Australian Government

Department of Defence

C-17 MAINTENANCE FACILITY, AIRCRAFT APRON AND ASSOCIATED INFRASTRUCTURE

RAAF Base Amberley, Queensland

STATEMENT OF EVIDENCE TO THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

Canberra, Australian Capital Territory

February 2016

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Contents

C-17 MAINTENANCE FACILITY, AIRCRAFT APRON AND ASSOCIATED INFRASTRUCTURE

IDENTIFICATION OF THE NEED

1. The Royal Australian Air Force's (RAAF) 36 Squadron operates the C-17A heavy airlift aircraft and is responsible for strategic air transport within Australia and overseas, conducting missions as part of military operations and humanitarian efforts. The C-17A provides an unprecedented capacity for strategic air lift and the rapid deployment of troops, supplies, combat vehicles, heavy equipment and helicopters anywhere in the World.

2. 36 Squadron is located at RAAF Base Amberley, Queensland, and is controlled by 86 Wing, which is part of the Air Mobility Group. 36 Squadron Headquarters comprises of executive, administrative and operational support components. The Squadron is also staffed by aircrew and maintenance personnel who are responsible for servicing the C-17A aircraft. Maintenance personnel are frequently required to accompany the aircraft on missions and deployments.

3. Over nine years of operating the C-17A aircraft alongside the KC-30A aircraft (operated by 33 Squadron) has provided greater clarity in the C-17A and KC-30A aircraft support requirements. The existing heavy aircraft maintenance facilities at RAAF Base Amberley, including the shared hangar and workshops, have been found to have significant shortfalls when required to support both aircraft types. These shortfalls have been exacerbated with the subsequent acquisition of additional C-17A aircraft.

4. The requirements to support the additional C-17A aircraft have provided the basis for the proposed Maintenance Facility and the additional aircraft apron in this proposal. The proposed Maintenance Facility will allow 36 Squadron to conduct both scheduled and unscheduled operational level maintenance on the C-17A without relying on access to the 33 Squadron hangar or conducting maintenance activities out in the open on the aircraft apron.

BACKGROUND

5. In 2006 Government approved Project AIR8000 Phase 3 to deliver a fleet of four C-17A Globemaster III aircraft and related infrastructure. The first of the four C-17A aircraft were delivered to 36 Squadron in December 2006, with the fourth aircraft arriving in February 2008. The facilities for these aircraft were completed in April 2009. At that time, Defence decided not to develop a dedicated C-17A maintenance facility, opting to use the expected spare capacity in the hangar and associated facilities completed for the KC-30A multi-role tanker/transport aircraft.

6. In April 2011, Government announced the approval of AIR8000 Phase 4, the acquisition of a fifth C-17A aircraft. Acquisition of a sixth aircraft was subsequently announced by Government in March 2012. These aircraft were delivered to 36 Squadron in September 2011 and November 2012 respectively. In April 2015, the Government announced the acquisition of a further two aircraft (aircraft seven and eight). The seventh aircraft was delivered to 36 Squadron in July 2015 and the eighth aircraft arrived in early November 2015.

Description of Proposal

7. The C-17 Maintenance Facility, Aircraft Apron and Associated Infrastructure Project proposes to construct a new maintenance facility, aircraft apron and explosive ordnance facilities that are fit for purpose, compliant and provide value for money. The project also proposes to conduct civil works, infrastructure / essential service works, landscaping and the demolition of an existing apron. The proposed facilities are to be located on both 'brownfield' and 'greenfield' sites at the northern end of the RAAF Base Amberley Flight Line, in the vicinity of the existing Air Movements Section and apron.

8. The proposed facilities will improve engineering and maintenance efficiencies at 36 Squadron and provide explosive ordnance facilities. The key requirements include:

a. **Maintenance Facility.** A hangar to accommodate a single C-17A aircraft, with docking to provide safe access around the aircraft for maintenance purposes. The hangar will also be sized to accommodate a single KC-30A aircraft. The Maintenance Facility will also include the following:

(1) A logistics warehouse, with a climate controlled storage area, a dedicated area for packing and dispatch, lockable quarantine/separation cages, and general storage for stacked pallets.

(2) Working accommodation for 40 staff, including six standard offices, an open plan office and a secure Maintenance Certification Room.

(3) Specialist workshops for maintenance, repair and certification tasks including the following:

(a) avionics;

(b) structures workshop;

(c) composites workshop;

(d) decontamination room;

(e) surface finishing workshop;

(f) engines workshop/store; and,

(g) large Aircraft Counter-Measures vault;

(4) amenities including toilets, change rooms and a multi-function room suitable for 40 staff.

b. **Aircraft Apron.** An aircraft apron providing eight C-17A parking positions with one position to be licensed as an Explosive Ordnance Loading Area. The apron will be sized to accommodate the KC-30A aircraft. In-ground hydrant refuelling will be provided at each of the eight parking positions.

c. **Ground Support Equipment Facilities.** A shelter for Ground Support Equipment and Materiel Handling Equipment, and a diesel refuelling bowser.

d. **Explosive Ordnance Pallet Build Facility.** A facility providing for the receipt and palletising of explosive ordnance for air transport.

e. **Counter Measure Facility.** A facility suitable for the storage and preparation of aircraft counter measures.

f. **Base Infrastructure Works.** Upgrade of the existing Base Central Emergency Power Station.

Project Location

9. RAAF Base Amberley is located in South East Queensland, 6 km southwest of Ipswich CBD and 35 km southwest of Brisbane CBD. A Base Locality Plan showing the location of RAAF Base Amberley is at Attachment 1.

10. A site plan of RAAF Base Amberley showing the location of the proposed facilities is at Attachment 2. The proposed C-17 Maintenance Facility, Ground Support Equipment Facility and Aircraft Apron are to be located to the north of the Air Movements Section and the northern apron.

11. The Explosive Ordnance facilities are to be located to the north of the current RAAF Amberley Explosive Ordnance Precinct and will expand this precinct.

12. Plans of the proposed facilities are shown at Attachments 1 - 9.

Options Considered to Fulfil the Identified Need

13. To meet the identified need, Defence has considered a range of options to meet the need for the proposed facilities at RAAF Base Amberley.

14. **C-17 Maintenance Facility and Aircraft Apron.** The proposed Maintenance Facility will be located to the north of Air Movements Section and the aircraft parking apron, to the north of the existing northern apron. Various locations and configurations were considered for the Maintenance Facility, with the proposed layout satisfying a number of planning constraints, including the RAAF Base Amberley Flight Line Master Plan, Explosive Ordnance safety distances, environmental considerations and flooding level forecasts. The proposed Maintenance Facility and apron layout also allows for any future development of the site.

15. **Explosive Ordnance Facilities**. The proposed Explosive Ordnance Pallet Build Facility will be located immediately adjacent and to the north of the existing Explosive Ordnance precinct. The facility will be used for the palletisation of bulk explosive ordinance for air transport.

16. The proposed Counter Measure Facility will also be located adjacent and to the north of the Explosive Ordnance precinct. This facility has been designed to support both C-17A and C-27J (Battlefield Airlifter) operational requirements and provides an efficient solution that meets the requirements of both capabilities.

ENVIRONMENT AND HERITAGE ASSESSMENT

Overview of the Assessment Process

17. Defence proactively manages its estate through the Defence Environmental Policy, Defence Environmental Strategy and the Defence Environmental Plan. These documents provide overarching guidance to the environmental and heritage management of the Defence estate. Further to this Defence has undertaken site assessments and investigations in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 to ensure consistency with industry best practice standards.

18. A number of environmental considerations have been identified during the development of this proposal. An Environmental Assessment Report has been completed, with the key focus areas of the Report being land contamination, fire ant management, unexploded ordnance, fauna and flora, air quality, noise, and water quality. The following paragraphs address each of the environmental and heritage related risks identified during these investigations.

Heritage Considerations

19. **Archaeological Heritage.** RAAF Base Amberley is listed on the Register of the National Estate and the Commonwealth Heritage List for its historic heritage values. Previous heritage studies and listings provide evidence of RAAF Base Amberley's mature heritage environment. These heritage studies include sites of both indigenous and non-indigenous heritage significance, and have provided recommendations for the appropriate management of these values.

20. As identified in the RAAF Base Amberley Heritage Management Plan 2013, the proposed Maintenance Facility and Apron are located in areas identified as 'modified landscape with little or no heritage potential'. There is a stand of trees immediately north of the proposed apron site, which is considered to have high significance, although no specific description of the item is presented in the Heritage Management Plan. This area has a moderate potential to be affected by the works. As such, a site walk with the Jagera Daran People will be undertaken to discuss the potential impacts and solutions.

21. The proposed Explosive Ordnance Pallet Build Facility and Counter Measures Facility are located in areas identified as 'relatively unmodified with potential for cultural heritage'. Two isolated stone artefacts have been recorded within proximity of the proposed development sites and there is potential for more to be identified. As such, a site walk with the Jagera Daran People will be undertaken to discuss the potential impacts and solutions.

22. **Built Heritage**. RAAF Base Amberley has a number of important facilities and structures that demonstrate the design and operation of pre and early World War II Air Bases. Defence submitted a referral under the Environmental Protection and Biodiversity Conservation Act 1999 to address the potential impact of the Flight Line Master Plan. The referral resulted in a 'controlled action' decision from the Department of Environment (EPBC Reference No. 2014/7123). The Department of the Environment approved the removal of heritage buildings within the Flight Line boundary on 10 June 2015, with 15 conditions. While the C-17 project sites fall within the Flight Line Master Plan boundary, the project does not impact on any of the buildings or heritage values listed in the Referral. The only condition impacting on this project is Condition 6, which involves avoiding or mitigating impacts on

any koala habitat within the project area. This condition will be addressed by complying with the Base Environmental Management Plan requirements.

Environmental Considerations

23. The proposed C-17 facilities were assessed for compliance with the Commonwealth obligations imposed primarily (but not exclusively) through the Environmental Protection and Biodiversity Conservation Act 1999. The following paragraphs summarise the outcomes of this assessment.

24. **Flora and Fauna**. Ongoing human impact, airfield operations and past pastoral activity have limited the biodiversity and quality of the area. The Environmental Assessment Report for this project, produced in March 2015, identified that no further survey work was considered necessary to establish potential impacts to Matters of National Environmental Significance flora and communities. The Explosive Ordnance Pallet Build Facility and Counter Measures Facility sites will require tree removal; however, the Environmental Assessment Report assessed that it was unlikely that any State-listed flora species will be impacted as none were observed during a targeted survey of the site.

25. Works associated with the Explosive Ordnance Pallet Build Facility are assessed as having a high likelihood of impacting on koala habitat due to the loss of habitat trees. The Environmental Assessment Report included a significant impact test that assessed the potential impact of the project to koala habitats. The Report found that the impact from this project is not likely to adversely affect the habitat critical to the survival of the koala, and the works will not interfere substantially with the recovery of the koala in these areas. Any removal of trees will be conducted in accordance with the Base Environmental Management Plan and will comply with the off-set planting requirements.

26. While no koalas have been observed during investigations to date, evidence of their presence is known. Although it is not anticipated that they would enter a work site during construction, appropriate management regimes will be employed throughout the construction activity through the development of a Construction Environmental Management Plan.

27. Other than the koala, the Environmental Assessment Report identified that there was a low likelihood of two Environmental Protection and Biodiversity Conservation Act listed fauna species (Squatter Pigeon and large-eared Pied Bat) occurring in the area. The remainder of the 21 potential Environmental Protection and Biodiversity Conservation Act listed fauna species in the area are listed as unlikely to occur.

28. **Air Quality and Noise**. Aircraft operations, vehicle traffic, workshop activities and the use of solvents and petroleum products in industrial activities are existing potential sources of air pollution and noise. The proposed new facilities will include acoustic treatments to control aircraft and workshop noise intrusions. Areas of the workshops that are considered to generate significant amounts of noise will be treated to prevent the noise significantly impacting on the remainder of the workspace. (Refer to paragraphs 82 to85 for acoustics considerations.) Major impacts from dust, noise and air pollution being generated by the construction activities will be managed by adherence to site management practices outlined in the Construction Environmental Management Plan.

29. **Water Quality Issues**. All drainage from the Base flows to the nearby Bremer River, which in turn provides water to downstream local farms and industries, and for local recreational activities.

30. The project's construction activities have potential to impact on the water quality of the river. Potential impacts include soil erosion causing sedimentation of the river, pollutants being carried with sediment run-off, contaminants being released from disturbed material or imported fill, disposal of hydrocarbons and the inadvertent dispersal of weed species. Implementation of the Construction Environmental Management Plan will ensure the risk to the local waters is effectively managed.

31. Surface run-off from the new apron will be captured and pass through a fuel interceptor prior to entering grass-lined stormwater drains. In the event of a fire or fuel spill on the apron, the Base Fire Service may use Aqueous Film Forming Foam in response. The fuel interceptor will have the capacity to capture 20,000 litres of fuel and liquids containing Aqueous Film Forming Foam.

32. Stormwater from the Maintenance Facility and the surrounding roads will be separate from the apron drainage and be directed into a fuel interceptor prior to passing through a bio-retention basin (or similar device) before entering the main base drainage channel.

33. Stormwater from the Explosive Ordnance Pallet Build Facility and the Counter Measures Facility sites will be directed through a bio-retention basin or similar device prior to discharging in to the main base drainage channel.

34. **Ground Conditions**. Existing soil contamination is a potential issue. Initial investigations have identified the presence of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) (as a result of the historical use of Aqueous Film Forming Foam (AFFF) on the Base) in underlying soils throughout the proposed apron and Maintenance Facility site. Elevated levels of nickel were also identified in one test location. The proposed apron civil works will therefore result in the generation of potentially contaminated spoil material. A plan for managing the contaminated spoil will be established and maintained and will form part of the Construction Environmental Management Plan. Defence is conducting further investigations to inform the plan, including:

a. additional testing to further assess the contamination and assist with managing the risk associated with the potentially contaminated spoil material during construction;

b. sampling of potentially contaminated spoil prior to construction to characterise the material for landfill disposal; and,

c. balancing cut and fill across the sites by re-using material that is below the Defence's adopted screening guidelines for residential use.

35. The Construction Environmental Management Plan will detail the methods and requirements for proper disposal of any contaminated spoil material.

36. **Fire Ant Restricted Area**. RAAF Base Amberley is within the Fire Ant Restricted Area and restrictions apply to the methods of excavation, spoil handling and movement of spoil. The Construction Environmental Management Plan will address both incoming and outgoing material in accordance with Department of Primary Industry and Fisheries requirements.

37. **Unexploded Ordnance**. Caution will be exercised during all excavation work to identify any risks to construction personnel from the presence of unexploded ordnance. A

desktop study was undertaken for the possibility of unexploded ordnance in the vicinity of the proposed Maintenance Facility and apron, Explosive Ordnance Pallet Build Facility and the Counter Measures Facility by specialist Unexploded Ordnance Surveyors. The desktop study determined that there was a very low potential for unexploded ordnance to occur at any of these sites and recommended that an on-site survey was not required.

38. **Flood Events**. RAAF Base Amberley is located in the catchments of the Bremer River and Warrill Creek. The Bremer River bounds the north, east and west of the Base, and Warrill Creek forms much of the Base's boundary to the south. The confluence of these two waterways is located 700 metres to the east of the Base.

39. As the Base is located on the floodplain of these two waterways, it is prone to occasional flooding with some base facilities and infrastructure being affected by the 1974, 2011 and 2013 floods. Stormwater from the Base is discharged to both Warrill Creek and the Bremer River. Three stormwater outlets discharge into Warrill Creek at the southern end of the Base, and two stormwater outlets discharge into the Bremer River to the east.

40. Based on the flood information available and studies conducted by this project, flooding is a consideration for the design of the proposed facilities. All facilities and supporting infrastructure such as transformers and mechanical plant are required to be located 0.3 metres above the Q100 flood level. To achieve this for the Maintenance Facility, the ground level of the site will be raised by up to 2.5 metres. The sites for explosive ordnance facilities are above the Q100 flood level and no flood mitigation work is required.

KEY LEGISLATION

41. The following key legislation is relevant to this project:

a. Environment Protection and Biodiversity Conservation Act 1999;

b. Building and Construction Industry Improvement Amendment (Transition to Fair Work) Act 2012;

c. Work Health and Safety Act 2011;

d. Disability Discrimination Act 1992;

e. Fair Work Act 2009; and

f. Fair Work (Building Industry) Act 2012.

42. The design of the proposed facilities will comply with all relevant Australian Standards, Codes and Guidelines including the National Construction Code, inclusive of the Building Code of Australia. The design will be compliant in accordance with the correct revision of the Building Code of Australia / National Construction Code at the time of the Building Certifier's approval of the design.

CONSULTATION WITH KEY STAKEHOLDERS

43. Consultation has occurred with key Defence stakeholders as follows:

a. Air Force Headquarters - Advice on project scope and operational requirements.

b. Capability Acquisition and Sustainment Group – Advice on project scope and operational requirements.

c. Director of Ordnance Safety – Advice of Explosive Ordnance Safety requirements.

d. Joint Logistics Command EO Branch – Advice on Explosive Ordnance safety requirements.

e. Headquarters Air Command - Advice on operational requirements and user requirements.

f. No 36 Squadron, No. 86 Wing and Air Mobility Command, RAAF Base Amberley - Advice on operational and requirements.

g. Headquarters Combat Support Group - Advice on user requirements.

h. No 23 Squadron, RAAF Base Amberley - Advice on operational requirements.

i. Estate and Infrastructure Group, Infrastructure Division – Advice on Zone and Precinct Planning requirements, site selection, and environment, heritage and engineering policy / compliance requirements.

j. Defence Support Queensland – Consideration of regional issues and concerns.

k. Defence Security and Vetting Services - Advice on physical security policy.

l. Chief Information Officer Group – Advice on Information Communications Technology policy and costing.

m. Defence's Estate Maintenance and Operating Services – Consideration of design from a base services perspective.

44. Defence has also developed a community consultation plan and communication strategy that recognises the importance of providing local residents, statutory authorities and other interested stakeholders an opportunity to provide input into, or raise concerns relating to the proposal. Community consultation is planned to be conducted in March/April 2016.

45. The people and groups currently identified for consultation are listed below.

a. Federal Member for Blair Hon Shayne Neumann MP;

b. State Member for Ipswich West Mr. Jim Madden;

c. Ipswich City Council Mayor Paul Pisasale;

d. Local Property Owners/Managers, Land Trust, Traditional Owners;

e. RAAF Amberley Community Consultation Group;

f. Queensland Department of Transport and Main Roads; and

g. Local environmental groups, including the Australian Koala Foundation.

PURPOSE OF THE WORKS

Project Objectives

46. The purpose of this project is to provide facilities that are fit for purpose, compliant and provide value for money, in order to support the enhanced C-17 capability.

DETAILS AND REASONS FOR SITE SELECTION

47. The proposed site for the C-17 facilities and apron was selected to comply with the RAAF Base Amberley Flight Line Master Plan. The site optimises the operational effectiveness for 36 Squadron and the heavy airlift capability and the Base as a whole.

48. A Site Selection Board was conducted on 10 September 2015, where appropriate Defence delegates agreed to the proposed site for the new facilities at RAAF Base Amberley. The Site Selection Board was subsequently approved by Assistant Secretary Estate Planning on 21 October 2015.

49. The Explosive Ordnance Pallet Build Facility and the Counter Measures Facility was considered by a separate Explosive Ordnance Facilities Site Selection Board convened September 2014 and the subsequent report was approved on 15 January 2015.

DETAILED DESCRIPTION OF THE PROPOSED SCOPE OF WORKS

50. This project proposes five scope elements. Details of each scope element are described in the following sections.

Maintenance Facility

51. The proposed Maintenance Facility will accommodate a single C-17A aircraft with docking around the aircraft for maintenance purposes. It will also be sized to accommodate a single KC-30A aircraft. Telescopic docking will be installed to facilitate aircraft servicing tasks.

52. In addition to the hangar floor, this facility will include:

a. A logistics warehouse with a climate controlled storage area, a dedicated area for packing and dispatch, lockable quarantine/separation cages, and general storage for stacked pallets.

b. Working accommodation for 40 staff, including six standard offices, an open plan office and a Maintenance Certification Room.

c. Specialist workshops for maintenance, repair and certification tasks including the following:

(1) avionics workshop;

(2) structures workshop;

(3) composites workshop;

(4) decontamination room;

(5) surface finishing workshop;

(6) engines workshop/store;

(7) large aircraft counter-measures vault; and

d. Amenities including toilets, change rooms and a multi-function room suitable for 40 staff.

Aircraft Apron and Associated Airfield Infrastructure

53. The proposed aircraft apron will provide eight C-17A parking positions, with one position to be licensed as an Explosive Ordnance Loading Area. KC-30A aircraft will also be able to park on the C-17A parking positions, although with reduced wingtip clearances. In-ground hydrant refuelling will be provided at each of the eight parking positions.

54. The taxiways to the apron and taxi lanes to the parking positions and Maintenance Facility will be suitable for both C-17A and KC-30A aircraft. A tow road capable of supporting C-17A aircraft will connect the new apron to the existing Air Movements apron.

Ground Support Equipment Facilities

55. The proposed Ground Support Equipment facilities include a shelter suitable for approximately 60 items of Ground Support Equipment and Materiel Handling Equipment and will be located to provide direct access to the apron and the Maintenance Facility. A diesel refuelling bowser to be located between the new apron and the existing Air Movements apron to allow refuelling of all Ground Support Equipment / Materiel Handling Equipment on the northern flight line.

Explosive Ordnance Pallet Build Facility

56. The proposed Explosive Ordnance Pallet Build Facility will provide a purpose built facility for the receipt of explosive ordnance from road transport and re-palletising for air transport. The facility will cater for up to two C-17A loads of explosive ordnance. The proposed Explosive Ordnance Pallet Build Facility comprises:

a. new road and bridge constructed across the main stormwater drain;

b. an undercover delivery area to facilitate unloading of Explosive Ordnance from B-Double size road transport with drive-through access;

c. a transit and cross loading capacity of 20,000 kg Net Explosive Quantity;

d. two aircraft pallet building areas located on opposite sides of the facility to accommodate two C-17A loads;

e. segregation for specific types of Explosive Ordnance; and

f. receptor traverses at Building 801, 802, and Counter-Measures Facility to provide protection to these buildings from the Explosive Ordnance Pallet Build Facility.

Counter Measure Facility

57. The proposed Counter Measure Facility will be a shared facility, designed for use by the C-17A and C-27J Battlefield Airlifter capabilities. The proposed facility includes:

a. upgrade to the existing road;

b. drive-through access suitable for the required Materiel Handling Equipment;

c. facilities suitable for the delivery and transit of Class 1.3 and 1.4 Counter Measures;

d. a workspace for the unpacking and preparation of Aircraft Counter Measures;

e. access to the existing Explosive Ordnance precinct road network; and

f. interceptor traverses.

Infrastructure

58. **C-17 Site Infrastructure.** The following infrastructure is required to directly support the proposed C-17 facilities:

a. electrical services;

b. airfield lighting;

c. hydraulics services (including potable, water for fire fighting purposes, sewerage services and stormwater drainage);

d. communications; and

e. security services.

59. **Base Infrastructure Upgrade**. In addition to the proposed C-17 facilities and site infrastructure, a significant increase in capacity of the Base Central Emergency Power Station is proposed to address both existing and projected emergency power shortfalls. To meet the Base critical load requirements, the proposed upgrade to the Base Central Emergency Power Station involves installing two additional 2.5 MW diesel generators.

PUBLIC TRANSPORT, LOCAL ROAD AND TRAFFIC CONCERNS

60. There will be no increase in the working population at RAAF Base Amberley as a result of this project.

61. A traffic analysis has been completed on the internal road network at RAAF Base Amberley which has shown no adverse effects on the road networks around the Base.

62. During construction there will be an increase to the number of large vehicles that enter the Base to deliver material to the construction sites. Construction management controls

will be implemented to mitigate the effects of this increased traffic on the local road networks during construction. These measures will include the use of a dedicated construction access gate to prevent delays to traffic using the main entrance to the base.

ZONING AND LOCAL APPROVALS

63. The sites approved for all project scope elements at RAAF Base Amberley are located within the Flight Line North Zone and the Industry Zones as defined within RAAF Base Amberley Strategic Analysis and Zone Options Report. The intended function and use of all project scope elements are consistent with this zoning.

CHILDCARE PROVISIONS

64. Childcare facilities are currently available in the local Ipswich area. There are no requirements for additional childcare facilities as a result of this project, with the existing facilities meeting the current and known future needs of the Base.

IMPACT ON LOCAL COMMUNITY

65. RAAF Base Amberley has a long standing and very good relationship with the local Ipswich community. This project is not expected to have any adverse impacts on the local community.

PLANNING AND DESIGN CONCEPTS

66. Planning and design concepts have been developed to satisfy the functional requirements to support the maintenance operation of the C-17A capability. These criteria and objectives, formulated as part of the design process, include the following:

a. the layout of the facilities for work flow and functional efficiency;

b. the interaction between the various elements that constitute the C-17A capability; and

c. security and safety requirements of people and equipment.

67. Based on these planning objectives, the following design principles were adopted:

a. where possible orientate all buildings north-south with long axis east-west;

b. recognise that the operations of 36 Squadron are characterised by regular deployments of aircraft, followed by required maintenance;

c. the design, structure, servicing and siting of buildings allows for future expansion and site development where possible; and

d. separating pedestrian movements from aircraft and vehicle movement areas.

68. Access and facilities for the disabled will be provided in accordance with the Building Code of Australia, Australian Standard AS1428 – *Design for Access and Mobility* and the Defence policy '*Disabled Access and Other Facilities for Disabled Persons*'. The

facilities will be fully compliant with legislation and will include accessible kitchens, toilets and shower facilities.

Structural Design

69. The structural design philosophy is based on providing an efficient and cost effective structural system for each building. The size and layout of the buildings vary significantly, however an attempt has been made to replicate materials and techniques through the buildings to enable the implementation of consistent construction practices.

70. The key considerations taken into account in the structural design were:

a. maintaining and enhancing the operational effectiveness of each facility;

b. ensuring the design for each building is fit for purpose;

c. cost-effectiveness over the whole of life of the buildings;

d. minimisation of in-service maintenance requirements;

e. minimisation of risks inherent in the design (both safety and economic risks); and

f. maintaining flexibility of the use of internal spaces where appropriate.

71. The design of the proposed apron, hardstands, access roads and the building structures has also taken into account local geotechnical conditions and will meet all relevant Australian Standards and Codes. Appropriately qualified and experienced geotechnical and structural engineers have been engaged in the design of the proposed facility.

Hydraulic Services

72. The required hydraulic services will conform to the requirements of all applicable legislation, regulations, codes of practice and guidance publications (including regulations) relevant to Queensland and all relevant Australian standards. Where Australian Standards are not available, recognised international or overseas national standards will be used where they are relevant to the type of installation or equipment and to the installation conditions in Australia.

73. The selected hydraulic equipment will be readily available and adequately serviced in Australia with spare parts and technical support.

74. Hydraulic installations will allow for suitable and easy access for the purpose of operation, maintenance, repair and replacement. Allowance for plant layouts and equipment space will address associated Building Code of Australia and Work Health and Safety legislation requirements. Safe means of access to hydraulic equipment including items mounted in roof voids and ceiling voids, in high spaces or above operational equipment will be addressed in the design.

75. The required water will be supplied to the proposed facilities from the existing water mains that service the Heavy Airlift/Air Movements and Explosive Ordnance precincts.

Electrical Services

76. The electrical supply to the proposed facilities will be from the existing base electrical network. Investigations have confirmed that there is adequate capacity on the network for the new facilities.

77. In addition to the electrical services for the C-17 and Explosive Ordnance facilities, the project also includes the upgrading of the Base Central Emergency Power Station.

78. The electrical design has been undertaken in accordance with all relevant Australian Standards, all applicable Legislation, Regulations, Codes of Practice and Guidance Publications relevant in Queensland, Defence, and the Manual of Infrastructure Engineering Electrical requirements.

Communications

79. RAAF Base Amberley is serviced by a well-developed communications infrastructure network. The proposed works will include the works summarised below to support the 36 Squadron facility communications infrastructure network:

a. infrastructure cabling between existing network and communications nodes in the Maintenance Facility and Explosive Ordnance Pallet Build Facility;

b. communications rooms in the Maintenance Facility and Explosive Ordnance Pallet Build Facility;

c. new Defence Voice Network, Defence Protected Network, Defence Secret Network, Defence Engineering Services Network, and Contractor Local Area Network;

d. fibre and copper horizontal cabling and containment to network outlets;

e. Master Antenna Television systems;

f. public address system;

g. intercom systems;

h. audio visual cabling and systems; and

i. display monitors for maintenance workflows.

Fire Protection

80. Base fire service personnel have been consulted in developing this proposal to ensure fire-fighting capabilities are not adversely impacted in an emergency and that their training and accreditation are not affected by construction activities. Where required, the new facilities will be connected to the existing base-wide fire alarm network.

81. The fire engineering design has been undertaken in accordance with all applicable Australian Standards, Legislation, Regulations, Codes of Practice, and Defence requirements.

82. To achieve the required level of fire protection in the Maintenance Facility, a combination of fire sprinklers, a deluge system and fire hydrants will be employed. Supporting these systems and the large volume of water required will be two 1.2 million litre tanks and a series of booster pumps. Water supply to these two tanks will be from the existing Base fire water main.

Acoustics

83. The principal standard governing acoustic treatment for this project is the Australian Standard AS 2021–2000 Acoustics – Aircraft noise intrusion – Building Siting and Construction. While building orientation and the design of the building envelope have been designed to provide an acceptable level of noise attenuation, due to the functional requirements for the many elements of the project design, such as direct access to the Flightline, sightlines along the aircraft apron, and the desire for natural light, it will not be possible to meet all of the requirements of AS 2021-2000.

84. The proposed acoustic design therefore strikes a balance between adherence to AS2021 and fundamental functional requirements including:

a. noise criteria for ‘maintenance areas’ (e.g. the Maintenance Facility spaces) to permit direct external access to the Flightline; and

b. aligning the noise criteria for some private offices with the open offices criteria of 65dBA rather than a AS2021 typical 55dBA value to permit the location of these rooms on the perimeter of the buildings and allowing glazing to be incorporated in the building façade.

85. Within the proposed buildings, acoustic privacy of partitioning is provided in accordance with AS/NZS ISO 717.1 - Acoustics—Rating of Sound Insulation in Buildings and of Building Elements. Acoustic privacy has been determined based on the function within each of the spaces and the level of privacy required.

86. Aircraft noise intrusion is the key acoustic design consideration. Building envelopes to working accommodation areas will need to be designed to control noise intrusion from aircraft. The Super Hornet F/A-18F is the loudest aircraft that typically operates at RAAF Base Amberley and as such will be used as the basis for determining acoustic treatments to the building envelope.

Security

87. There is no public access to the proposed facilities and entry to the proposed facilities will be through the controlled access points at RAAF Base Amberley. The proposed buildings have been designed for the appropriate security classification as stipulated by Defence requirements.

ENVIRONMENTAL SUSTAINABILITY OF THE PROJECT

88. The Commonwealth is committed to ecologically sustainable development and the reduction of greenhouse gas emissions. Defence reports annually to Parliament on its energy management performance and on its progress in meeting the energy efficiency targets established by the Government as part of its commitment to improve ecologically sustainable development. Defence also implements policies and strategies in energy, water and waste to

improve natural resource efficiency and to support its commitment to the reduction of energy consumption, potable water consumption and waste diversion to landfill.

89. This proposal addresses Commonwealth policy by adopting cost-effective and ecologically sustainable development practices as a key objective in the design of the new facilities. To achieve this objective, the proposed buildings will comply with:

a. Section J of Volume One of the Building Code of Australia, National Construction Code 2015 Energy Efficiency.

b. Part 3.12 of Volume Two of the Building Code of Australia, National Construction Code 2015; Energy Efficiency.

c. Energy Efficiency in Government Operations policy;

d. Smart Infrastructure Manual: Design and Construction v1.0 (April 2015), Department of Defence.

90. The ecologically sustainable measures proposed for the project will be balanced with other requirements for Defence buildings, including security and work health and safety considerations, to ensure that Defence's operational capability is not compromised. The goal of these measures will be to maximise return on capital investment, while also aiming to minimise the ongoing maintenance and operational requirements.

91. The following are examples of some initiatives identified for consideration in the designs for this project:

a. energy and water metering for ongoing monitoring and management purposes;

b. zoning and control methodology for air-conditioned areas e.g. carbon dioxide monitoring and economy cycles;

c. localised air-conditioning plant in combination with high-efficiency equipment and variable speed drives to ensure output matches demand;

d. energy efficient lighting used in conjunction with tighter zoning and control methodology such as motion sensing;

e. solar with electric boosted hot water systems for amenities;

f. energy efficient building fabric construction to achieve thermal and acoustic insulation requirements;

g. use of mechanically-assisted or natural ventilation and natural lighting wherever practical;

h. specification of sustainable internal and external finishes such as plantation timber and low-volatile organic compound paints;

i. specification of high star-rated appliances available from Australian manufacturers;

j. connecting into the existing Base Management System network, which allows for centralised monitoring and control of building systems;

k. balanced soil cut and fill volumes;

l. mixed mode climate control is proposed for all occupied office areas; and

m. all facilities will include energy and water efficient plant and fixtures.

92. All energy sources supplying the buildings will be individually metered and linked to a control and monitoring system allowing Defence to better manage and monitor environmental performance. Sub-metering will be provided in accordance with the Defence Energy Management Strategy, and the requirements of the Commonwealth Energy Policy.

Landscaping

93. Landscaping design has been included in all new building elements, where appropriate and functional. Landscaping works will also be completed to restore areas disturbed during construction and provide general improvement to the built environment.

94. Landscaping design will focus on a functional, low maintenance and water sensitive approach using plants that are indigenous to the area. An establishment period will be included in the landscaping contract to ensure the landscaping elements are maintained and to ensure effective and efficient propagation.

95. Planting will be undertaken to compensate for trees removed as part of the construction activities at RAAF Base Amberley at a ratio of five new trees for each mature tree removed. Appropriate plantings will be undertaken in consultation with Defence's Regional Environmental Officer who has assisted in identifying appropriate species and locations. Furthermore, it is envisaged that the compensatory planting will enhance the green corridor to the Bremer River and for wildlife transiting through the Base.

Energy Targets

96. There are no general energy performance based requirements for non-office Facility Groups and Types as defined in the SMART Infrastructure Manual. At this stage of the project the following Ecologically Sustainable Development / Whole of Life opportunity has been identified for possible inclusion in the electrical services scope of works:

a. Solar Photovoltaic and inverter system for electrical load offset (non-export type) for the C- 17 maintenance facility.

97. All office spaces shall be designed to achieve the following Energy intensity performance targets:

a. Tenant Light and Power – ≤7,500 MJ/person/annum.

b. Central Services – ≤400 MJ/m²/annum.

c. Operational Equipment Load (computers and other equipment) – ≤9 W/m².

WORK HEALTH AND SAFETY MEASURES

98. The proposed facilities to be provided under this project will comply with Department of Defence's Work Health and Safety Policy, the Work Health and Safety Act 2011, Work Health and Safety (Commonwealth Employment - National Standards) Regulations and the Defence Work Health and Safety Manual.

99. In accordance with Section 35(4) of the Building and Construction Industry Improvement Act 2005, contractors will also be required to hold full work health and safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building and Construction Work Health and Safety Accreditation Scheme.

100. Safety aspects of this proposal have been addressed during the design process and have been documented in a Safety in Design Report completed by the contractor. Hazardous operations for fuel and hazardous identification for explosive ordnance workshops have also been completed. No special or unusual public safety risks have been identified in this process. The contractor will also be required to submit a Work Health and Safety Plan for the construction phase and prior to the start of any construction activities.

COST EFFECTIVENESS AND PUBLIC VALUE

Outline of Project Costs

101. The estimated out-turn cost of this proposal is $219.4 million, excluding Goods and Services Tax. This estimate includes the construction costs including escalation allowances, professional service fees, information and communication technology equipment, and Delivery Phase and Defence contingencies.

102. Ecologically sustainable development principles have been incorporated into the design of the proposed facilities to achieve greater efficiencies and reduced costs over the design life of the facilities.

103. The Net Personnel Operating Costs of $4.1 million per year have been estimated for the proposed works. This cost estimate provides the basis for funding the ongoing operation and support services required by this proposal.

Details of Project Delivery System

104. A Project Manager / Contract Administrator has been appointed by the Commonwealth to manage the project works and associated administration of the contracts during the Planning Phase. Subject to Parliamentary approval, value for money assessments and satisfactory performance of the Project Manager / Contract Administrator, the Commonwealth may extend the Project Manager / Contract Administrator Contract into the delivery phase of the proposed works.

105. A Managing Contractor has been engaged to undertake the design of the facilities, which have been completed to 50%. Subject to Parliamentary approval of the project, value for money assessments and satisfactory performance, the Commonwealth may extend the Managing Contractor's contract into the delivery phase of the project.

Construction Program

106. Subject to Parliamentary approval of the Project, construction is expected to start in early 2017 and all facilities required to support the enhanced C-17 capability will be complete by late 2018.

Public Value

107. The proposed facilities will support the maintenance and operation of the C-17A capability.

108. The proposal will also employ a diverse range of skilled consultants, contractors and construction workers. The project will provide opportunities for up-skilling and job training to improve individual skills and employability on future projects.

Revenue

109. No revenue will be derived from this project.

ATTACHMENTS

1. Base Locality Plan
2. Site Plan – RAAF Amberley
3. Site Plan – C-17 Maintenance Precinct
4. Floor Plan – C-17 Maintenance Facility
5. Floor Plan and Elevation – Explosive Ordnance Precinct
6. Floor Plan – Ground Support Equipment Structure
7. Floor Plan – Dangerous Goods Store
8. Floor Plan – Explosive Ordnance Pallet Build Facility
9. Floor Plan – Counter Measure Facility

LOCALITY PLAN

OVERALL SITE PLAN

LEGEND

1 MAINTENANCE FACILITY
2 DANGEROUS GOODS STORE
3 GSE SHELTER
4 APRON & TAXIWAY CONNECTION
5 EXISTING BUILDINGS

COLOUR LEGEND

- NEW MAINTENANCE FACILITY
- NEW GSE SHELTER
- NEW DANGEROUS GOODS STORE
- EXISTING PAVEMENT HARDSTAND
- NEW PAVEMENT HARDSTAND
- EXISTING BUILDINGS

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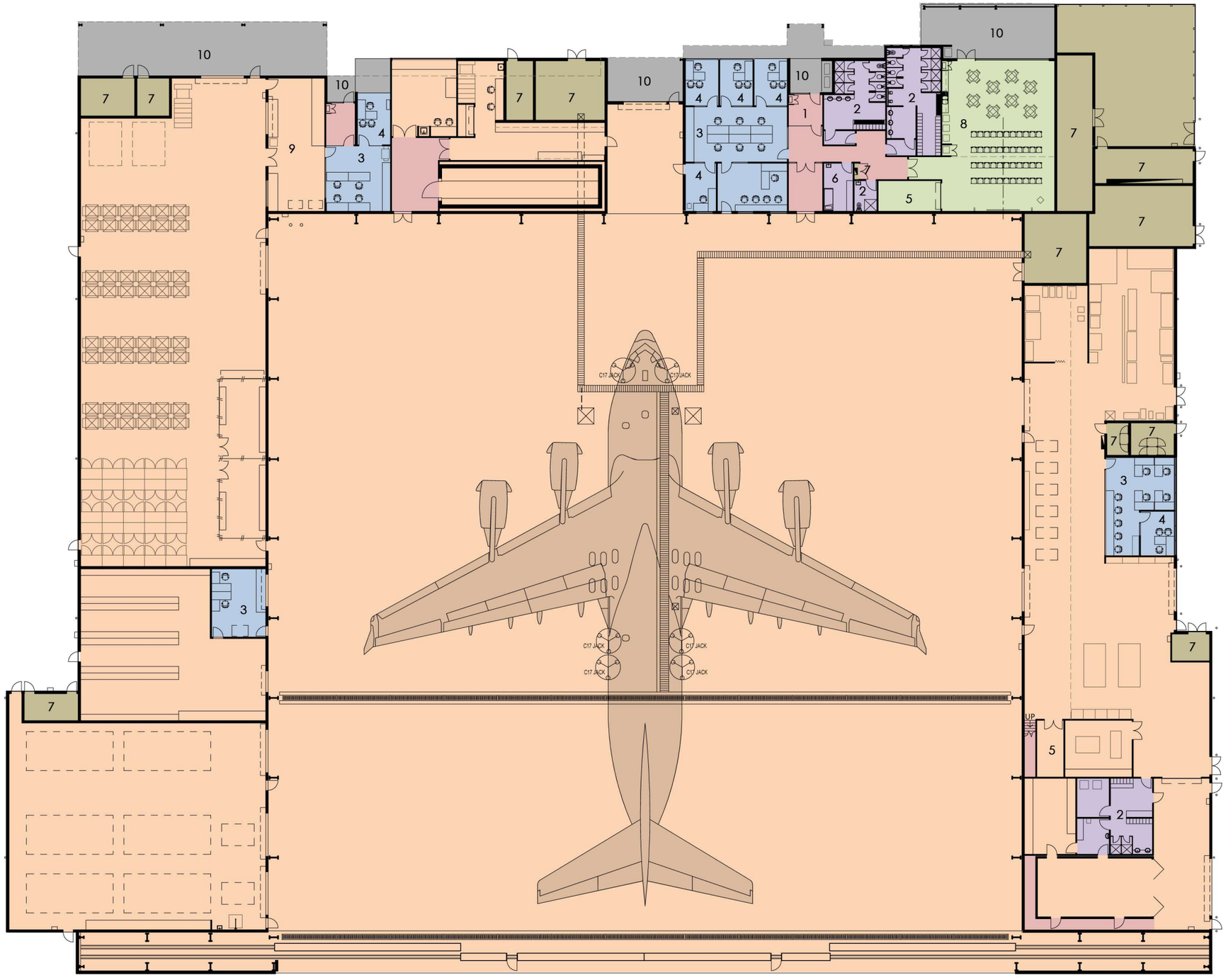
APRON / MAINTENANCE FACILITY PRECINCT SITE PLAN



LEGEND

1 MAIN ENTRY
2 AMENITIES
3 OPEN PLAN OFFICE AREA
4 SINGLE OFFICE
5 STORE
6 UTILITY / SUPPORT
7 PLANT / SERVICES
8 BREW / BRIEFING
9 RECEIPTS & ISSUE AREA
10 UNDERCOVER EXTERNAL AREA

COLOUR LEGEND

- STORAGE/ WORKSHOP
- OFFICE AREAS
- CIRCULATION / ANCILLARY SPACES
- CONFERENCE / BRIEFING / TRAINING
- WET AREAS
- BUILDING SERVICES
- UNDERCOVER EXTERNAL AREAS

MAINTENANCE FACILITY FLOOR PLAN

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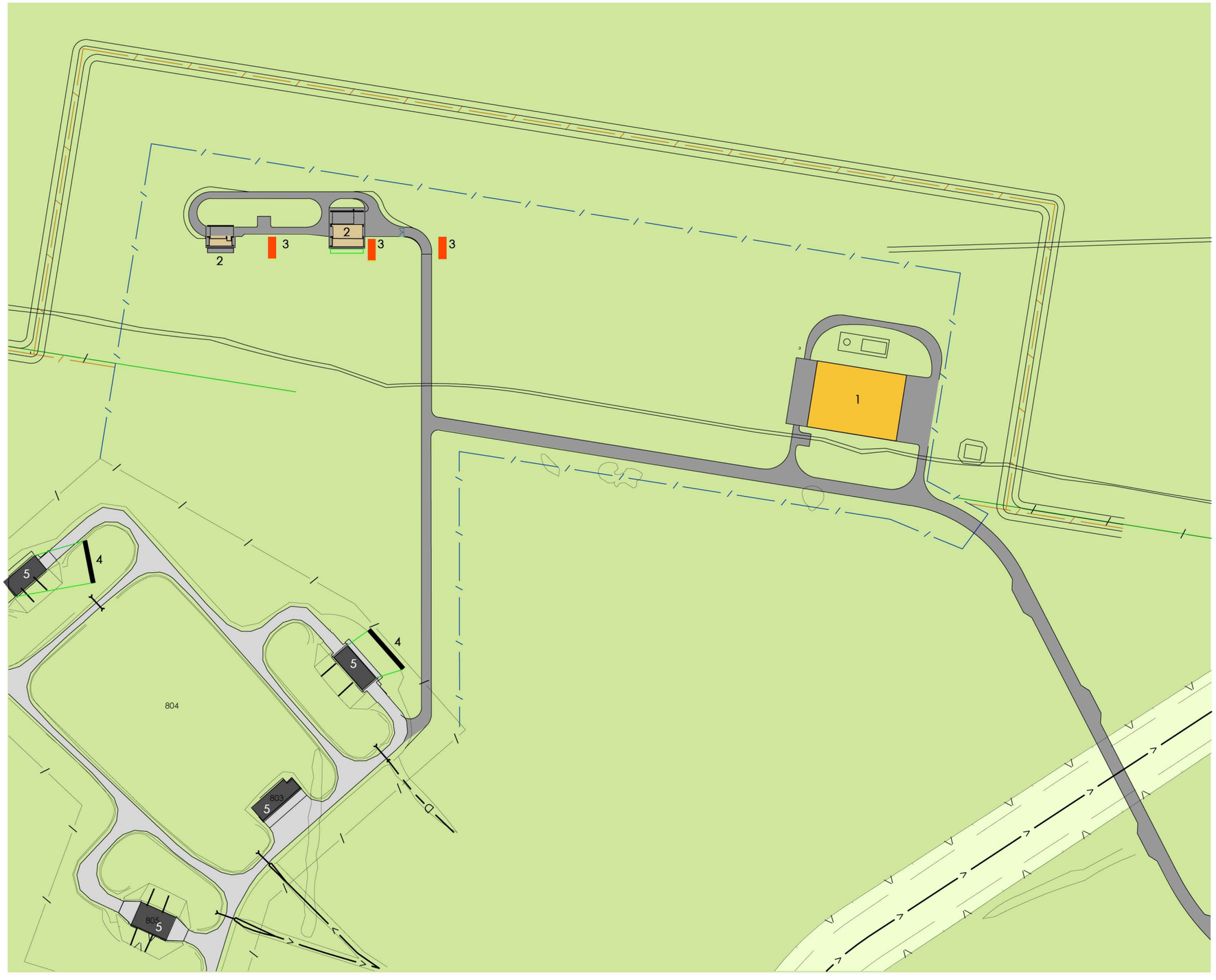

LEGEND

1 EOPBF BUILDING
2 COUNTER MEASURES STORE
3 NEW TYPE III TRAVERSE
4 EXISTING TRAVERSE
5 EXISTING BUILDING

COLOUR LEGEND

- NEW EXPLOSIVE ORDNANCE PALLET BUILD FACILITY
- NEW COUNTER MEASURES STORE
- NEW TYPE III TRAVERSE
- EXISTING PAVEMENT HARDSTAND
- NEW PAVEMENT HARDSTAND
- EXISTING BUILDINGS

EO PRECINCT SITE PLAN

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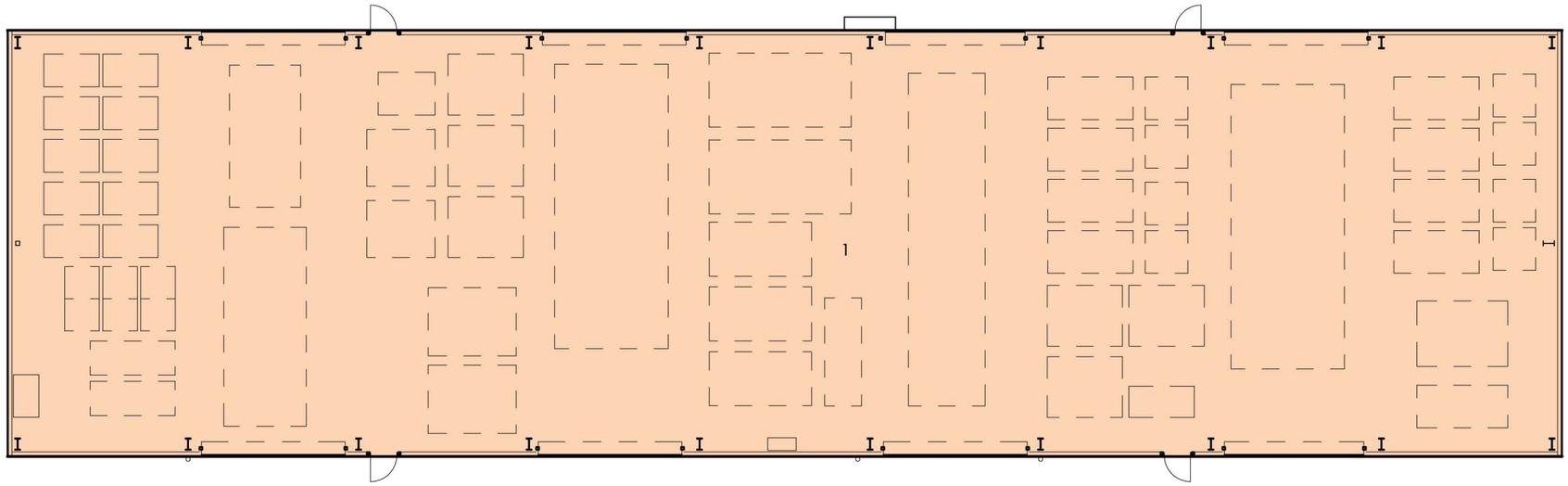
LEGEND

1 STORE



COLOUR LEGEND

STORAGE SHELTER

GSE SHELTER FLOOR PLAN

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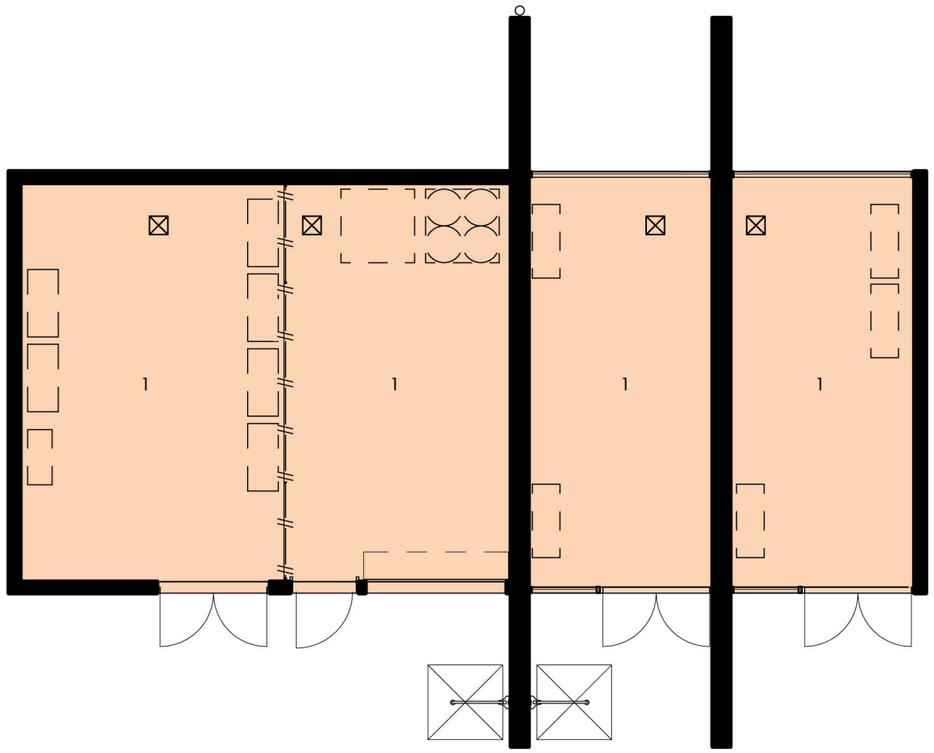
LEGEND

1 STORAGE



COLOUR LEGEND

STORAGE

DANGEROUS GOODS FLOOR PLAN

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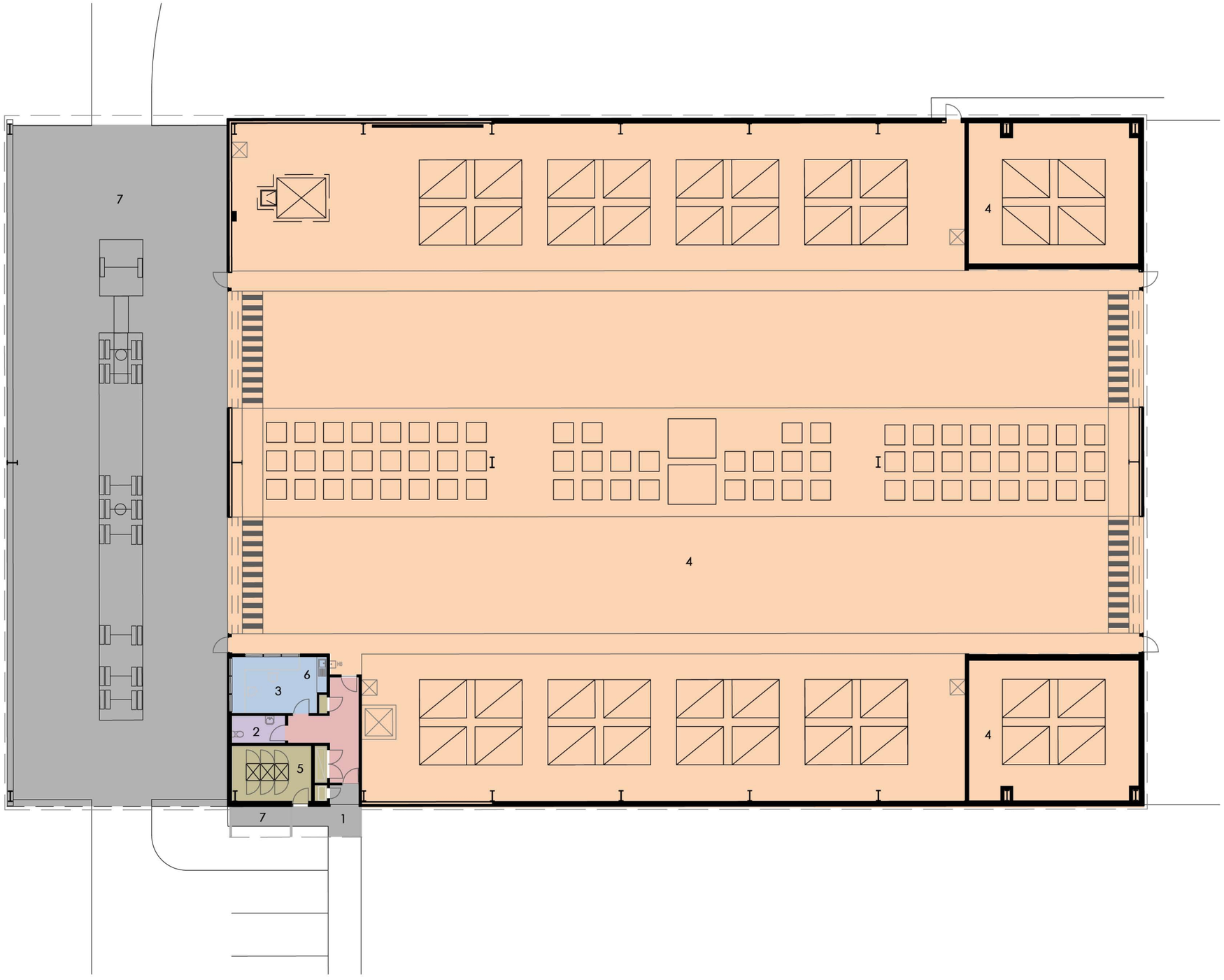
LEGEND

1 MAIN ENTRY
2 AMENITIES
3 OPEN PLAN OFFICE AREA
4 STORE
5 PLANT / SERVICES
6 BREW
7 UNDERCOVER EXTERNAL AREA



COLOUR LEGEND

STORAGE/ WORKSHOP
OFFICE AREAS
CIRCULATION / ANCILLARY SPACES
WET AREAS
BUILDING SERVICES
UNDERCOVER EXTERNAL AREAS

EXPLOSIVE ORDNANCE PALLET BUILD FACILITY FLOOR PLAN

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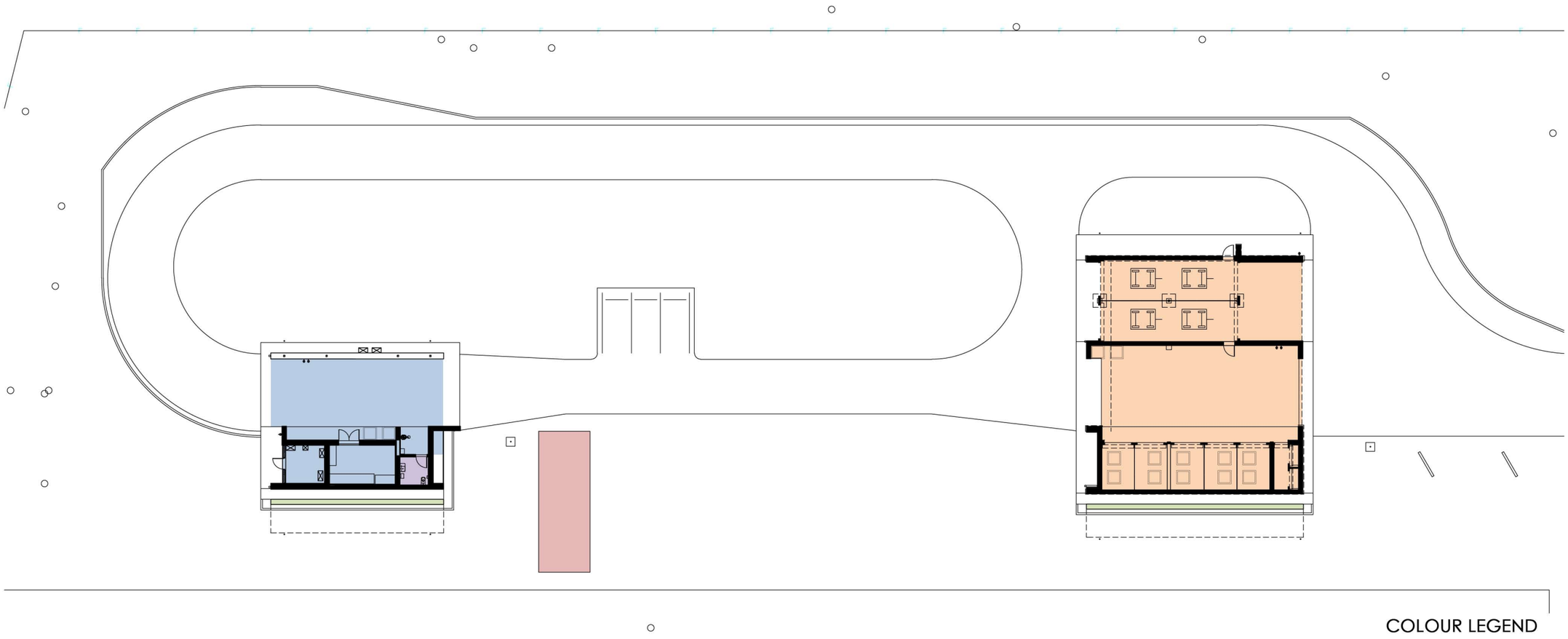
LEGEND

1 INTERMEDIATE HOLDING AREA
2 PREPARATION AREA
3 AMENITIES
4 TYPE V TRAVERSE
5 TYPE 3 TRAVERSE



COLOUR LEGEND

- INTERMEDIATE HOLDING AREA
- PREPARATION AREA
- WET AREAS
- TYPE V TRAVERSE
- TYPE 3 TRAVERSE

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COUNTER MEASURE FACILITIES