have direct experience of these conflicts. These surveys also showed that the existing galleries were rated as the lowest in terms of visitor satisfaction. The current gallery space allows a very limited coverage of operations and experience. Visitor and veteran comments have consistently criticised the inadequacies of the galleries and the presentations which date back to the 1980s. Without moving back of house functions and collection storage there is no room for expansion of the existing galleries to satisfy the visitor and stakeholder needs. An expanded gallery also allows for future commitments to be represented. The timing of this redevelopment is critical as the numbers of active veterans decline especially relating to the Korean War and early Peacekeeping operations.

11 A number of important iconic objects relating to the Post 1945 Conflicts cannot be displayed in the current gallery spaces.

These include, amongst other items such as the HMAS *Brisbane* bridge (Vietnam and Gulf War), an Iroquois helicopter (Vietnam) and an Armoured Personnel Carrier (Vietnam, Somalia, and East Timor). Over 1300 square metres of prime exhibition space will be created to feature these objects as well as telling the stories of Australians who served in these conflicts in galleries of the same superb standard as the award winning Second World War, Air Power in the Pacific and ANZAC Hall galleries.

Options considered

12 The Gallery Masterplan was formulated to provide a series of staged developments as funding became available that would improve public facilities and maximize visitor access to the collections. A business case was prepared to look at the options available to the Memorial to redevelop the Post 1945 Conflicts galleries which, based on stakeholder and visitor comments, were the highest priority for redevelopment. To defer this project would greatly increase the level of stakeholder alienation and dissatisfaction of visitors and veterans for the inadequacies of the existing galleries. Recent world events have heightened public awareness of the limited treatment given to recent conflicts in particular due to the severely limited space. To redevelop the existing galleries is also unrealistic. The existing space is just one third of the Second World War galleries. The current ceiling heights and columns do not allow iconic objects to fit into the space. A rotating series of smaller exhibitions would be more costly and time consuming while still alienating the stakeholders who are eager to see their stories told permanently in the galleries.

13 The Memorial examined moving staff and collections into rented premises off site. The cost of appropriate space especially for collection storage and photographic laboratories is extremely expensive in the long term and provides no opportunity for future expansion. The existing Administration building of approximately 5000 square metres already houses 140 staff and collections. A recent review of all Memorial facilities showed that all areas were already under considerable space pressure. The staff and collections displaced by the work need to be located on site as they deliver services to visitors and researchers every day. The construction of the East Building to house these important back of house functions and provide for expansion of the collections is the most cost effective option for expanding the existing gallery space.

Reasons for adopting proposed course of action

14 The Memorial was successful in securing funding of \$11.6 million dollars to cover the construction of the East Building (\$9.9 million) and operational costs for the new building and redeveloped galleries. The Memorial plans to allocate \$17.4 million dollars from its reserves and with prudent application of depreciation funds and fund raising can cover all costs relating to the redevelopment of the galleries including building works, design, exhibition construction, multimedia production, staffing and visitor facilities. The new galleries are scheduled to open in 2007 to coincide with 60th Anniversary of the first peacekeeping mission to Indonesia in 1947; anniversary of the Battle of Long Tan or Fire Base Coral in Vietnam; and battles of Kapyong, Maryang San and the Hook in Korea. Opening of new galleries to coincide with major anniversaries is important for the veteran community as to shows that their sacrifices and achievements are recognized appropriately by the whole community. The new galleries redress the concerns of stakeholders and provide opportunities to promote

the Memorial as a national institution, stimulate research and disseminate knowledge to the whole community of Australia's proud military history.

Description of proposal

15 Following a Qualification-Based Selection process endorsed by the Royal Australian Institute of Architects, the Memorial engaged Denton Corker Marshall (DCM) as architects for the ANZAC Hall project. DCM had successfully designed the existing Administration building. Both buildings sympathetically complement the architecturally significant main Memorial building. It was appropriate that they undertake the design for the East building to complete the building composition for the whole site.

16 The building façade width, facing the Memorial, is the same as the Administration building – 41.6metres – setting up the symmetrical plan composition for the whole complex as the significant design hierarchy. The building is designed as a simple masonry flat roofed block discreetly bedded into the landscape. Due to the topography, most of the lower storey is below ground level. The elevation treatment fronting the Memorial is a re-interpretation of the Administration building façade; the pattern of solid to storey window opening is repeated in abbreviated form. Narrow horizontal slot windows are the same width and rhythm of the Administration building, but establish a greater sense of solidity to the form.

17 The solidity of the building ensures that it sits comfortably when viewed with the windowless form the Memorial building's east wing. This minimalist appearance is in keeping with the tripartite arrangement of monolithic forms that respond to site masterplan principles of form, symmetry and axis. This subtle more recessive reading of the form and façade detail is appropriate because the building is designed for collection activity and staff rather than public use and is intended to defer its significance substantially to the Memorial building. The building sits behind the embankment independent from the Memorial building. Views from the top of the Memorial's parade ground reveal a building integrated with the topography and treed eastern landscape without detracting from the main focus of the Memorial.

18 As there is no front address to the building, visitors will not be tempted to access the building. Staff and delivery access is located at the rear of the building, conveniently located on the existing access road to the Outpost Café. Staff and collections will move safely between the East Building and the Memorial building via an underground tunnel. This ensures that front of house services and collections can be delivered to visitors and researchers efficiently

19 The design by DCM has been enthusiastically endorsed by the Council of the Australian War Memorial.

Heritage Considerations

20 The Memorial has engaged Peter Freeman Pty Ltd, conservation architects and planners, to provide independent advice on all heritage issues which arise from DCM's design and to assist with discussions and consultations with relevant bodies.

The significant heritage values of the site to all Australians defines the East Building form as being subservient to the main Memorial building.

21 The site and the Memorial building are covered by a Heritage Conservation Masterplan, 1997, which sets out policies and programs to assist in protecting and interpreting the historic fabric of the Memorial during all development works. This plan was developed with the Australian Heritage Commission. The plan is being reviewed in light of the new Environment and Heritage Legislation Act (No1) 2003, Australian Heritage Council Act 2003 and Australian Heritage Council (Consequential and Transitional Provisions) Act 2003.

22 The wall material will have a honed masonry finish using pigmented pre-cast concrete linear “planks”, finely jointed with horizontal coursing at similar spacing to the Memorial. The colour will be a warm grey tone, slightly darker than the darkest sandstone found on the Memorial building. This will allow the East Building to make a visual connection in terms of colour and materiality while blending more into the native landscape. The roof will be a charcoal metal deck to match ANZAC Hall which also heightens the blending of the building into the landscape visible from Mt Ainslie. As many native trees as possible will be retained on the site to enhance the native landscape feel of the eastern area. The design has undergone a rigorous cost reconciliation process which resulted in estimates for the building being within the available designated budget

23 The Memorial consulted with the National Capital Authority (NCA) and the Australian Heritage Commission during the design concept development period in 2002/03. Both bodies were concerned that the building did not overshadow the Memorial building, was not visible from Anzac Parade, maintained the native plantings of the site and used appropriate materials relevant to the site composition. The Memorial and DCM have ensured the design echoes the materials and forms already present on the site, especially ANZAC Hall. The Memorial has also accepted the NCA and AHC advice on the height of the building now placing it further into the landscape at a height of 599.97RL, which meets a lower parapet height on the Memorial building.

24 The Memorial has referred the project to the Department of Environment and Heritage for approval as not a controlled action on the site. The Department was comfortable with running this process concurrently with the PWC process. Based on advice from Peter Freeman and previous consultation with Australian Heritage Commission accepted by the Memorial, we are confident that the design ensures that the heritage values of the site are not comprised by the new building.

Organisations Consulted

25 The Memorial has undertaken a consultation process with the National Capital Authority and Australian Heritage Commission. The referral process is also being undertaken with the Department of Heritage and Planning. The Memorial continues to consult with the NCA prior to submitting the final plans to them for works approval after the PWC process is complete. Briefings are planned to be given to the relevant ACT Government authorities, the nearby Campbell High School and local residents.

26 Other important stakeholders, service organisations and interest groups have also been informed and consulted in developing the brief. The Memorial also has a strong commitment to consulting with visitors about the types and quality of experiences that they encounter during their visits.

TECHNICAL SOLUTION

Overview

27. The proposed will comprise a building of approximately 3265 square metres gross floor area and will include:

- Two storey building (3,050 m²)
- Underground tunnel (215m²) linking the East Building to Memorial research area for staff
- Workshop, Photography and Education and Visitor Services Offices to upper level
- Research Collection storage and Curator Offices to lower level
- Rear access from existing car park to the east

CODES AND STANDARDS

28 The building and access areas will be designed in accordance with the Building Code of Australia and all other relevant codes and Australian Standards. Construction contracts will comply with the National Code of Practice for the Construction Industry.

PLANNING AND DESIGN CONCEPTS

29 The proposed Australian War Memorial Administration East Building is the third element completing the tripartite Masterplan composition of buildings that wrap around the back of the Australian War Memorial. This is in accordance with the *Australian War Memorial Masterplan* of 1993, and *Australian War Memorial Master Plan: Siting Design and Building Development Principals* of May 1999, developed by the National Capital Authority in conjunction with the AWM.

The Memorial as Icon

30 Sitting at the northern end of ANZAC Parade, the existing Memorial is one of Canberra's most powerful visual icons. Any new building behind the Memorial must present itself in a way that is effectively invisible when viewed along the land axis toward Mt Ainslie.

31 The proposed building bulk sits adjacent to the form of the Memorial and stands clear of the building so that the Memorial sits 'in the round'.

Car parking

32 No new car parking is envisaged for this project. East Building staff will find it more convenient to park in the eastern car park, thus freeing existing car spaces in western car park.

ARCHITECTURAL

Design Concepts

33 The Administration Building is sited to the west and Anzac Hall on axis to the north. The East Building is located with its centre line on axis with the Administration Building, and set approximately 35 meters as a minimum from the east wing of the Memorial (the Administration Building is approximately 42m from the west wing).

34 Its facade width facing the Memorial is the same as the Administration Building – 41.6 meters – setting up a symmetrical plan composition for the whole complex as the significant design hierarchy.

35 The building is designed as a simple masonry flat roofed block embedded into the landscape behind the stone embankment. Due to the topography, most of the lower storey is below ground level.

36 The building's parapet height (RL 599.970) aligns with the main mid level parapet of the existing Memorial. The building is set back 9m from the existing road kerb adjacent to the stone embankment.

Siting and Location

37 A number of different studies for specific site location and height were examined by DCM in discussion with the Memorial, NCA and AHC for appropriateness both from the external 'fit' and from an internal functioning of research facilities viewpoint.

38 The building is close to the level of the road but well below natural ground and embankment.

39 Preliminary geological tests show a subterranean rock plan sloping up the hill, which also determines the height and siting of the building.

40 Some rock removal will be required at the eastern portion of the site to achieve the proposed height. The final height may be adjusted slightly subject to more detailed review of ground conditions.

Building Character

41 The elevation treatment fronting the Memorial is a re-interpretation of the Administration Building facade; the pattern of solid two storey window opening is repeated in abbreviated form within a masonry facade. Narrow horizontal slot windows are the same width and rhythm of the Administration Building but establish a greater sense of solidity to the form.

42 Its solidity ensures that it sits comfortably when viewed with the windowless form of the Memorial East Wing. Where internal uses of the Administration Building requiring large glazed areas were dealt with by 'de-scaling' the building to read as a single storey volume, here the aim is to 'de-scale' the building by treating it as a non-building wall-like form.

43 The preferred minimalist appearance is in keeping with the tri-partite arrangement of monolithic building forms that respond to site master plan principles (form, symmetry and axis).

44 The subtle more recessive reading of form and facade detail is appropriate because the building is specifically about collection activity and staff, not public significance, and is intended to defer significance to the Memorial.

45 Views from the top of the Memorial's parade ground reveal a building integrated with the topography and treed landscape, without detracting from the main focus of the Memorial.

46 The building sits behind the embankment relating to the broader context of site, independent from external staff, visitor, and delivery access visible at the memorial west wing, and windows primarily to the west offering natural light and views for office areas.

Roof

47 This is intended as an elegant grey metal roof sitting within the wall parapets.

48 The roof is set lower and flatter than the main form of the Memorial which means that it also does not dominate when viewed from Mt Ainslie, the only significant point from which it can be seen.

49 The side view from Treloar Crescent when approached in both directions sees the East Building settled into the landscape within the existing trees beyond the car park. The roof will not be visible.

Plans

50 The project can be viewed essentially as a rectangular form for the flexible use of research collection and associated activities. The building is non-public in address and function.

51 Upper level

- Main staff access is via car park and service road with entry to the east of the building
- Workshop and photography are oriented toward the east, with access from the east and central corridor
- Education and Visitor Services offices are to the west

52 Lower level

- The collection is located at the lower level
- Research Collection offices are to the west
- IT Hub
- Plant is located at the south-eastern corner

53 Tunnel

- Underground link for staff for transfer of collection material

Access/Circulation

54 No 'front' door is required for the East Building; there will be no public entry point. Staff and collection access from the Memorial will be via a direct tunnel link connecting below grade to the northern face of the Memorial East Wing.

55 A discreet staff entrance, separate delivery and equipment access will be provided to the east, which will not be apparent to the general public. The service road will be reworked to allow an access and delivery apron.

56 Bin store needs to be in proximity to workshop and staff entry, and delivery relates to both entries; the east provides easy concealed access that allows the car park to operate without obstruction.

57 The existing eastern car park will provide sufficient car parking for staff. This project will relocate staff who already work on site.

58 The Memorial is not increasing staff levels for this development. This movement of staff cars to the eastern car park will free spaces in the western car park for visitors.

MATERIALS AND FINISHES

External Walls

59 The external walls are articulated by honed masonry finish using pigmented pre-cast concrete linear ‘planks’, finely jointed’ with horizontal coursing at similar spacing to the Memorial. Windows are formed as linear slots within the coursing joints.

60 High quality material of SA precast panels used at ANZAC Hall is preferred with careful attention to detail to joints and window reveals will achieve refined appearance.

61 The colour would be a ‘warm-grey’ of a tone slightly darker than the darkest sandstone tone found on the Memorial facing. This will allow the East Building to make a visual connection in terms of colour and materiality with the Memorial, whilst enabling it to tonally blend into the native landscape of earth colours and grey green vegetation.

Roof

62 Grey colourbond metal roof in accordance with cost plan restraints. This corresponds to the design of the colourbond roofing to the existing Administration building and ANZAC Hall.

63 The eastern entry within the masonry wall is finished with metal sheeting with a micaceous iron oxide paint finish. The canopy is painted metal plate.

64 On the west face where the slope of the reinforced earth retaining wall increases the finish changes to a steel framed aluminium metal clad wall.

Floors

65 Research collection store will have a raised floor with vinyl finish.

66 IT hub will have raised floor system for cabling access.

67 Photography, corridors and ancillary rooms will be vinyl floor finish.

68 Workshop floor will be monolithically finished with a dust inhibitor and a quality concrete floor sealer.

69 Offices and meeting rooms will be finished with carpet tile.

Internal Walls

70 The internal walls throughout will be insulated plasterboard paint finish and glazed partitions to suit various office functions.

71 Workshop areas will be unlined with rails to protect the concrete cladding

Ceiling

- 72 The building incorporates acoustic ceiling tiles generally for office areas.
- 73 Photography requires plasterboard ceilings with light and acoustic control.
- 74 Typically throughout a controlled layout of ceiling services with acoustic panels concealing the main air-conditioning duct runs is provided.
- 75 Workshop areas are roof sheet lined with insulation and foil lining. Collection store areas will use dust inhibiting sealant to concrete

STRUCTURE

Soil Investigation

76 The soil investigation report indicates bedrock of high to very high strength Dacite at differing levels over the site, between 2.2m to 6.4m below the existing ground level. The soil overlying the rock is a residual product of the weathering of the underlying Dacite bedrock. The majority of the excavation for the East Building will involve excavation with a conventional large (>20 ton) excavator with a rock breaker attachment where required.

Design Loads

77 The design loads are in accordance with the appropriate Australian Standards for dead, live and wind loads. Allowance has been made for removeable partitions and also for heavily loaded areas, such as compactus, plant room, forklift loads on the ground floor. A maintenance access load has been applied to the roof.

Foundation

78 The foundation consists of pad footings under the columns. Edge beams around the slab edge will also provide a footing for the façade panels.

Retaining Walls

79 The maximum height of the retaining wall is approximately 4.65m. The retaining walls are proposed to be reinforced earth walls with a textured pigmented concrete block facing. The walls will have a free draining clean hard stone layer directly behind the concrete units. Membranes of various lengths, depending on the height of the wall, extend behind the wall to reinforce the retained earth. There will be a distance of approximately 1.1m between the retaining wall and the East Building, which will be closed with a grid mesh.

Slab on Ground

80 The slab on ground will be a conventional insitu reinforced concrete slab with joints at a regular grid.

First Floor Slab

81 The first floor will be a reinforced insitu concrete suspended flat slab, supported on concrete columns. The slab depth increases in the edge bay around the building perimeter, with a deeper edge beam directly on the slab edge. The internal columns have drop panel column heads.

Roof

82 The roof will be a braced steel structure with conventional purlins and metal deck roofing.

Lateral Stability

83 Lateral stability to the building under wind loads will be provided by the braced roof and the structural walls to the stairs and lift shaft.

Tunnel

84 The connection between the East Building and the Gallery will take the form of a below ground tunnel which will be constructed with a cut and fill method. The floor to the tunnel will be insitu concrete with precast walls and a precast roof. Due to reduced access and height constraints under the existing bridge into the Aircraft Hall gallery, the roof to the tunnel in this location will be insitu concrete. The tunnel is to be fully waterproofed. The proposed sequence of construction is to construct the tunnel fully, including waterproofing, before breaking through into the Gallery.

MECHANICAL SERVICES

Introduction

85 The building will have standalone air conditioning system with chillers and boilers independent of the existing Memorial building which is nearing full capacity of cooling and heating plant.

Central Cooling & Heating Plant

86 Two air cooled package type chillers and two gas fired hot water boilers will provide cooling and heating for air conditioning systems. The chillers and boilers will be selected to achieve maximum efficiency with commercially available equipment.

Air Handling Systems

- 87 Separate air handling systems will be provided for the following areas: -
- Collection Storage, provided with close tolerance temperature and humidity control
 - Research Collection, Education and Visitor Services Offices provided with comfort quality air conditioning
 - Photography, provided with process air conditioning to suit special requirements
 - Workshop provided with heating and ventilation

88 Air handling systems for comfort quality and also photography will include outside air economy cycle and current technology energy saving techniques.

Automatic Controls

89 Automatic controls for mechanical services will be digital type compatible with and connected to the building management system in the memorial building.

Energy management routines will be utilised to reduce energy consumption. The BMS will monitor equipment status and facilitate quick response to equipment failures and malfunctions.

ELECTRICAL SERVICES

Scope

90 The extent of the electrical services for this project comprises of the following main items:

- New Dedicated Substation and new Consumer mains.
- Main switchboard.
- Metering.
- Submains.
- Distribution switchboards.
- Light and power sub-circuit wiring.
- Luminaires.
- General and specific power including wiring to equipment.
- Emergency and exit lighting.
- Base building security services.
- Integrated voice/data communications system.

Electrical Supply & Substation

91 A new 750kVA Substation will be provided by ActewAGL adjacent to the new building. The new substation will provide a dedicated supply to the new building with spare capacity to accommodate future expansion.

Metering

92 A new metered supply will be available from the new substation to serve the new East Building. AWM to contact ActewAGL regarding the introduction of summation metering.

Electrical Distribution

93 New underground conduits will be installed from the new substation to the switchroom location on the lower level. The mains cables emanating from the substation shall be installed into the new conduits to the switchroom.

94 The main switchroom is to be located on the lower level within the plant room area.

95 The main switchboard will be a free standing switchboard of the metal clad type, compartmented in accordance with AS 3439. The switchboard shall be complete with:

- Circuit breakers for protection of outgoing circuits.
- Monitoring of distribution status on the Building Management System.
- Digital power meters.
- Power factor correction current transformers.

96 The switchboard would have a spare load capacity for 25% additional load. In the event of a mains failure it will be possible to connect a portable emergency generator into the main switchboard.

97 Submains will run from the main switchboard on cable tray or ladder within the riser to the electrical distribution switchboards. Submains will:

- Be separately provided for lifts, mechanical plant and light and power.
- Be generally PVC/PVC insulated types with copper conductors.
- Be fire rated type for essential fire and safety services.

98 Local distribution boards of the dead front totally enclosed type will be employed throughout the building. The distribution boards will incorporate a main isolating switch with circuit breaker controls for sub circuit protection. Distribution boards will be situated to provide coverage to all areas of the building with spare capacity to allow for future expansion. Provisions for future UPS systems will be allowed for locally at the distribution boards

Workshop

99 A dedicated distribution board will be provided to serve the workshop area to allow for modifications to be made without isolating the rest of the building.

Photography

100 A dedicated distribution board will be provided to serve the photography area. This will allow for modifications to be made without isolating the rest of the building.

Wiring

101 A cable ladder will be employed within the electrical risers between floors for sub main cabling. Horizontal cable tray will be installed above the ceiling space for the distribution of subcircuit wiring to lighting and power outlets. Two compartment skirting duct will be utilised for the distribution of general power outlets and voice/data RJ45 outlets. Separate circuits will be provided for lighting and general power. Spare capacity will be available on all cable containment systems to allow future expansion of lighting, power and communication circuits.

ARTIFICIAL ILLUMINATION

General

102 All areas in the building will be illuminated primarily via fluorescent or discharge luminaires, providing illuminance levels in accordance with AS 1680 - 1990. Localised lighting will be provided where required within the workshop and photography areas

EXTERNAL LIGHTING

Landscape Lighting

103 The lighting of the landscape around the new building will be primarily focused on providing a well-lit area between the new and existing buildings.

Façade

104 Façade lighting will be provided to selected areas of the East Building façade. Lighting will be achieved using low level broad flood beams. Lamp type and wattage will be chosen to complement the building structure.

LIGHTING CONTROL

105 It is proposed to provide conveniently placed localised switching for the lighting control throughout the building.

EMERGENCY & EXIT LIGHTING

106 Battery operated self contained emergency lights and illuminated exit signs generally with fluorescent lamps will be provided throughout all areas including over

warden inter-communication points, in accordance with AS2293 and Authority requirements.

107 The system will incorporate luminaires connected to battery supply with automatic charger and will provide illumination for emergency evacuation of the building in event of failure of the normal building supply.

108 Testing facilities to the requirements of AS 2293 - 1998 will be provided at each distribution board.

GENERAL POWER

109 Double general purpose power outlets will be provided in toilets, cleaners rooms, plantrooms, and foyers.

110 Dedicated outlets will be provided for fixed equipment within the workshop and photography areas.

111 Throughout the rest of the building two compartment skirting duct will be employed around the area perimeters with double general power outlets positioned at 5m intervals.

112 Wiring will be provided to items of permanently connected equipment including automatic doors, pumps, etc.

CABLE ACCESS

113 Access for future cabling requirements will be provided in the form of conduits and cable tray to along distribution routes at high level.

114 Communications cabling routes will be provided and fully coordinated with electrical cabling routes via segregation or spacing to enable future expansion of communications cabling.

LIGHTNING PROTECTION SYSTEM

115 A lightning protection system will be provided in compliance with Australian Standards to protect the building structures and equipment.

COMMUNICATION SERVICES

116 The communication system installed in the East Building will be an extension of the existing Category 5, Class D system, installed in the existing buildings.

117 A fibre optic data link will be provided to the existing communications panel No. 1, adjacent to the security area of the main building to link to the Australian War Memorial LAN system. Limited copper cables will also provide back up in the event of fibre failure and services for the lift telephone and other telephone services requiring copper service.

118 One main communications and data patch panel will be provided to serve the general area with further subpanels provided within the perimeter service space .

SECURITY SERVICES

119 A security and access control system will be provided to the East building comprising of the following main items:

- Alarm monitoring of all access doors.
- A card swipe access system to all doors for AWM staff.
- External CCTV linked to the main building system.
- Passive Infra Red (PIR) Detectors to the Research Centre Collection Store.

120 All access doors and exit points will be fitted with electronic locks, be monitored by the CCTV system and have protection be internal motion detectors.

121 The security and access control systems will be an extension of or integration to the existing systems providing coverage to the main buildings.

LIFT SERVICES

122 The new passenger lift proposed for the East Building is to be a machine room less lift, with disabled persons facilities to meet Building Code of Australia requirements.

123 It is proposed to employ a machine room less lift as it can easily meet access requirements, provides flexibility in building design, is energy efficient and cost effective in both capital cost and operating/maintenance cost.

HYDRAULIC SERVICES

Scope of Services

- 124 The hydraulic services will include:
- Connection to or modification of existing hydraulic site services;
 - Sanitary Plumbing and Drainage;
 - Roof Stormwater Plumbing and Drainage;
 - Trade Waste Plumbing and Drainage;
 - Domestic Hot and Cold Water Services; and
 - Fire Hydrant and Fire Hose Reel Services.

Existing Site Services

125 **Sewer** An existing 100mm-diameter sanitary drainage line is located to the north of the proposed building. While this drain is external to the proposed building it

is internal to the site boundary and hence is under the jurisdiction of the AWM. The drain currently serves the Outpost Café and has sufficient spare capacity so that it can be used for the East Building.

126 **Stormwater** An existing kerb-side drainage sump is located adjacent to the Fire Brigade Booster Valve and Sprinkler Valve Room to the north of the site on the access road between the main Memorial building and the proposed site for the East Building. A 300mm-diameter stormwater drainage line runs from this kerb-side sump and will have sufficient spare capacity so that it can be used for the East Building. Therefore a new stormwater tie will be run from the kerb-side sump to the proposed East Building.

127 **Water** The existing water supply network within the site is fed from two 100mm-diameter ties provided from ActewAGL water mains. These are located at opposite ends of the site, one off a 600mm-diameter main located in the verge of Limestone Avenue and the second tie is off a 150mm-diameter main located in Treloar Crescent. A ring main then circles within the Australian War Memorial site. Part of the internal water main runs behind the kerb of the access road that is between the main Memorial building and the proposed East Building site. It will be possible to connect to this main to provide a potable water supply to the site. It is proposed to provide a 65mm-diameter water tie for the building and this supply will have a pulse meter connected to the BMS so that water usage can be monitored. As the building will have sprinklers, hydrants and hose reels it will be necessary to provide a 100mm-diameter combined sprinkler / hydrant service. It is proposed that the water for this service comes from the existing fire service that already has a fire brigade booster valve (FBBV). It may however, be necessary to increase the size of the sprinkler valve room (SVR).

Internal Hydraulic Services

128 **Sanitary Drainage** Sanitary plumbing and drainage will be used to convey the waste from the kitchens and toilets throughout the building to the existing sanitary drainage line to the north of the proposed East Building. It is proposed that uPVC pipework be used for both the sanitary plumbing and sanitary drainage.

129 **Trade Waste Drainage** In order to determine the appropriate pre-treatment facilities for the waste from the photographic area of the building it will be necessary for the Australian War Memorial to provide a complete list of all chemicals to be used within the facility together with the proposed procedures for the disposal of any of the unused or waste chemicals. If any chemicals are proposed to be discharged down the drains, it will be necessary to submit an application to the Trade Waste Section of ActewAGL detailing types, quantities, pH's, maximum discharge rates etc of the chemicals. Subject to the response from ActewAGL, the appropriate type of pre-treatment facilities could be a simply buffer tank to dilute trace chemicals or else a full neutralizing system including chemical dosing and pH monitoring. It is noted that the waste from the roof plantroom mechanical equipment and the garbage area will also be the subject of a trade waste application to ActewAGL.

In addition to the photographic waste pre-treatment, it will be necessary to provide cooling pits to collect the discharge from any humidifiers installed within the building.

130 Domestic Potable Water Supply As discussed in the external hydraulics section above, it is proposed that a 65mm-diameter potable water supply be provided for the new building. After leaving the water meter, the incoming water supply will enter into the building and rise up into the ceiling of the lower ground floor and then reticulate to the various fixtures and plant within the building.

A number of water supply offtakes will be provided to serve the mechanical equipment and the hot water plant. In addition, a number of hose cocks will be located around the external of the building to facilitate cleaning and maintenance.

Finally, appropriate backflow prevention devices will be installed on the potable water supply. These will include vacuum breakers for the hose cocks and a reduced pressure zone device (RPZD) on the supply serving the plantroom.

Water conservation is considered an essential requirement for any new development and as part of the hydraulics component of the project we will be installing fixtures and fittings with AAA rating.

131 Stormwater Plumbing and Drainage The stormwater plumbing and drainage for the new building includes the collection and disposal of the following:

- Roof stormwater. The roof stormwater collection system will comprise box gutters, receiver sumps and downpipes and will be designed to cater for a 100-year storm event. An overflow system, also designed to cater for a 100-year storm event, will be provided in the event of a blockage in a sump receiver or a downpipe. Each downpipe will discharge over a grated sump so that the roof stormwater can escape in the event of a blocked stormwater drainage line.
- Stormwater Drainage: The main stormwater drainage lines will collect the stormwater from the downpipes and grated sumps and will run down either side of the building. The stormwater drainage will then connect to an existing road-side sump located to the north of the site as discussed above.
- Surface stormwater. This will comprise a series of grated sumps located to intercept surface stormwater and convey it to the stormwater drainage system.

132 Potable Hot Water Supply It is proposed that the potable hot water for the facility will be generated by gas fired mains pressure hot water heaters. A minimum of two heaters will be provided to ensure that hot water can still be provided should one heater fail or require periodic maintenance.

The hot water will then be reticulated around the building via a pump assisted recirculating loop. Thermostatic mixing valves (TMV's) will provide temperature control and these will limit the hot water temperature to the basins and showers to a maximum of 50°C as required by the BCA. In addition, TMV's will be provided to the photographic area to limit the hot water to a maximum of 25°C as required by the photographic process. Isolation valves will be provided in strategic locations to facilitate maintenance and to minimise disruption to other occupants when maintenance is required.

133 **Hydrants and Hose Reels** The new building is required to have fire hydrant and fire hose reel installed to comply with the requirements of the BCA. As discussed in the external hydraulics section above, the water supply for the fire hydrants will come the existing fire hydrant service to the existing Australian War Memorial buildings. A fire brigade booster connection already exists on this existing service tie.

The water supply for the fire hose reels will come from the potable water supply serving the building. The required backflow protection devices will be installed to the fire hose reels.

FIRE PROTECTION SERVICES

Fire Protection Services Overview

134 The building is to be fully protected with an automatic fire sprinkler system installed in accordance with AS2118. Smoke detection and alarm will be provided throughout to comply with AS1668.1, and to provide early warning by VESDA in high risk areas.

135 A fire engineering assessment will be undertaken to assess compliance with the performance requirements of the BCA 2004; the results of this assessment may alter the fire safety systems to provide an sufficient level of protection.

Fire Sprinkler System

136 The East Building is to be fully protected against fire by the installation of an automatic wet pipe sprinkler system throughout all areas. A dry pipe double interlock pre action sprinkler system is proposed in the Collections storage area, and a wet pipe system will be provided elsewhere, including the tunnel. Separate valve sets will be provided for the dry pipe and wet pipe systems.

137 Sprinklers will be fast response type with an RTI less than 50. Hazard Classifications will be in accordance with AS2118 to suit the occupancy risk.

138 The sprinklers will be monitored by the fire alarm system monitors and connected back to the Fire Brigade. The system will activate both the smoke control system and the EWIS.

Smoke Detection System

139 A smoke detection system will be provided at extended spacings in accordance with the BCA 2004 and AS1668.1. Below ceiling and concealed space detectors will be provided and well as return air detectors for A/C system shut down. Smoke detectors will not be provided in areas which may create spurious alarms; i.e. areas of the workshop, toilets, tea points.

140 The installation of a MASDS (VESDA or similar) is proposed in the Collections storage area to provide early detection and to activate the dry pipe sprinkler system.

Fire Indicator Panel

141 The existing Fire Indication Panel (FIP) in the main building will be utilised to notify the Fire Brigade and control the various fire systems throughout East Building. All smoke detection and other fire services will be connected to a dedicated addressable responder unit wired from the existing addressable FIP in the main Australian War Memorial building.

EWIS

142 The existing Fire Indication Panel (FIP) in the main building will be utilised to notify the Fire Brigade and control the various fire systems throughout the East Building. All smoke detection and other fire services will be connected to a dedicated addressable responder unit wired from the existing addressable FIP in the main Australian War Memorial building.

Smoke Hazard Management System

143 The activation of any fire system will initiate the smoke hazard management system.

ENERGY CONSERVATION MEASURES

Architectural

144 The building has been set into the landscape to minimise the impact on the Memorial which also provides a degree of thermal stability by reducing the area of exposed external walls.

145 Windows in external walls have been minimised, consistent with the Memorials collection storage and photographic studio needs. The building roof is also fully insulated.

Mechanical

146 Air handling systems will be selected to supply separate functional areas, allowing individual systems to start/stop and operate to suit occupancy times and usage of the space.

147 Air handling systems will utilise a range of concepts and techniques to minimise energy including:

- Variable air volume for office space with variable speed fans.
- Outside air economy cycle for comfort air conditioning systems to reduce chiller power consumption.
- Optimum start/stop times to minimise unnecessary operation prior to occupancy.

- Night purge using outside air to pre-cool warm areas of the building overnight.

Electrical Services

148 The following are the proposed concepts incorporated into the design of the electrical services within the building. The concepts represent good commercial practice using the latest technology.

149 Luminaires Generally, the lighting throughout the office areas will be via high efficiency fluorescent fittings employing modern lamp technology in T5 energy efficient tubes. Luminaires installed in central circulation areas, lift lobbies and corridors are generally high efficiency compact fluorescent downlights. These provide a similar architectural effect as incandescent downlights but require approximately 80% less energy. Fluorescent luminaires are also used within the fire stairs as these are 24 hour operation. The photography area will have three different lighting systems installed. Safe lighting will be employed within the dark room areas with low lux level lighting outside in the corridor areas. The lighting throughout the remainder of the photography area will be dimmable high frequency fluorescent lighting. Luminaires within the RC store will have a low UV output.

150 Lighting Control Lighting control will be achieved via local light switches and dimmable circuits within areas that will eventually become 24hr operation, i.e. photography. There is potential to significantly reduce the energy consumption due to lighting in the office, workshop and toilet areas employing a reset lighting system. This system will automatically switch off all lights connected to the system at a predetermined time everyday, the light sin each area will then remain off until the switch is pressed to turn the lights on again. The specialist lighting within the RC store will be operated as and when required via local light switches.

Lift Services

151 The lift drive and associated controls will be chosen to be in the highest efficiency range for the type of lift chosen. The machine room less lift chosen represents the most economical and energy efficient lift for the duty required. The control system will be of the latent type for a single lift control

Hydraulic Services

152 A number of water reduction measures will be undertaken to reduce the volume of stormwater runoff from the site and minimise demand on potable water. These will include:

- Roof stormwater harvesting with the captured rainwater used for irrigation purposes. In accordance with Environment ACT recommendations, the stormwater harvesting will be on the basis of collecting up to the one in three month rainfall event. Environment

ACT recommendations are that this rainfall event equates to collecting 1,300 litres per 100m² of impervious area.;

- Dual flush toilets are proposed with 3/6 litre flushes; and
- Taps and showers of AAA rating are proposed.

PROVISION FOR PEOPLE WITH DISABILITIES

153 The building is designed to conform to the codes for people with disabilities, AS1428.1 and AS1428.2, including but not limited to:

- disabled lift control panels
- provision of disabled toilets on the both levels of the building
- provision of disabled car spaces
- minimised level changes at entries to the building

LANDSCAPING

154 Landscaping is to be consistent with the recommendations in the Conservation Masterplan.

155 Because of the rising natural land form of the site to the East, and in order to accommodate the required floor areas within the necessary two storey envelope, a large proportion of the building is set below existing ground level.

156 The building sits within an external retaining wall perimeter with a continuous mesh cover at the facade perimeter that merges with the landscape. Contours are graded gently to allow appropriate falls along the north and south faces to create a neat aesthetic treatment.

157 Natural grassed landscaping runs up to the mesh. This avoids the need for stabilized open batters and the need for safety fencing.

158 Internal functions are organized by the topography. Windows relating to offices are primarily located at the western side of the building to the upper and lower levels. Because of the nature of many of the internal uses (workshops, photography areas, collection store) to the eastern portion of the building, the number of windows at the north and south facades is limited. This would not appear to present amenity problems for users.

158 The landscape design will retain as many trees as possible. Native species will be replanted to re-establish the existing informal nature of the landscape.

Access Road & Native Grass Berm

159 A new access road and pedestrian path is to be excavated to the east of the building to allow direct access into the building at level 1 floor. This will be dealt with using a berm with native grasses to integrate new work with the existing natural landscape and ground levels.

160 Generally, irrigation is necessary for the establishment of native grasses and new trees. The existing irrigation system will be modified to accommodate the new planting around and within the new works.

AUTHORITIES CONSULTED

161 The following authorities and Departments have been contacted and/or consulted by the Memorial and its consultants during the preparation of this submission:

- Department of Finance & Administration
- National Capital Authority
- Department of Environment and Heritage
- Australian Heritage Commission
- Public Works Committee Secretariat
- ACT Planning and Land Management
- ACT Building, Electrical and Plumbing Control
- ACTEW
- ACT Fire Brigade
- Telstra
- Australian Gas Light Company

PROJECT COST

162 The estimated cost for the proposal is \$11,457,000 inclusive of escalation costs, contingencies, all professional fees and authorities charges. The estimate excludes GST, relocation costs, loose furniture, fittings and equipment.

The estimate components are as follows:

- New building works, tunnel construction and connection to existing building
- Contingency for increased building footprint to accommodate immediate expansion requirements
- Contingency for inclusion of the NCA and AHC request for reduced levels relating to the height of the building
- Landscape works
- AWM direct project costs

PROJECT DELIVERY SYSTEM

163 To meet the timetable for opening, the engagement of head contractor under a 'Document and Construct' contract is considered the most appropriate form of minimum cost and least risk delivery for the project.

164 Under this form of contract the design team will be novated to the contractor and will be responsible to the contractor for the development and delivery of the construction documentation. This form of contract will allow the AWM to have total control of the design while substantially reducing the risk of cost overruns during construction due to documentation discrepancies.

TIMING

165 Subject to a favourable report from the Public Works Committee and Parliamentary approval, it is planned to call tenders in late 2004 with construction scheduled for completion by 31 March 2006.

SUMMARY AND RECOMMENDATION

166 The construction of East Building will allow the Australian War Memorial to redevelop the existing Post 1945 Conflicts and Discovery Room galleries by relocating back of house functions and collection storage. This will bring these galleries to the same world class standards as the other redeveloped galleries in the Memorial, and satisfy the considerable criticism from the veterans community and visitors.

167 The design satisfies the concerns of the NCA, Australian Heritage Commission and Department of Environment and Heritage that the new building suitably and sympathetically complements this nationally significant site.

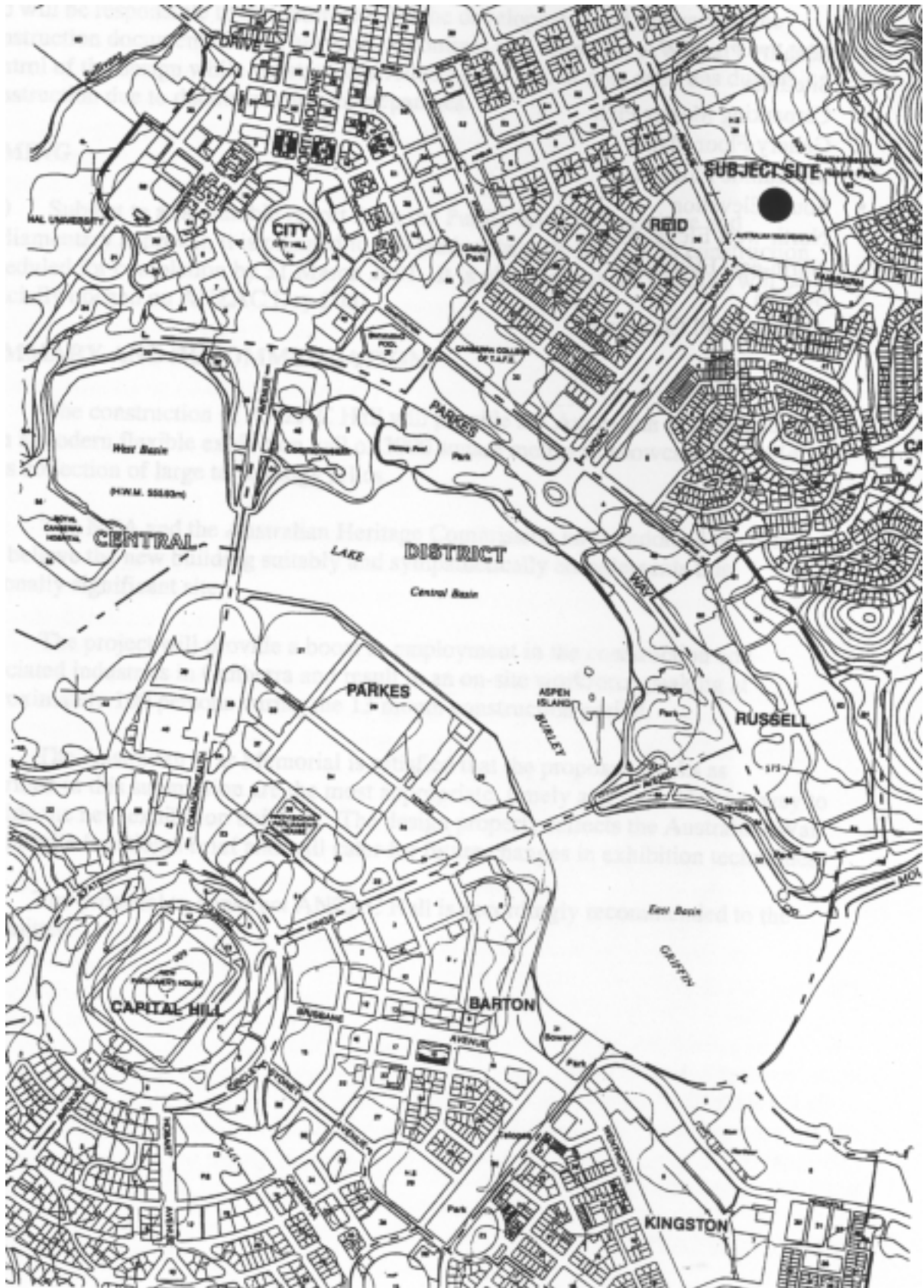
168 The project will provide a boost to employment in the construction and associated industries in Canberra and result in an on-site workforce peaking at approximately 80 persons during the 12 month construction period.

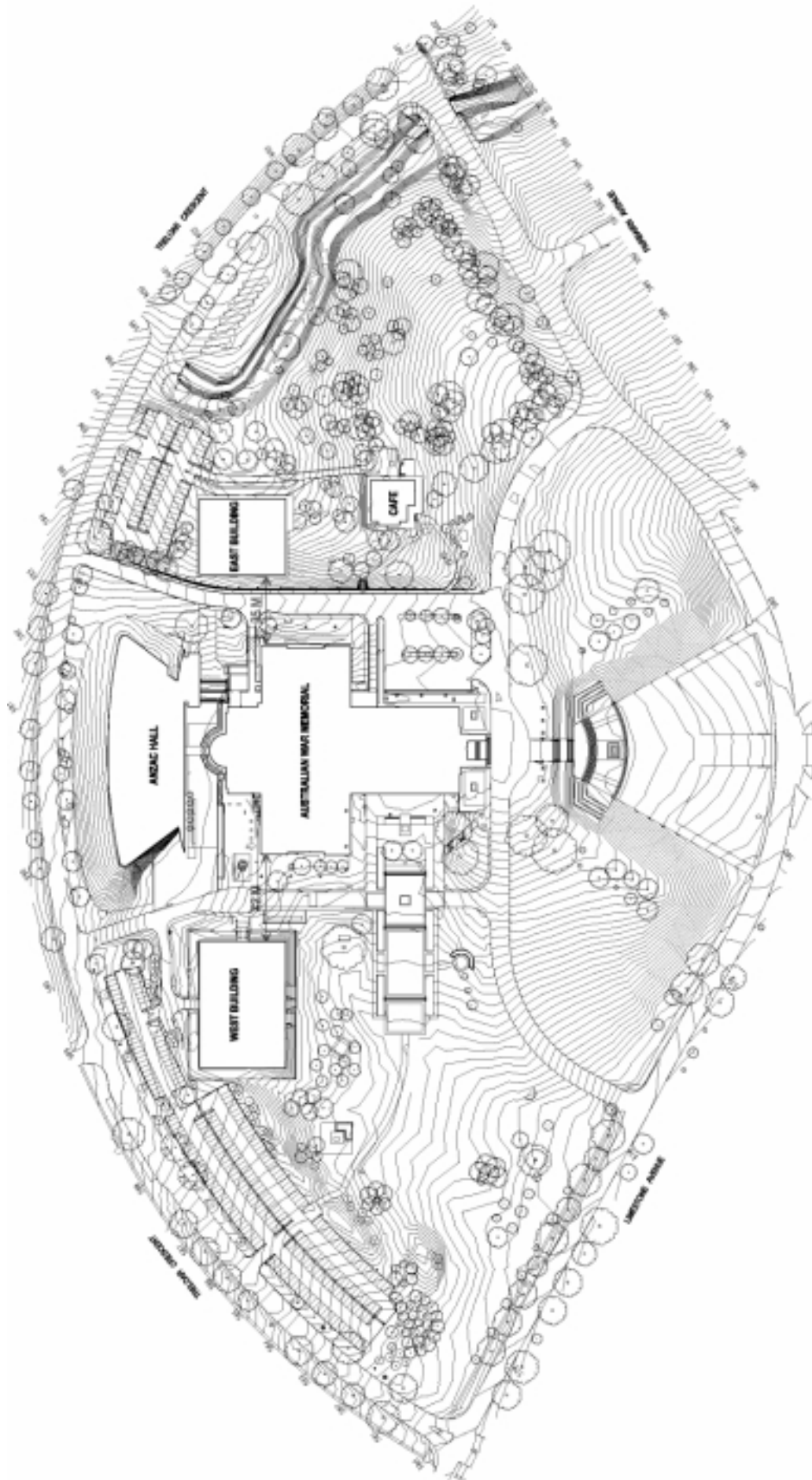
169 The Australian War Memorial is satisfied that the proposed works as described in this submission are the most appropriate, timely and cost effective way to provide the new exhibition space in the Memorial. The design properly reflects the Australian War Memorial's functional brief and will cater for future growth in collections and activities.

170 The proposal to construct East Building is accordingly recommended to the Committee.

DRAWINGS

- Locality Plan
- Site Plan
- Master Plan Circulation
- Basement Floor Plan
- Lower Floor Plan
- Upper Floor Plan
- Northern (NW)Elevation
- Eastern (NE) Elevation
- Western (SW) Elevation
- Southern (SE) Elevation
- Section A-A
- Section B-B
- Section C-C Tunnel detail
- Perspective View North
- Perspective View South
- Perspective View West
- Photomontage 1
- Photomontage 2
- Photomontage 3

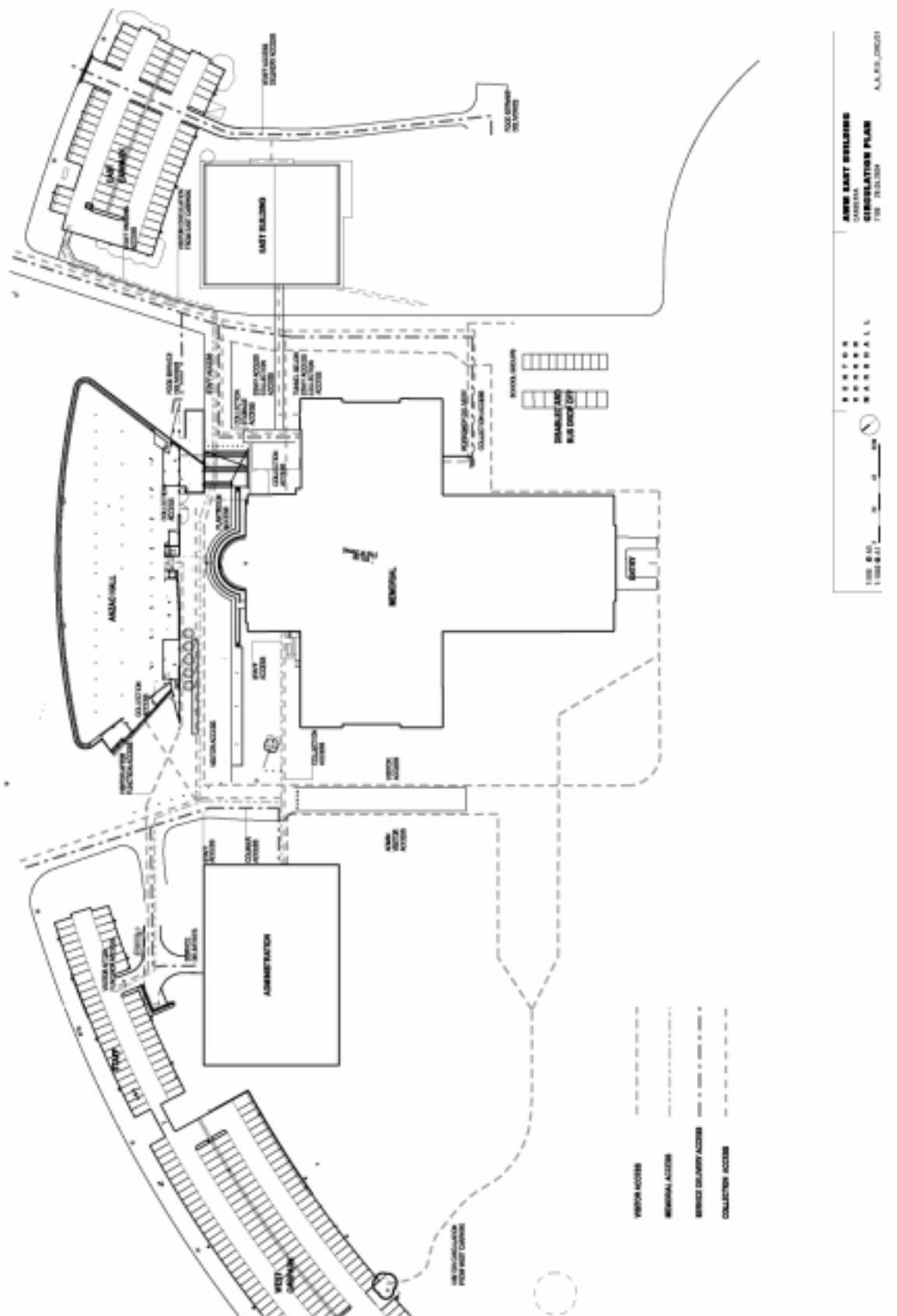


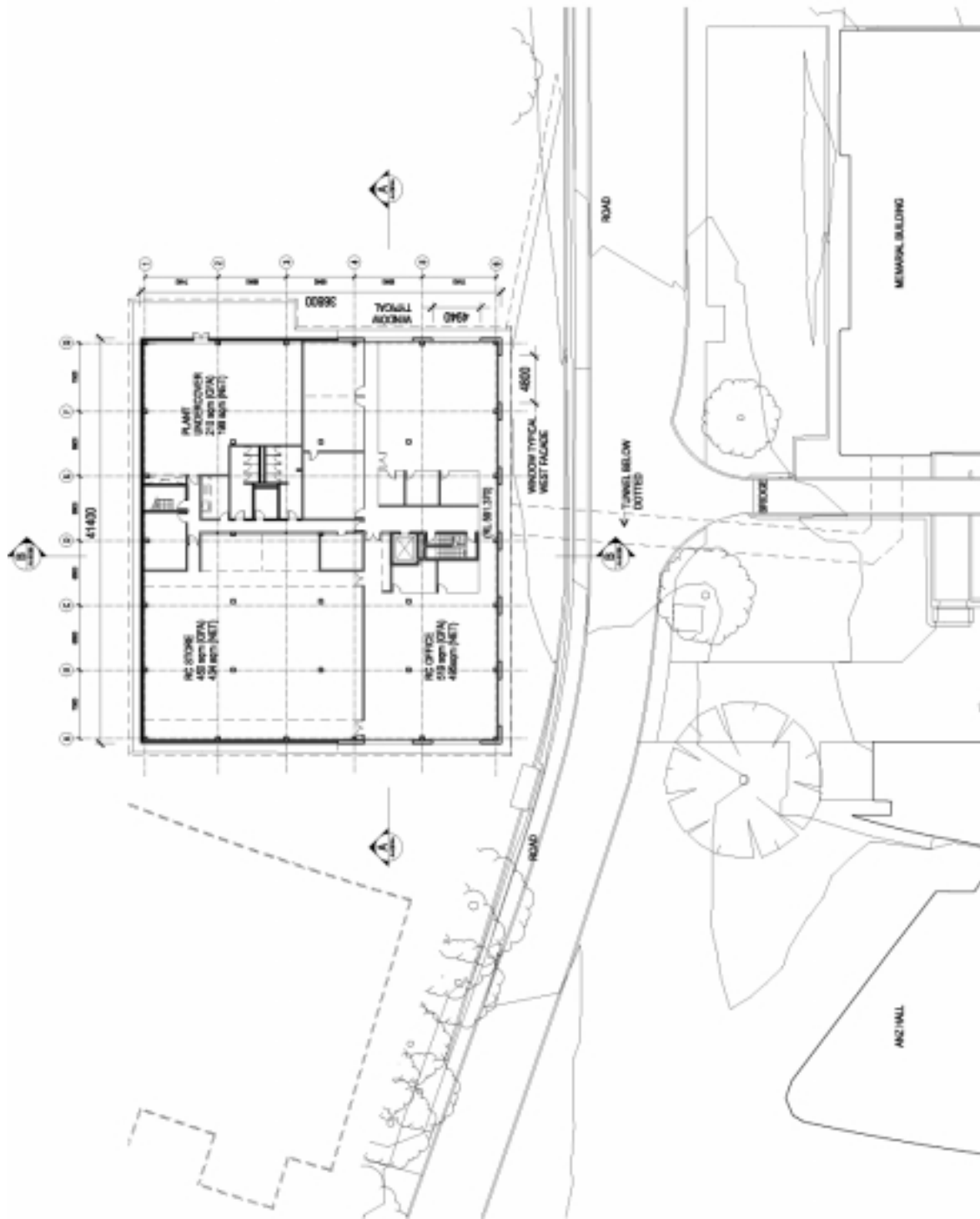


ARDEN EAST BUILDING
GENERAL
MASTER SITE PLAN
1/10 28/03/2004

D E N T O N
C O R S E
M A R S H A L L







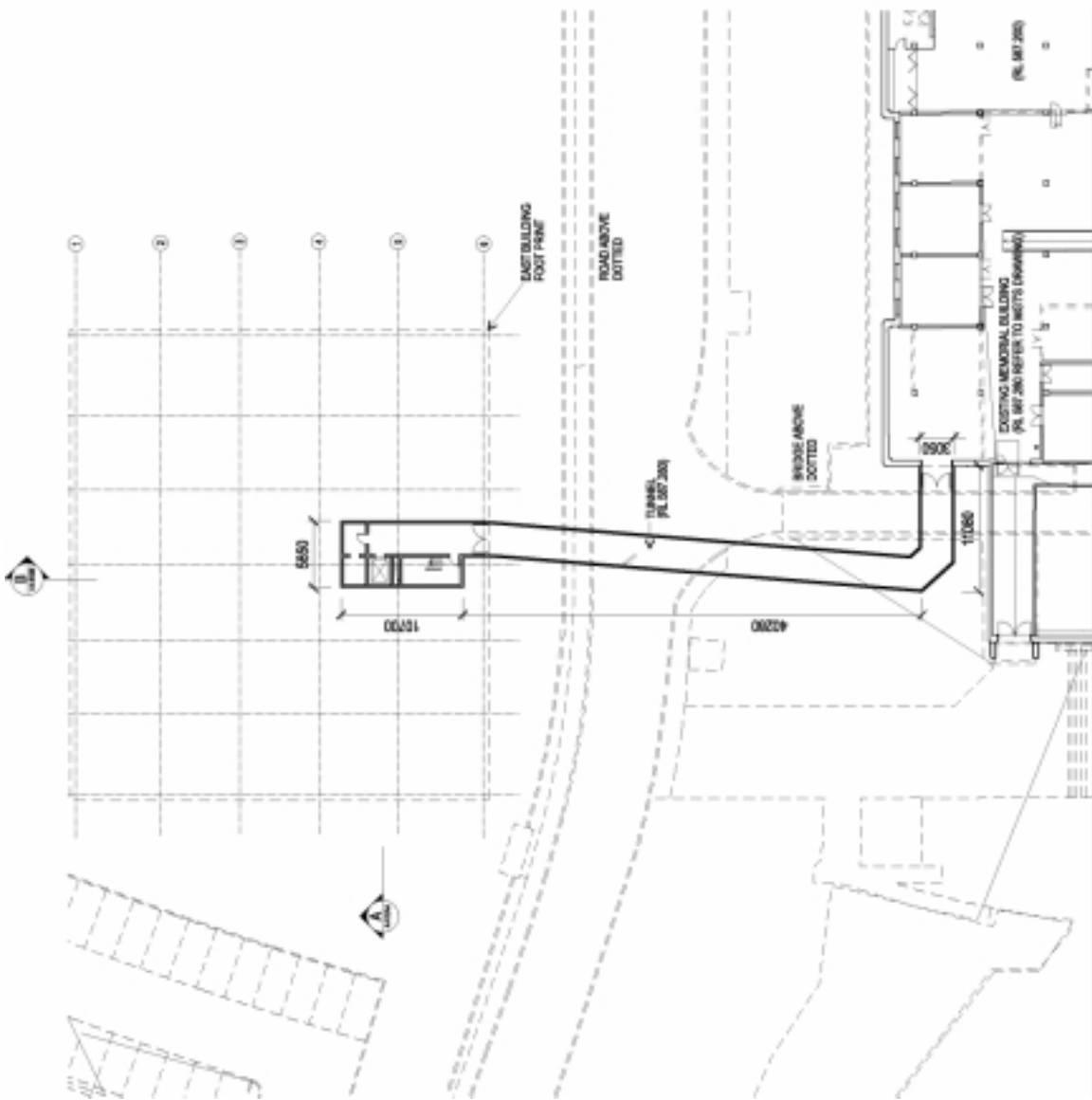
AWM EAST BUILDING
 GARDEN
OPTION 3 PROPOSED LOWER LEVEL PLAN
 15.11.2025
 1:100 @ A3 0 5 10m
 DESIGNER
 GORNER
 MANUEL L L
 1:100 @ A3 0 5 10m



ARVIN EAST BUILDING
SCHEDULE
OPTION F PROPOSED UPPER LEVEL PLAN
1105 24.11.2009
M.S.A. (A/10)

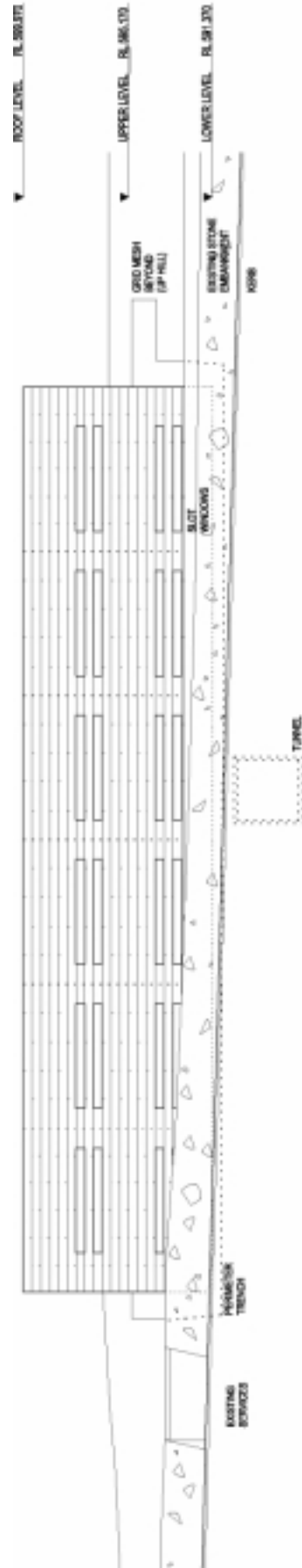
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D E N I S
C O R K E R
M A R K S L L L

1:400 @ A3 0 5 10 20



AWM EAST BUILDING
CAMBRIA
OPTION 7 PROPOSED TUNNEL LEVEL PLAN
PL 107.200

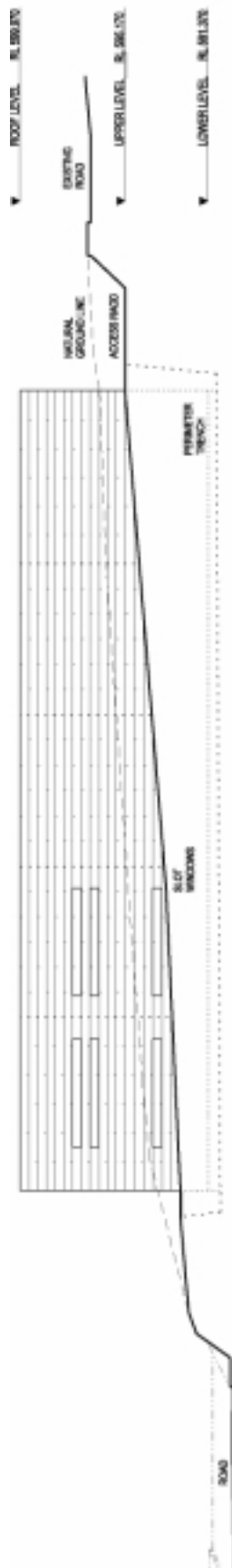
1:40000 0 10 20 30
GENTON
CORNER
MANORIAL L



1:20 @ A2 0 1 2 4m

DENTON
CORNER
MARSHALL

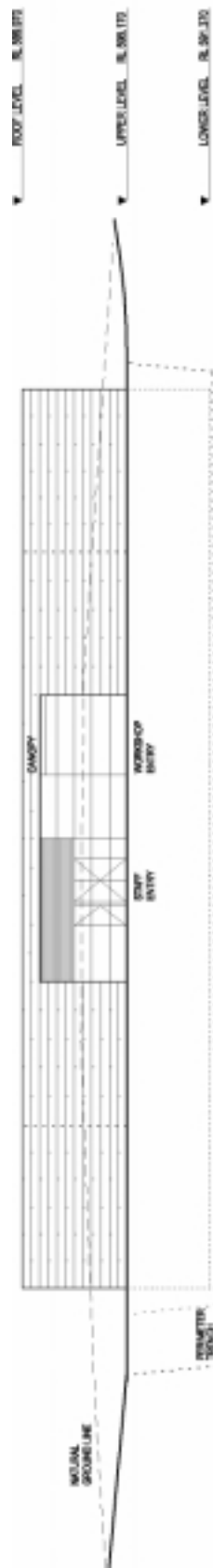
ANNEX EAST BUILDING
CANBERRA
WESTERN (SNO) ELEVATION
7180 27.05.2008 00_A_120W01



1:2000 0 1 2 3 4 5

AWM EAST BUILDING
CARIBBEA
SOUTHERN (SW) ELEVATION
18_AUGUST
780 21.03.2004

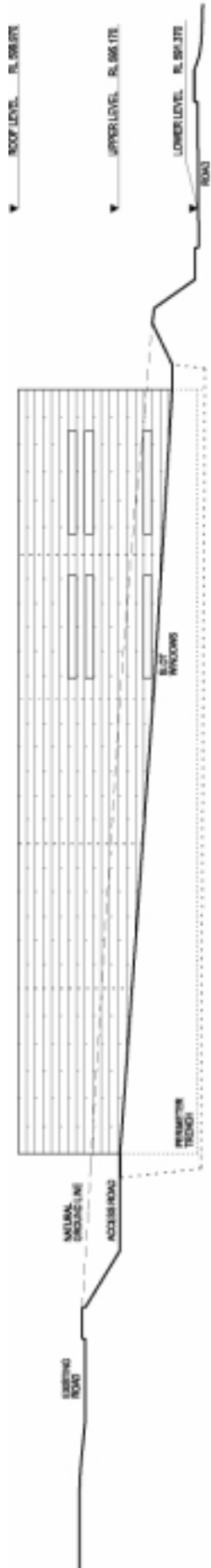
DEYTOR
CORNER
MAHRAJ L



1/20 @ A2 0 1 2 3 4m

AVON EAST BUILDING
 EASTERN (S&S) ELEVATION
 1/20 28.11.2014 D.A. 11/12/11

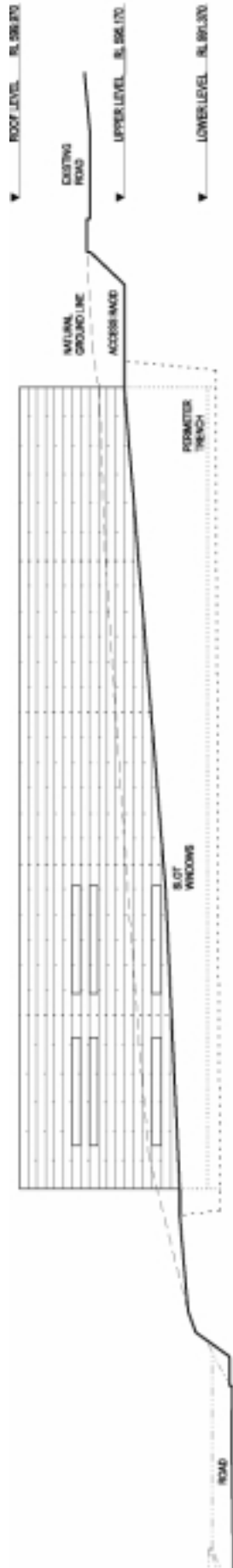
D E S I G N
 C O N T R O L L E D
 M A T E R I A L S



1:2000 S.D. 0 2 4m

DENTON
CORPORATION
MANUAL L

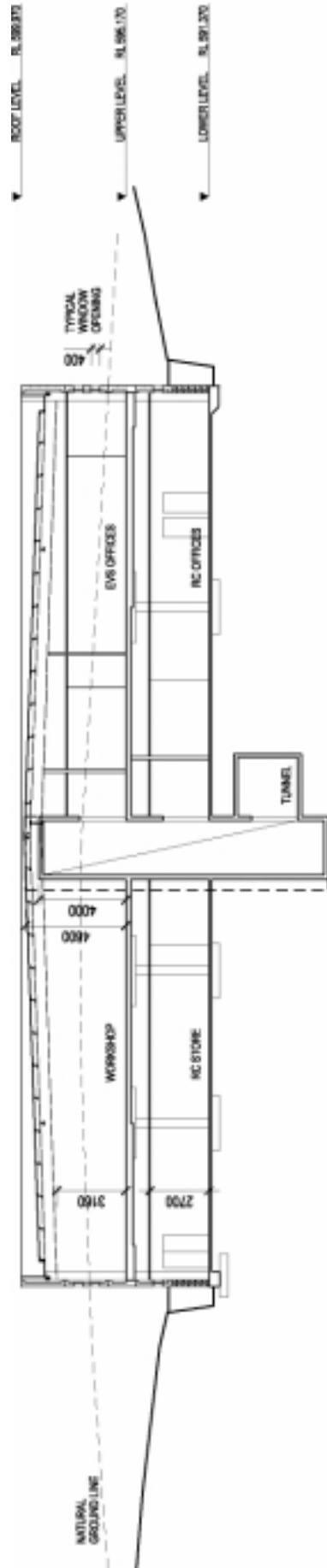
AVON EAST BUILDING
CAROLINA
NORTHERN END ELEVATION
1700 28.10.2014 B.A. DUNN/01



1:200 @ 0 1 2 3 4m

AWM EAST BUILDING
CANTON
SOUTHERN (SW) ELEVATION
1782 28.01.2024 RL_A_01501

DEYTON
COOPER
MARSHALL

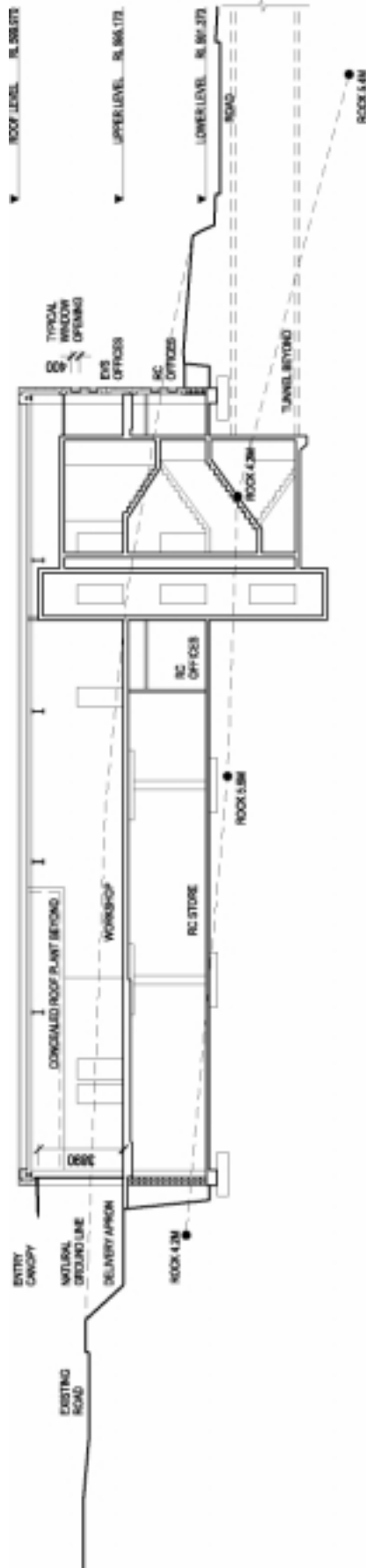


ARMY EAST BUILDING
CONCRETE
SECTION AA
11/8 21.03.2014

BENTON
CORNER
MARSHALL

1:200 @ A1 0 2 4m

D.L.A. 0046/01



ARROW EAST BUILDING
 GENERAL SECTION 08
 110 - 110.000

SYSTEM
 CORNER
 MATERIAL

0 3 6m

D.A. LIBERTY



PROSPECTIVE
OF
FORT MIFFLIN - PENNSYLVANIA
1811



PROSPECTIVE
FOR THE PROPOSED
SOUTH BRIDGE - NEW BRIDGE
1911





PERMANENT ARCHITECTURAL RECORDS
BARRY BUILDINGS - VIEW WEST
PROJECT



