

Treloar E Large Technology Objects Store Project



# **TRELOAR E LARGE TECHNOLOGY OBJECTS STORE PROJECT**

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

## **SUBMISSION 1**



**AUSTRALIAN WAR MEMORIAL  
CANBERRA, ACT**

**JUNE 2017**

## Treloar E Large Technology Objects Store Project

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Attachment A Design Drawings

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## **1 NEED FOR THE WORKS**

### **1.1 The Australian War Memorial**

#### **1.1.1 Australian War Memorial Mission**

The Australian War Memorial commemorates the sacrifice of Australian servicemen and women who have died in war or in peacekeeping and certain peacetime operations. Its mission is to help Australians to remember, interpret and understand the Australian experience of war and its enduring impact on Australian society. The Australian War Memorial was opened in 1941, and is widely regarded as one of the most significant memorials of its type in the world. Every year more than seven million people visit the Memorial and its website. The Memorial consists of three sub-programs: National Collection, Public Programs and Corporate Services.

#### **1.1.2 Australian War Memorial – Memorial, Museum and Archive**

The Memorial was conceived as a memorial and a museum that supports commemoration through understanding. Its development through the years has remained consistent with this concept. In recent years the Memorial has undergone a major revival. It is an outstanding museum, which houses world-class exhibitions and a diverse collection of material that relates to the Australian experience of war. It is also a centre of historical research for Australian military history and an archive, which holds extensive official records and private documents, diaries and papers. The Memorial is a cultural institution of international standing and is also one of Australia's leading major tourist attractions.

#### **1.1.3 Australian War Memorial Collections**

Today, over three million items record the details of Australia's involvement in conflicts and operations, from colonial times to the present day. Many items in the collection are icons that have come to symbolise Australia's experience of war.

### **1.2 Australian War Memorial Act 1980**

The Australian War Memorial is established and governed as a corporation by the Australian War Memorial Act 1980 (the Act). The Act sets out the functions, powers, acquisition and disposal of historic material. It sets out responsibilities of the Minister and Council, and details staffing, financial and administrative arrangements. The functions of the Memorial and the powers of the Memorial, the Minister, the Council, the Chairman and the Director are also outlined in the Act. The Minister for Veterans' Affairs has portfolio responsibility for the Memorial, which is a statutory authority within the portfolio. The Council is responsible for the conduct and control of the affairs of the Memorial and the policy of the Memorial with respect to any matters determined by the Council.

### **1.3 Australian War Memorial – Main Memorial Building, Campbell, ACT**

The Australian War Memorial main building in Campbell consists of three parts: (i) the Commemorative Area including the Hall of Memory with the Tomb of the Unknown Australian Soldier, (ii) the Memorial's galleries (often referred to as the museum) and (iii) Research Centre where the records are contained. The Memorial also has extensive outdoor areas including a Sculpture Garden.

### **1.4 Australian War Memorial - Treloar Resource Centre, Mitchell, ACT**

The Treloar Resource Centre at Mitchell in the ACT is an essential asset of the Australian War Memorial. It is the Memorial's conservation facility and store for large objects of military technology, including aircraft, vehicles, boats, missiles and guns. Items of special significance include a Japanese Ha-Go tank captured at the Battle of Milne Bay, a RAAF Caribou and Iroquois helicopter used in Vietnam, and an Army Bushmaster vehicle damaged by an improvised explosive device in Afghanistan. The facility also includes workshops that are used for large scale conservation projects. The Treloar Resource Centre is annually open to the public for "Big Things in Store" open days.

### **1.5 Treloar Resource Centre – Storage Growth Requirement**

The continual acquisition by the Australian War Memorial of historical material of national significance has led to the requirement for the Australian War Memorial to develop a long-term strategy to increase storage capacity. The Australian War Memorial commissioned the development of the Mitchell Precinct Development Plan, which involved the mapping of the historical patterns of collections growth against the available storage capacity. The plan was based on two decades of research and monitoring, and established the design principles for future storage at Mitchell. By extrapolating the historical data and considering known and likely collections that will become available in the coming years, the Mitchell Precinct Development Plan estimates an increase of 4,000 square metres of storage per decade will be required to house the collections. Its analysis of collection growth, forecast the Memorial's storage and access needs for the next century.

### **1.6 Mitchell Precinct Development Plan – Australian War Memorial Council Approval**

Mitchell Precinct Development Plan was endorsed by the Australian War Memorial's Council in 2012. Approval by Council formally set the strategic direction for collection storage development. Pursuing this strategic objective, the Australian War Memorial has purchased all the surrounding leasehold land around Callan Street, Mitchell. The Memorial's Council also approved the first stage of the next century's expansion of collection storage with the construction of the Treloar E Large Technology Object Store Project.

## **1.7 Ownership versus Leasing Option for Additional Storage Capacity**

Extensive analysis had been undertaken in the development of the Mitchell Precinct Development Plan. Because of this analysis the Australian War Memorial Council approved the purchase of land for future development. The reasons that The Australian War Memorial Council agreed to purchase land rather than lease commercial storage space is:

- a. as storage will be required on a permanent basis superior value for money will be achieved by developing Commonwealth owned facilities;
- b. ownership provides certainty of control of the collection;
- c. provides the Australian War Memorial the opportunity to control the whole of life costs and environmental conditions for the management of the collections; and
- d. proximity to existing Treloar facilities enables flexibility between the facilities to enable optimal management of the Treloar facilities.

## **1.8 Treloar Collections Storage – Land Sizes**

The Treloar Resource Centre has been developed by purchasing five parcels with storage structures already in place. Treloar F is under long-term lease to a third party and not available for 23 years from this date. The land parcels that the Australian War Memorial owns in Mitchell are:

- a. Treloar A                      Block 12 Section 20 – 6,906 sqm;
- b. Treloar B and C              Block 16 Section 21 – 15,410 sqm;
- c. Treloar D                      Block 9 Section 21 - 4,801 sqm;
- d. Treloar E                      Block 17 Section 21 – 6,893 sqm; and
- e. Treloar F                      Block 18 Section 21 – 6,586 sqm (leased to third party until 2040).

## **1.9 Treloar Collections Storage – Current Storage Capacity**

The total storage space available for collections at the Treloar Resource Centre is 15,500 sqm. Generally, the collections capacity is approximately 65% of the total floor space, allowing for space around each collection and circulation areas. At the Treloar Resource Centre there are also functions supporting collection conservation in the workshops. The current total space available at each of the storage facilities and the year the land was purchased are:

- a. 1978 – Treloar A – 4,500 sqm;
- b. 1986 – Treloar B – 3,500 sqm;
- c. 1993 – Treloar C – 5,500 sqm; and
- d. 2011 – Treloar D – 2,000 sqm.

## **1.10 Treloar Resource Centre – Staging Space**

The Treloar Resource Centre is also used to support staging for redevelopment of the main Memorial building in Campbell. Planning is underway for significant redevelopment of the gallery spaces in the Memorial main building in Campbell. This redevelopment will require decanting spaces as part of the gallery redevelopment and will therefore result in increased storage requirement at the Treloar Resource Centre.

## **1.11 Mitchell Precinct Development Plan Principles**

### **1.11.1 Overview**

The Mitchell Precinct Development Plan has been prepared to set parameters for the long-term planning and staging strategies for the Treloar Resource Centre. It addresses the vision of the institution as well as the functional design requirements for the storage and conservation of the National Collection. The first objective has been the establishment of a series of *Site Development Principles* that will help guide future development decisions in eliminating planning conflicts and preserving flexibility. The Mitchell Precinct Development Plan *Site Development Principles* are detailed in Section 1.11.2 through to Section 1.11.10.

### **1.11.2 Principle 1 – Whole of Institution Consideration**

The Treloar Resource Centre integrates with the functions at the main Memorial building. Any redevelopment affecting conservation and other exhibition support activities will have an impact on broader Memorial operations.

### **1.11.3 Principle 2 – Maximise Site Usage**

The existing Treloar Resource Centre has sufficient land to accommodate another 75 years of storage growth through progressive development of higher density two level buildings.

### **1.11.4 Principle 3 – Design Flexible Building Storage Form**

The Treloar Resource Centre must have spatial and structural flexibility to accommodate the diverse storage requirements including size and load impact, handling and movement, environmental control and security. It must be capable of responding to changes in collection type and acquisition rates over time.

### **1.11.5 Principle 4 – Design Flexible Building Storage Form**

There is flexibility in sizing the area of each stage of development to meet funding and operational demands. The buildings should have an optimal module of 50 metres width, which relates to structural, services, crane and efficiencies of use.

### **1.11.6 Principle 5 – Organise around shared infrastructure and support facilities**

Staged developments should be configured around a central spine to benefit from operational efficiencies of shared vehicular movement and handling yard, loading areas, plant and equipment, security staff and amenities.

#### **1.11.7 Principle 6 – Standardise Ground Floor and Future Connections**

Future buildings should share common ground level for easy connections between stages. The different ground levels to existing Treloar B and Treloar C have highlighted operational inefficiencies when moving collection items and accessing support facilities between the two.

#### **1.11.8 Principle 7 – Environmentally Sustainable and Responsible Design**

Develop holistic design solutions that consider sound planning, economy of materials, efficient use of resources and reduced maintenance and running cost. Consider building lifecycle planning where structure can last over 100 years whilst building fabric and services have shorter lifecycle of 25 years.

#### **1.11.9 Principle 8 – Develop Precinct Wide Services Strategy**

Consider a modular and extendable central plant and precinct wide services strategy that will offer energy efficiency, shared redundancy, ease of maintenance and replacement access.

#### **1.11.10 Principle 9 – Strengthen Public Presence**

Strengthen the public recognition of Mitchell Precinct as an integral component of the Australian War Memorial and home to a significant national collection. This can include unified corporate identity and the potential for public access and display of collection items.

### **1.12 Need for Increased Collections Storage Capacity**

#### **1.12.1 Current Storage Capacity**

There is a requirement for increased collections storage now. There are collections being stored in sub-standard conditions and there is a significant planned handover of objects from the Department of Defence which will create immediate pressure for expansion of the Memorial's storage capacity. Some large technology items are stored in inadequate sheds. Whilst the storage is not suitable it is superior to being exposed to the elements without any protection. Based on the current deficit of capacity and the known need for the additional capacity in the near future it is essential that a new facility is constructed as soon as possible. The status of collections storage is:

- |    |   |                 |
|----|---|-----------------|
| a. | Current Capacity for Collections        | 15,500 sqm;     |
| b. | Current Storage Collections Requirement | 17,307 sqm; and |
| c. | Current Collections Storage Deficit     | 1,807 sqm.      |

#### **1.12.2 Short Term Collection Increase Requirement**

The LTO collection items to be handed over in the next two years include:

- FA18 Classic Hornet fighter-bomber
- AS350 Squirrel helicopter;
- S-70B Seahawk helicopter;
- AP-3C Orion;
- Up-armoured Mack Heavy Recovery Vehicle; and

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- f. SASR Unimog ARN 38 604.

### **1.12.3 Long Term Collections Storage Increase Requirement**

The Mitchell Precinct Development Plan included an analysis of the storage growth requirement and likely future growth requirement. The analysis concluded that the amount of collections growth into the future would be consistent with the growth over the last four decades. This requirement is determined as 2,600 sqm per decade, which equates to floor space of 4,000 sqm per decade.

### **1.13 Selection of Treloar E as next Stage in Development**

#### **1.13.1 Available Options for Next Stage in Development**

There were two options considered in the analysis of the optimum site within the owned Treloar Resource Centre for the next stage of development. These were:

- a. Treloar D – this is the site and building of the old Mitchell post office and currently houses smaller collection items and is also used as interim storage for staging; and
- b. Treloar E – this site is primarily vacant except for an old shed that contains some larger collection items such as vehicles. The shed is in very poor repair with leaks and poor environmental conditions. It has been assessed as being beyond economical repair.

#### **1.13.2 Reasons for Selection of Treloar E for next Stage of Development**

The selection of Treloar E as the next stage in of development of the Treloar Resource Centre was made on the basis that this was the most under-utilised land and the most logical step. The specific reasons this decision was made are:

- a. Treloar D is an operating building and has value for storage whereas Treloar E has no structure of any material value;
- b. Developing the Treloar E site will provide a net greater storage capacity of 2,000 sqm compared to developing Treloar D;
- c. Treloar E is significantly larger site and allows the potential to construct a large single level facility suitable to the storage of large technology objects (LTOs);
- d. The development of Treloar E will enable seamless movement of collections within the Treloar Resource Centre with only a minimal requirement to enter public roads; and
- e. Treloar D is separated from the remainder of the Treloar Facilities by commercial property that is owned by the Australian War Memorial but leased under a long-term lease agreement, whereas Treloar E is directly adjacent to Treloar B.

### **1.14 Impact on Local Community**

The site is located within the commercial suburb of Mitchell. The Australian War Memorial owns the sites that make up the Treloar Resource Centre. The wider Mitchell area is primarily occupied by light commercial services companies. The Treloar Resource Centre is surrounded by commercial entities and storage facilities that supply businesses that undertake activities and have traffic flows that are similar in nature to the operation of the Treloar Resource Centre. The Project would create no material impact on the local community.



### **1.15 Inter-Relations with the Light Rail Project**

The main interface with other projects is the interface with the development of the Canberra Light Rail Project. This project includes the development of the light rail and duplication of Flemington Road immediately adjacent to the Treloar E site. The key interface is that the Light Rail will be constructed with overhead wires for power supply and this will create a barrier to the movement of new collections into the Treloar Resource Centre and with the movement of collections between the Treloar Resource Centre and main Memorial building in Campbell. Discussions with the Light Rail Project management team have commenced to ensure that disruption to the movement of collections is minimised due to the Light Rail Project.

### **1.16 Consultations with Government Stakeholders**

The proposed site extends across land under the control of the National Capital Authority and the ACT Government. In seeking the approvals to undertake the Project, the Australian War Memorial has consulted extensively with the National Capital Authority and the ACT Planning and Land Authority. The approval process for the statutory authorities include the submitting application for Works Approval with the National Capital Authority and for a Development Application with the ACT Planning and Land Authority.

### **1.17 Consultations with the Public**

There have been no specific consultations with the public other than what will occur as part of the authority approvals.

### **1.18 Applicable Legislation**

The following key legislation is considered in the development of the Project;

- a. Australian War Memorial ACT 1980;
- b. Environmental Protection and Biodiversity Conservation Act 1999;
- c. Federal Disability Discrimination Act 1992;
- d. Work Health and Safety Act 2011 (Cwlth);
- e. Financial Management and Accountability Act 1997;
- f. Fair Work Act 2009 (Cwlth); and
- g. Relevant Australian Standards and the National Construction Code are applicable to all design, fabrication and installation works.
- h. Building Code of Australia; and
- i. Building Code (2016).

## **2 PURPOSE OF THE WORKS**

### **2.1 Treloar E Large Technology Objects Store Project**

#### **2.1.1 Project Basis**

The Proposal includes the construction of the Treloar E Large Technology Objects Store Project (the Project) to accommodate the planned acquisition of Large Technology Objects (LTOs). LTO's are primarily are military aircraft, large military equipment such as battle tanks and troop movement vehicles. This is the first stage of implementing the Mitchell Precinct Development Plan following approval by the Australian War Memorial Council in 2012. The address of the proposed Project site is Callan Street, Mitchell, Australian Capital Territory.

#### **2.1.2 Project Overview**

The Project involves the construction of a single level storage facility on the Commonwealth owned Treloar E site for approximately 5,288 sqm of total floorspace for the storage of LTOs. The LTOs that will be stored in the facility will be primarily military aircraft and large military equipment such as infantry mobility vehicles handed over from the Defence Department as the equipment is retired from service.

#### **2.1.3 Project Storage Impact**

The Project will relieve the backlog of collections storage requirement and provide future storage in a highly efficient single level approach. The initial concept for the Treloar E storage allows for the site to be developed to maximise its potential as a storage facility for large items. The key metrics of the requirement and the Project are:

- |    |  |              |
|----|--|--------------|
| a. | Current collections storage deficit      | 1,807 sqm;   |
| b. | Treloar E building floorplate            | 5,288 sqm;   |
| c. | Residual capacity after backlog          | 3,481 sqm    |
| d. | Rate of increase in collections per year | 400 sqm; and |
| e. | Number of years of forward storage       | 8.7 years.   |

#### **2.1.4 Project Objectives**

The objectives established by the Australian War Memorial are:

- a. Complete the Project within the allocated budget of \$16.1 million exclusive of GST;
- b. Design and construct a facility which minimises the whole of life costs within the \$16.1 million budget limit;
- c. Design and construct a facility that maximises the inter-connection with the other Treloar facilities in compliance with the Mitchell Precinct Development Plan;
- d. Maximise the collections storage area for the amount of land developed;
- e. Complete the Project by 31 December 2018; and
- f. Complete the construction without any lost time injuries.

## **2.2 Building Options Considered**

There were two over-arching options considered for the general layout of the building – single level and two level. The single level was selected because it provided additional 10% building space for the same budget and far superior connection to the existing Treloar facilities. A single level also better accommodates aircraft which make up a majority of future known storage deficit.

## **2.3 Linkages to Existing Treloar Storage Facilities**

The proposed scope of work involves the construction of a storage facility that will provide the following links to enable transfer of collections:

- a. Treloar E to Treloar B facility at a common level; and
- b. Treloar E to Treloar C facility with a slight incline between the buildings.

## **2.4 Planning and Design Overview**

The building will be developed to enable all items to be stored on one level. The structure will be cost effective with a type of construction similar to the existing storage facilities. The matching of levels will significantly improve the management of collections over time. This measure will maximise the use of the land as well as maximise value for money for the Commonwealth. Access will be provided directly into the building from Callan Street at a level that is consistent with the existing Treloar B level.

## **2.5 Specific Design Outcomes**

### **2.5.1 Design Status**

The design has been completed to a stage that has enabled the applications to the statutory authorities in July 2017. The area is governed by ACT Government processes.

### **2.5.2 Earthworks and Levels**

The facility has been designed to provide level access between Treloar B and the new facility. It also locates the building at a level that can be matched by future developments across all the Treloar sites own by the Australian War Memorial. The level established means that excessive cut and fill will be avoided in future developments.

### **2.5.3 Structure**

Based on the geotechnical report it is anticipated that the single level structure will have a concrete slab that is founded on rock. Steel universal columns will provide the main structure that support a clear span steel truss that will be approximately two meters deep. The end walls will have universal beams at 8 metres centres to support the walls. There will need to be a perimeter retaining wall or batter to the Flemington road side of the building to retain the earth that varies in depth along this boundary.

#### **2.5.4 Materials and Furnishing**

The main walls of the building are proposed to be a sandwich panel construction to meet the performance requirements for air temperature and humidity in the building. This is further described in Section 2.5.5. A 300mm stepped concrete upstand to the slab perimeter will create a relatively airtight joint at this location. The wall roof junction will need a custom designed panel to provide a straight joint that can be properly sealed. Either an inflatable seal system or a two-stage door motion with a compression seal to the large doors will seal the opening to the building. Metal deck roofing is proposed that will extend past the external walls of the building to perimeter gutters to ensure the building is also well designed to prevent water ingress. There is also opportunity for graphics or wall treatments to enhance the facade of the building.

#### **2.5.5 Mechanical Services**

Heating and cooling of the facility is proposed to be provided via a central plant area. This shall house an air-cooled chiller and heating hot water calorifier to generate chilled water and heating hot water respectively. As the facility requires full time environmental control operation, the central thermal plant will be selected to be as energy efficient as possible with co-efficient of performance (COP's) for the mechanical plant selected to exceed the minimum requirements noted in the Building Code and the Minimum Energy Performance Standards (MEPS).

Heating hot water and chilled water will be circulated to variable volume air handling units, which will provide a variable volume of conditioned airflow to ensure internal conditions are maintained, which are commensurate with the Memorial's performance criteria. All electric motors specified for mechanical equipment will be energy efficient and controlled by variable speed drives for energy savings over the operational life of the plant.

Internal conditions for the facility will be maintained between 12°C – 28°C, with a relative humidity range of 50% ± 10%. The rate of temperature and humidity change will be monitored by a local controls system to ensure no sharp temperature gradients are permitted within the space, to ensure the collection pieces are exposed to only gradual thermal gradients. This measure will preserve paintwork and other collection elements. The mechanical plant will be designed with external design conditions of 35°C (DB) / 20°C (WB) for summer and -4°C (DB) for winter.

The facility will be positively pressurised relative to the outside environment to minimise the risk of wind and dust infiltration, which may contribute to an uncontrolled cooling and heating load on the central thermal plant. The building will be leak tested to +50Pa to ensure the building is adequately sealed to meet the required minimum leakage criteria of 0.8m<sup>3</sup>/hr/m<sup>2</sup>, for the building fabric.

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Power for the mechanical services will be provided from a single mechanical services switchboard (MSSB) located within the central plant area and include run, fault and auto operation lights to indicate the operational status of the plant for facilities maintenance team. The MSSB will include an interlock to the facility fire indicator panel to enable plant to cease operation on receipt of a fire alarm signal to AS1668.1 requirements. Upon reset of the fire alarm, the mechanical plant will be sequenced to reset at staged times to minimise the risk of tripping equipment as may happen with all plant restarting simultaneously.

### **2.5.6 Hydraulic Services**

Water supply and sanitary drainage is proposed to serve sanitary fixtures and mechanical equipment within the building. Roof collection water will collect via a gutter and downpipe system and discharge into the stormwater drainage system for the site. Water supply will be connected to the authority water mains complete with an authority water meter located within the site boundary. Sewer and stormwater connections to the authority infrastructure to be provided for the site.

External and internal fire hydrants will be provided to serve the site complete with a hydrant booster assembly located external of the building. Internal fire hydrants will be provided with fire hose reels located within the building located in paths of travel to achieve coverage. The water supply serving the fire hydrants will connect to the sites incoming water supply before the meter. The fire hose reels will connect to the metered water supply. Portable fire extinguishers will be provided to accompany the fire hose reels.

### **2.5.7 Electrical**

Electrical supply to the building is proposed to be serviced from the existing substation located on the adjacent block, through an augmented low voltage service and point of connection on the boundary of the block on which the warehouse is to be located. Treloar E will be serviced by a single main switchboard, which will have separate mechanical and electrical services chassis, each metered in compliance with the National Construction Code.

Lighting to the facility is proposed to comply with recommended illumination levels for warehouse storage as per AS/NZS 1680. Luminaires are proposed to be LED high bays, mounted at a level sufficient to avoid damage due to movement of large objects. Due to the infrequent occupancy of the building, lighting is proposed to be controlled via banks of switches, located at entry points, which activate zoned areas of lighting. Emergency lighting will be installed to comply with AS 2293. Given the expanse of the building, wall mounted emergency flood lighting, arranged to meet the illumination levels set out within AS 2293 is proposed.

### **2.5.8 Acoustic**

Mechanical plant will be selected to ensure that noise and vibration of all mechanical equipment are kept within levels commensurate with the recommended design criteria noted in AS2017-2000. To minimise vibration transfer into the building structure, no rigid contact will be permitted between mechanical plant (housing rotating machinery) and the surrounding structure. Spring and rubber mounts will be specified to all plant to ensure energy transfer is minimised and that mechanical plant is decoupled from the building structure. Ductwork immediately upstream and downstream of fans and air handling units will be internally insulated with acoustic type mineral wool insulation, to ensure any in-duct breakout noise from the fans is attenuated to reasonable limits.

### **2.5.9 Landscaping**

The landscaping around the facility will be low maintenance low water use. The immediate surrounds of the building will need to facilitate pedestrian travel for egress from the building. It will be desirable to retain the existing established screen planting that is to the north and east of the site.

### **2.5.10 Earth and Civil Works**

At this stage of design, bulk excavation, material, quantities have been determined based on an excavation level of 590.200. The amount of bulk excavation will be adjusted once the building footing system is determined.

A services investigation of the site will be conducted and any authority services that clash with the proposed works will be evaluated and either designed around or relocated accordingly. Vehicular access, pavements, site grading and stormwater drainage will be developed to suit the existing, surrounding site conditions as the building is designed.

## **2.6 Environmental Sustainability**

### **2.6.1 General Commitment to Sustainability**

The Australian War Memorial is committed to Ecologically Sustainable Development (ESD) and the reduction of greenhouse gas emissions. All works will be undertaken consistent with best practice in sustainable design in accordance with the Environmental Efficiency in Government Operations (EEGO) policy. The design will also consider other general ESD aspects such as water, emissions, materials, ecology, indoor environment quality, and waste from the perspectives of economic payback, environmental improvement, and occupant benefits.

### **2.6.2 Energy Targets**

The facility will be constructed to provide a semi controlled internal environmental condition to facilitate the long term preservation of the collection. This is essential for the proper storage of the complex new materials used in more recent military equipment, and in particular, aircraft. The aim of the design will be to achieve the broad environmental conditions for the collections at minimum operating cost.

### **2.6.3 Measures to reduce energy consumption**

A range of options are being considered in the design to minimise the on-going costs and emissions of the facility. Over the life of the building, the operating costs are of greater significance than the capital cost. Energy efficiency measures will be refined as the design progresses to optimise aspects such as heating, ventilation, and air-conditioning (HVAC) and lighting tailored specifically to the project and the site. Minimum energy performance criteria as set out in the Australian Building Code and the Minimum Energy Performance Standards (MEPS) will be met and where possible, improved to ensure that the energy usage of main plant and equipment is minimised.

### **2.6.4 Roof Top Solar System**

A budget allowance of \$150,000 has been included in the cost plan to install a solar system on the roof of the facility. The Project consultants will also investigate additional investment in a solar system funded through energy savings, with initial modelling demonstrating that the Australian War Memorial would own the system after ten years.

### **2.6.5 Use of Rate of Change to Protect Collections**

To minimise whole of life costs, the Memorial has widened the parameters for internal temperature and humidity of the new storage, but has reduced rate of change to protect the stored collection. This alternative control methodology will also improve energy efficiency compared to traditionally air-conditioned spaces.

### **2.6.6 Re-use of Existing Structure**

There is a shed approximately 10% of the size of the proposed Treloar E facility at the southern end of the site. The potential re-use of the existing structure was discounted early in the design process as it was small, in poor condition and could not be fitted into the design in any meaningful way.

### **2.6.7 Compliance with National and Territory Environmental Policies**

All design and construction policies required for the construction of the Facility will be compliant with both the National and Territory environmental policies. As the project is not an office development, the NABERS Energy Star rating system under the EEGO policy does not (and cannot) apply. As per the EEGO policy, the project is instead considered a Public Building and a Climate Controlled Store, which should therefore establish its own tailored MJ/m<sup>2</sup>/annum target for energy use which will be established as the design progresses.

The application of thermal building envelope requirements from the National Construction Code will be considered in the context of the required space conditioning strategies to achieve a tailored optimum solution, rather than applying generic standards for traditionally conditioned spaces.

## **2.7 Local facilities, public transport, road access, zoning and local approvals**

### **2.7.1 Local Facilities**

There will be no additional staff based at Treloar Resource Centre because of the Project and therefore there is no staff impact.

### **2.7.2 Public Transport**

There will be no additional staff based at Treloar Resource Centre because of the Project and therefore there is no staff impact, however in the next 12 months public transport at the facility will be significantly improved with the completion of the Canberra Light Rail.

### **2.7.3 Road Access**

The design has been developed to enable all collection items to be brought in through Callan Street. During the design process, ramps and doors will be designed to ensure the largest collection items will be able to be brought in to Treloar E.

### **2.7.4 Zoning and Local Approvals**

Planning approval will be required by the ACT Planning and Land Authority, and it is anticipated this will be submitted in July 2017.

## **2.8 Provision for People with Disabilities**

Access and facilities for people with disabilities will be provided where required in accordance with the Disability Discrimination Act (DDA), the relevant technical requirements of the National Construction Code, Disability (Access to Premises) Standards (2010) and associated Australian Standards.

## **2.9 Childcare Provisions**

There will be no increase in staff numbers because of the Project. There will be no childcare provisions developed as part of the Project.

## **2.10 Security Measures**

The security measures for the Project will be consistent with the existing Treloar facilities. These measures include the requirements for a Zone 3 space. Elements of a Zone 3 include:

- a. Limited employee and contractor access, with escorted or closely monitored visitors only
- b. Appropriately secured points of entry and other openings
- c. A tamper evident barrier, resistant to surreptitious and covert entry
- d. Commercial or SL3 rated security equipment
- e. The storage of information or physical assets of which the compromise, loss of integrity or unavailability would have a business impact up to Extreme
- f. The permitted use, but not storage of information with a Catastrophic impact level



## **2.11 Fire Protection Measures**

A fire detection and building occupant warning system compliant with the requirements of AS 1670.1 is proposed. This will include a dedicated Fire Detection Control Indicating Equipment (FDCIE) panel to monitor the system. The building will be compliant with the fire provisions of the BCA and a performance based solution may be the most economical path to achieve this.

## **2.12 Occupational Health and Safety Measures**

The proposed works will comply with the requirements of the Work Health and Safety Act 2011 (Commonwealth), Work Health and Safety Legislation appropriate to the ACT and the National Guideline to AFP Health Safety Management Arrangements 2007 - 2012. The Australian War Memorial is committed to improving occupational health and safety outcomes in the building and construction industry. In accordance with Section 35(4) of the Building and Construction Industry Improvement Act 2005 (Commonwealth), contractors will be required to hold full occupational health and safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building Construction Occupational Health and Safety Accreditation Scheme. Safety in design workshops will be undertaken during the design phases of the project.

## **2.13 Plans and Drawings**

The Plans and drawings included in the **Attachment A** are:

- a. Site Plan;
- b. Ground Floor Plan;
- c. Sections; and
- d. Perspectives.

### **3 COST EFFECTIVENESS AND PUBLIC VALUE**

#### **3.1 Cost Effectiveness**

##### **3.1.1 Overall Project Budget**

The Memorial has established an approved budget of \$16.1 million (excluding GST) for the proposed works. This budget includes provision for contingencies, cost escalation and associated professional fees. Funding for this initiative is through existing funds managed by the Australian War Memorial.

##### **3.1.2 Contracting Delivery Approach**

A Client Side Project Manager has been appointed to manage the proposed works and administration of the contracts for construction. The design will be delivered by a Principal Design Consultant whereby a single design firm is delivering the total design, both architectural and engineering. The form of contract for the construction will be a lump sum, and the contractor will be selected through a two-stage open market process.

##### **3.1.3 Governance Structure**

The Project has a well-defined governance process with a Project Control Group in place.

##### **3.1.4 Delivery Program**

Subject to Parliamentary Works Committee approval, construction is expected to commence in January 2018 and be completed by December 2018. The program is included as **Attachment B**.

#### **3.2 Economic Impact**

The proposal will have a positive economic impact on Canberra. The Project will generate increased employment opportunities for businesses in Canberra and lead to the anticipated continual employment from July 2017 to December 2018 in the following sectors:

- a. Professionals/Consultants: Between five separate companies will be engaged to provide consultancy services during project delivery. This is likely to involve 10 to 12 employees to ensure that the timeframes and deliverables are achieved.
- b. Contractors: There is likely to be a need for up to approximately 4 trade companies and 20 personnel (and off site including manufacturers and suppliers) during the project delivery. This will assist in keeping staff and contractors gainfully employed.
- c. Other businesses within Canberra that will benefit is hospitality and other services industries.

### **3.3 Public Value**

#### **3.3.1 Importance and to the Community**

The Treloar Resource Centre is a significant public asset and holds 85% of all of the Australian War Memorials collections, with the remaining 10% store off site (Filing & Film Materials) and 5% at the Main Memorial Building in Campbell.

The Project will result in all the collections being maintained in appropriate environmental conditions. The preservation of these collections is of national significance.

#### **3.3.2 Value of Facility**

The facility has a high degree of value to the public. Whilst it is difficult to value the Australian War Memorial collections, the collections that will be contained in the Treloar E facility will be irreplaceable as many of the collection items will be the only one of their type preserved for future generations of Australians.

#### **3.3.3 Operational Savings**

There will be no operational savings generated as part of the Project. The facility will however reduce the deterioration and devaluation of important collection items and will retain the value in the Australian War memorials collection.

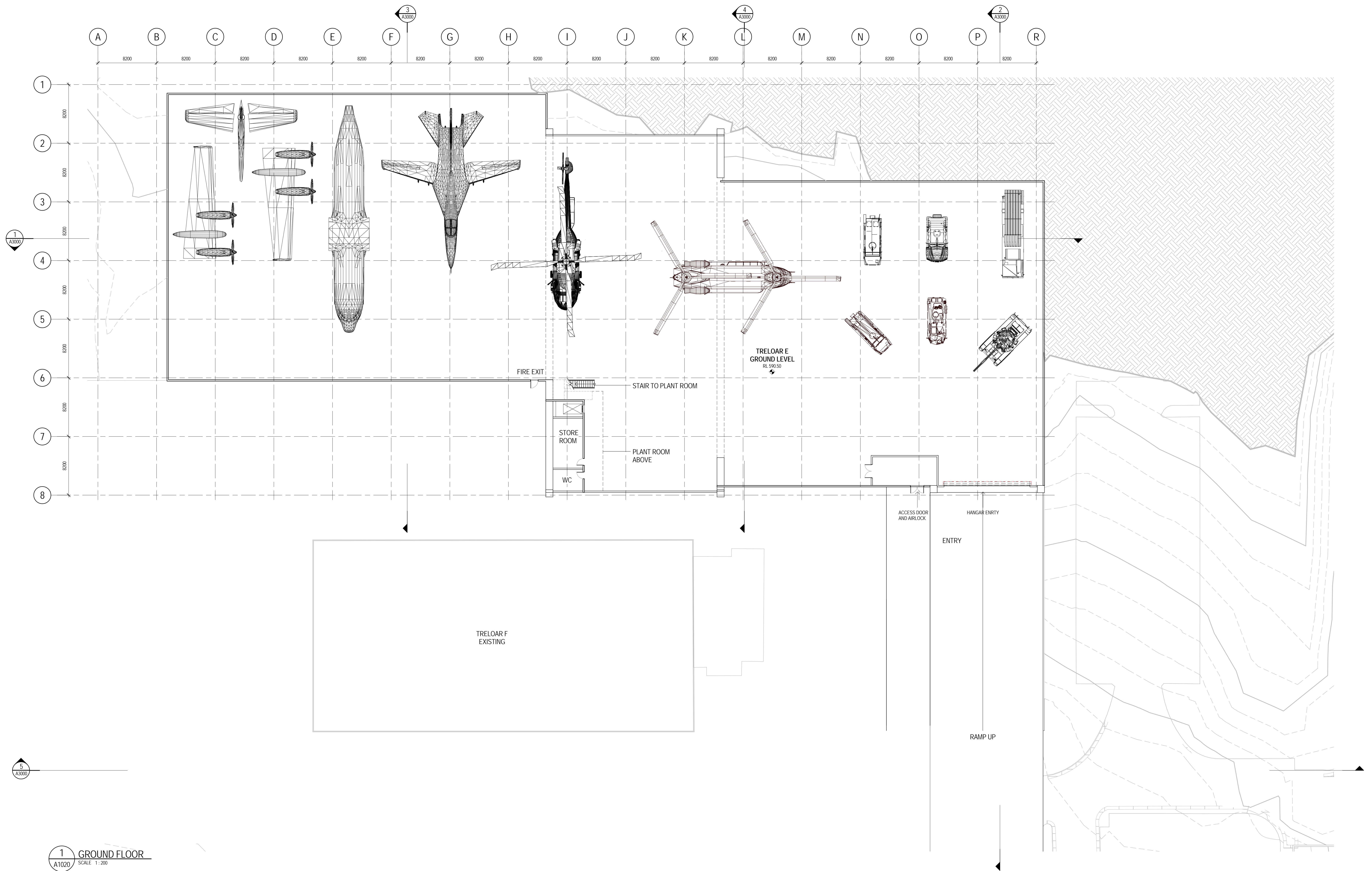
### **3.4 Revenue**

There will be no additional revenue generated as part of the Project, however it may enable addition members of the public to visit the Treloar Resource Centre on the annual open days. Whilst additional revenue may be generated, this is only based on donations and will not be material to the operation of the Australian War Memorial.



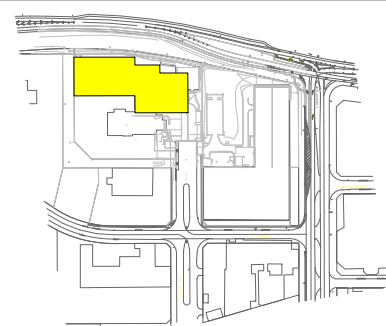
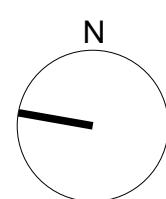
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SCALE 1:200 AT ORIGINAL SIZE



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Drafting Check	D. BELL	Design Check	J. WILLIAMS
Approved (Project Director)	P. RODDA	Date	07.06.17
Scale	1 : 200	This Drawing must not be used for Construction unless signed as Approved	

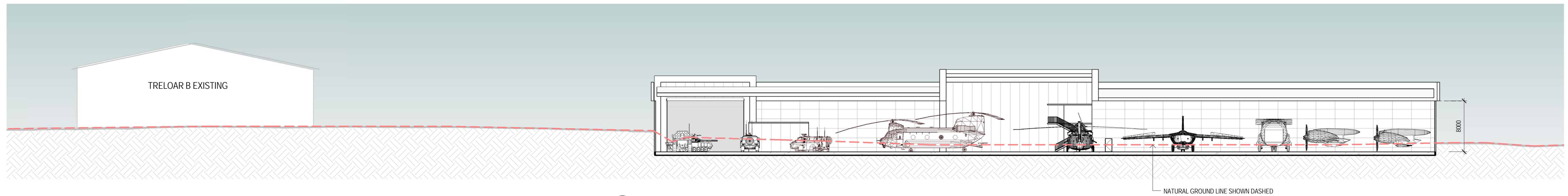
Client **AUSTRALIAN WAR MEMORIAL**  
Project **TRELOAR E LTO STORE**  
Title

**GROUND FLOOR PLAN**

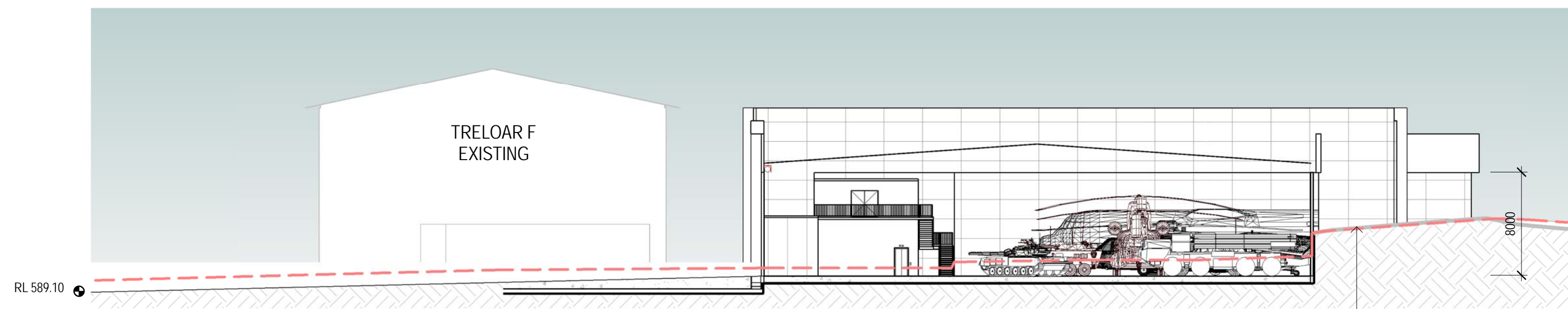
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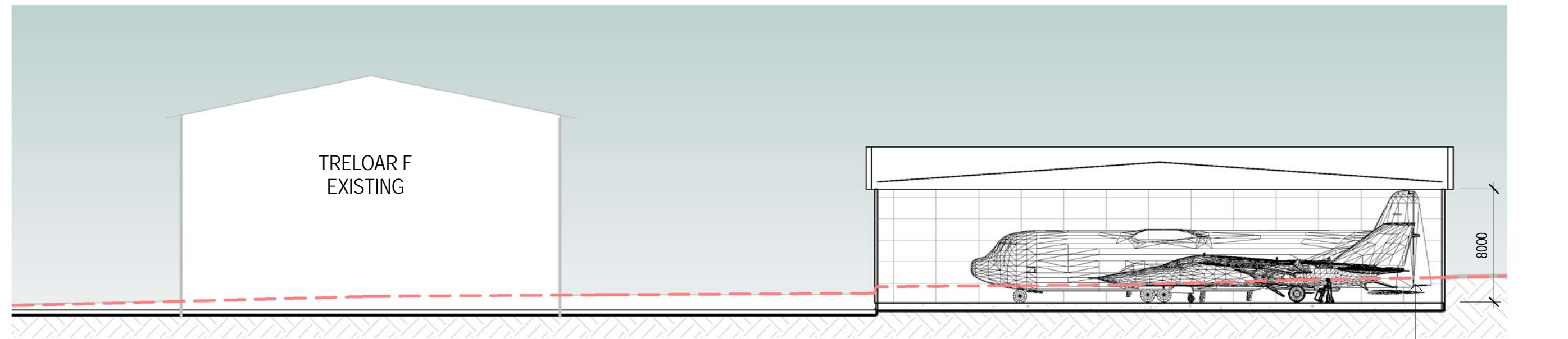




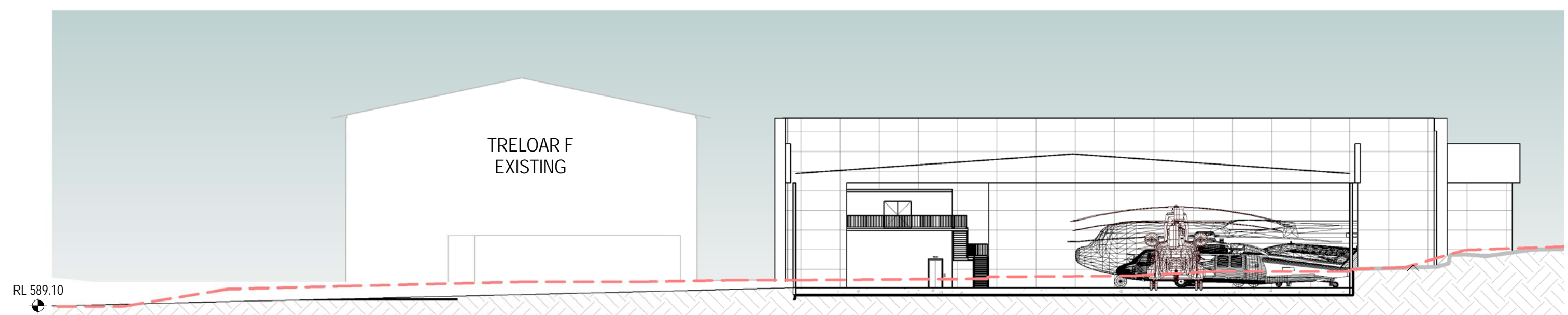
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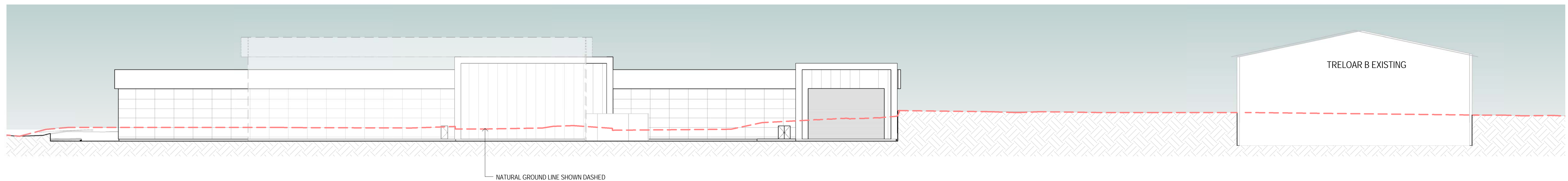
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3 SECTION ALONG LYSAGHT ST.  
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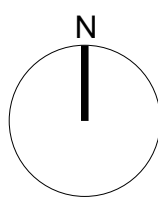


4 SECTION ALONG LYSAGHT ST.  
A1000 SCALE 1:300



5 SECTION THRU CALLAN ST.  
A1000 SCALE 1:300

0 3 6 9 12 15 m  
SCALE 1:300 AT ORIGINAL SIZE



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Drafting Check	D. BELL	Design Check	J. WILLIAMS
Approved (Project Director)	P. RODDA		
Date	07.06.17		
Scale	1:300		

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Client **AUSTRALIAN WAR MEMORIAL**  
Project **TRELOAR E LTO STORE**

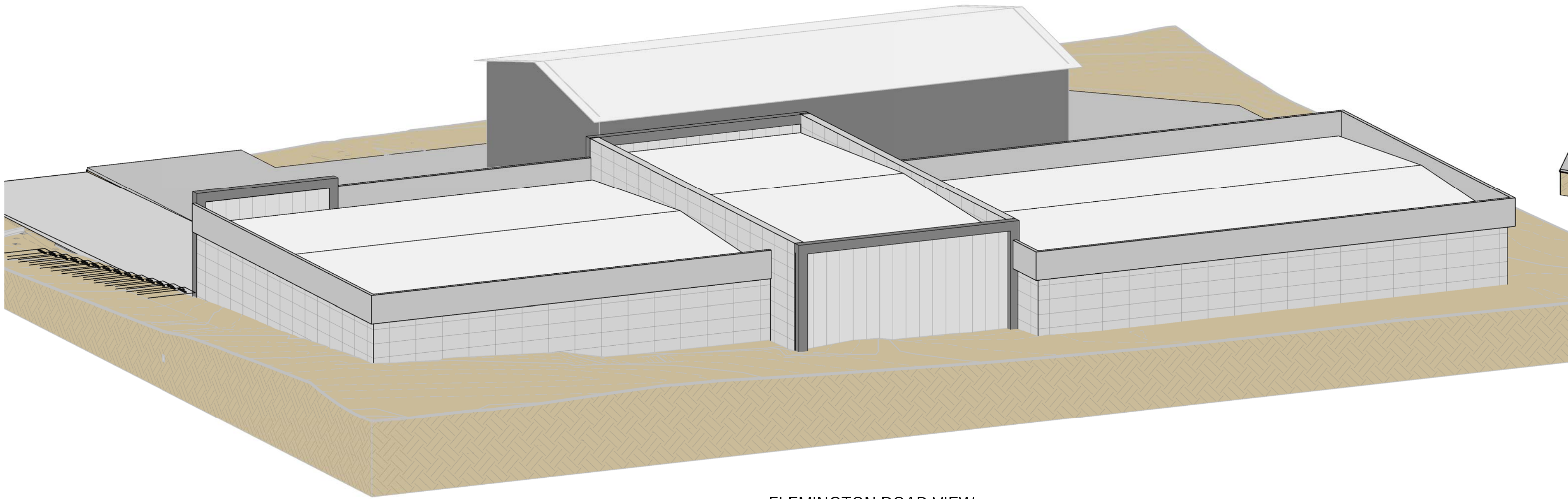
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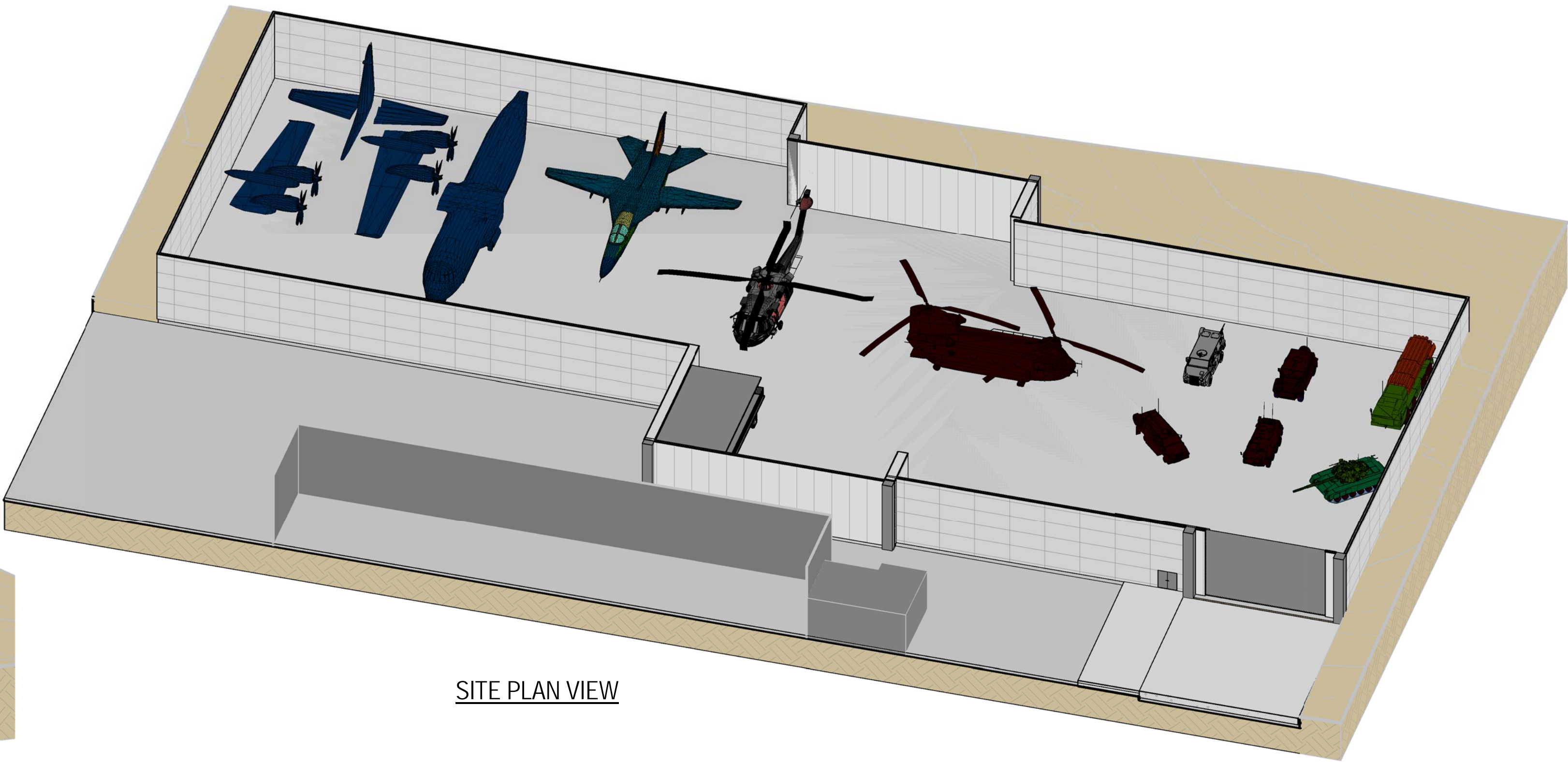
**PRELIMINARY**

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No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
Plot Date: 8/06/2017 4:55:04 PM			Cad File No: C:\Users\javid\Documents\Revit 2016 Local Files\23-16056-AWM Treloar Storage Facility_Revit Central 2016_javid.rvt			

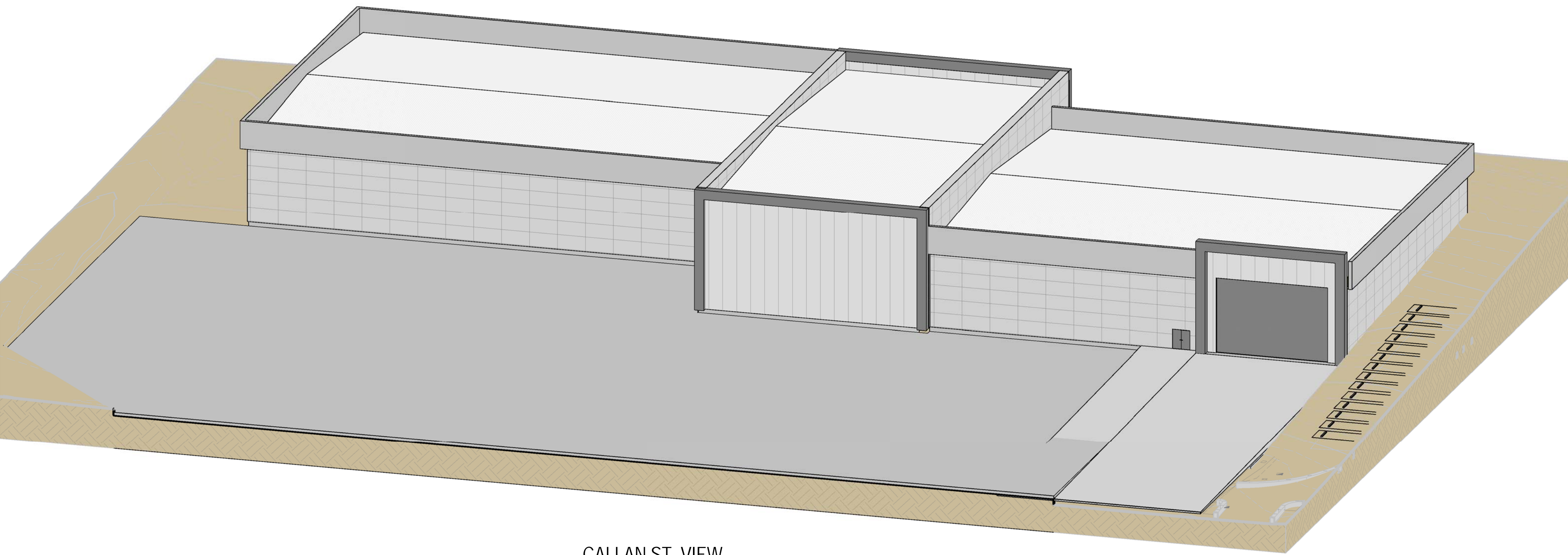




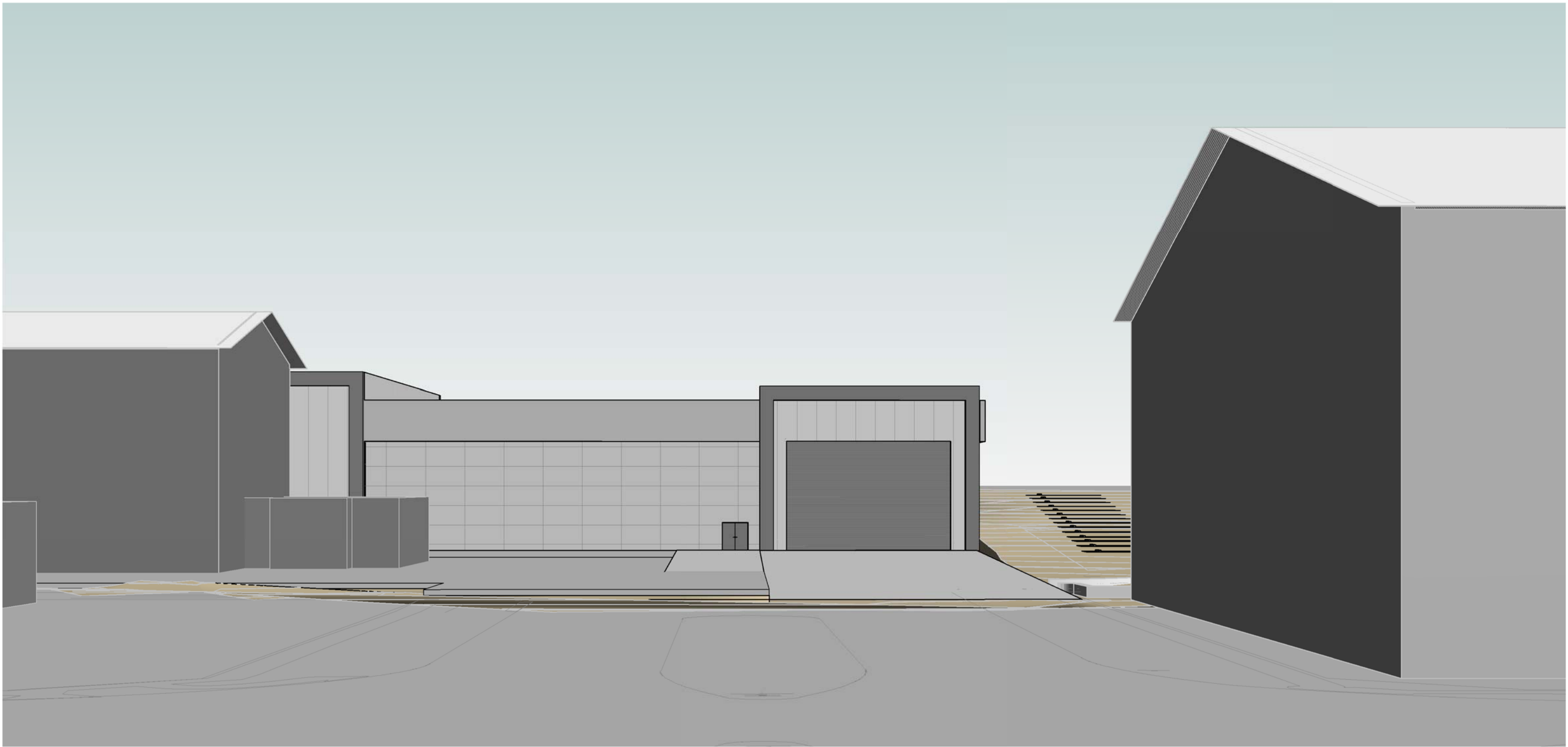
FLEMINGTON ROAD VIEW



SITE PLAN VIEW



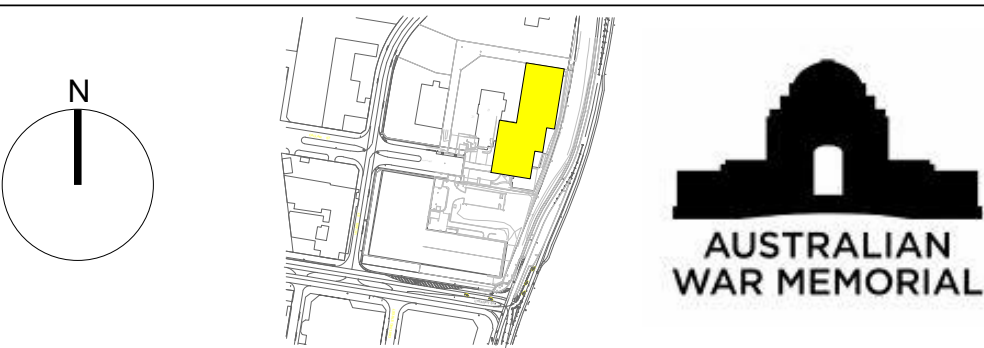
CALLAN ST. VIEW



NORMAL VIEW TO FROM CALLAN ST

PRELIMINARY

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JD NJ PR 07.06.17						
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
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Drafting	D. BELL	Design	J. WILLIAMS
Check		Check	
Approved	P. RODDA		
(Project Director)			
Date	07.06.17		
Scale			

Client AUSTRALIAN WAR MEMORIAL  
Project TRELOAR E LTO STORE  
Title

PERSPECTIVE

Original Size B1 Drawing No: 23-16056-A9000

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