Australia Pacific Airports (Melbourne) Pty Ltd

Melbourne Airport Elevated Road & Forecourt Stage 2 Project

Major Development Plan

Final (Approved) 21 October 2021

MELBOURNE AIRPORT

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Glossary and Abbreviations

AAQ	Ambient Air Quality
ABC	Airport Building Controller
AHD	Australian Height Datum
Airports Act	*Airports Act 1996*
AEPR	*Airports (Environment Protection) Regulations 1997*
ALC	Airport-lessee Company
ANEF	Australian Noise Exposure Forecast
APAM	Australia Pacific Airports (Melbourne) Pty Ltd – the airport lessee company
CASA	Civil Aviation Safety Authority
CEMP	Construction Environmental Management Plan
CNS	Communications, Navigation and Surveillance
EMS	Environment Management System
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
DoT	Department of Transport
IATA	International Air Transport Association
MDP	Major Development Plan
MNES	Matters of National Environmental Significance
NASAG	National Airports Safeguarding Advisory Group
NASF	National Airports Safeguarding Framework
NEMP	National Environmental Management Plan
OLS	Obstacle Limitation Surfaces
PANS-OPS	Procedures for Air Navigation Services – Aircraft Operations Surface
PESA	Preliminary Environmental Site Assessment
PFAS	Per- and poly- fluorinated alkyl substances
RPV	Rail Projects Victoria
SEPP	State Environmental Protection Policy
T123	Terminals 1, 2 and 3
T4	Terminal 4
VISSIM	Verkehr In Städten - SIMulationsmodell (Traffic In Cities - Simulation Model)
VITM	Victorian Integrated Transport Model
VPP	Victoria Planning Provisions
VT	Vertical Transport

Executive Summary

Melbourne Airport is operated by Australia Pacific Airports (Melbourne) Pty Ltd (APAM) under a long-term lease from the Commonwealth Government. As travel demands at Melbourne Airport are expected to increase over the next 20 years, APAM is proposing to invest in its landside road network to improve passenger vehicle circulation and access to Melbourne Airport. The Elevated Road and Forecourt Stage 2 Project (the Project) represents the next step in this process.

The Project comprises construction of an elevated roadway network that connects the T4 Express Link (Stage 1) to the Terminal 1, 2, 3 (T123) Car Park, and repurposes Level 3 and Level 2 of the T123 Car Park to allow for passenger drop-off and pick-up. The new elevated road will provide for an intersection free journey for public passenger vehicles for drop-off and pick-up and will connect passengers to the terminal via a new pedestrian bridge link. The current forecourt will remain open to commercial vehicles (including SkyBus, taxi/rideshare pick-up, long-term car park shuttle bus, other shuttle services, staff and crew buses etc.). New elevated exit ramps from T123 Car Park will join back onto the Tullamarine Freeway to complete the journey.

The Project follows Stage 1, which is an elevated road directly linking the Tullamarine Freeway to the T4 transport hub. A Major Development Plan (MDP) for the Stage 1 T4 Express Link was approved by the Commonwealth Minister for Infrastructure, Transport and Regional Development in October 2019.

The Project will deliver passengers a much more reliable and convenient journey into the airport, with an estimated saving of up to 35 minutes in travel time during the AM peak hour. In addition, the Project is expected to remove 40,000 cars daily from Terminal Drive, benefiting commercial and freight vehicles and other users.

Under Section 89 of the *Airports Act 1996* (Airports Act), the Project is a major airport development. Under Section 90 of the Act, a major airport development requires the preparation of an MDP which requires approval from the Minister for Infrastructure, Transport and Regional Development.

In accordance with Section 91 of the Airports Act, an environmental assessment has been undertaken in preparation of this MDP. This assessment considers a range of factors including traffic, soil and land contamination and ecology.

A summary of the potential environmental impacts considered in the assessment is shown in the table on the following page.

Section	Environmental and social factors	Impacts	
		Construction	Operation
5.1	Traffic	Low / negligible	Beneficial
5.2	Soils and Land Contamination	Low	Low
	Groundwater Contamination	Negligible	Negligible
5.3	Surface Water and Drainage	Low	Low
5.4	Ecology	Negligible	Negligible
5.5	Air Quality	Low	Low
5.6	Noise	Low	Low
5.7	Land Use	Low	Beneficial
	Tenure	Moderate	Low
5.8	Economic and Social	Low	Beneficial
5.9	Landscape	Low	Low
5.10	Cultural Heritage	Negligible	Negligible
5.11	Hazardous Goods	Low	Negligible
5.12	Aviation Operations and Safety	Negligible	Negligible

Overall, the Project is considered to have a low impact on the environment during construction and operation. The benefits the Project will ultimately deliver, including an improved passenger journey experience, segregation of public and commercial vehicles and a more efficient and safer road network, will far outweigh the potential impacts outlined in this assessment. Any environmental risk associated with the Project will be mitigated through an appropriate Construction Environment Management Plan (CEMP), addressing relevant criteria. This will be prepared by the project contractor, prior to commencing construction.

Melbourne Airport has a commitment to proactive community consultation underpinned by a desire for Melbourne Airport to be positioned within the community as a responsible corporate citizen and meeting the requirements under the Airports Act for community consultation. Both statutory and non-statutory consultation strategies have been developed, of which the public display of this MDP is a component.

APAM has consulted extensively with Department of Transport (former VicRoads) in the preparation of this MDP through a series of meetings, presentation and technical memos. As part of the MDP preparation, the following additional stakeholders have also been engaged:

- Airservices Australia
- Civil Aviation Safety Authority
- Melbourne Airport Planning Coordination Forum
- Department of Transport (Vic) (encompassing Rail Projects Victoria and Freight Victoria)
- Department of Environment, Land, Water and Planning (Vic)
- Department of Agriculture, Water and the Environment (Cth)
- Department of Infrastructure, Transport, Regional Development and Communications (Cth)

A variety of advertising and communication was also undertaken alongside other engagement opportunities for the community, government members, agencies, and regulators, in accordance with the Airports Act.

1 Introduction

1.1 Overview

This Major Development Plan (MDP) has been prepared for the Project at Melbourne Airport.

Melbourne Airport is operated by Australia Pacific Airports (Melbourne) (APAM) Pty Ltd under a long-term lease from the Commonwealth Government. The airport is located on land owned by the Commonwealth Government.

Melbourne Airport is a major contributor to the growth of Victoria's economy through, tourism, air freight and business development. It provides the main airport hub for the southern part of Australia.

The Project represents a significant investment by APAM to improve passenger vehicle access to Melbourne Airport in response to growing patronage and vehicles accessing the airport.

1.2 Project Summary

The Elevated Road and Forecourt Project is being delivered in a staged approach, consistent with the actions outlined in the *Melbourne Airport Master Plan 2018*.

Stage 1 of the Project (also known as 'T4 Express Link') is a new exit-ramp from the Tullamarine Freeway (outbound), forming an 800 metre roadway connecting to the existing elevated road structure that feeds into the T4 multi-storey car park. The MDP for Stage 1 was submitted and approved in 2019.

Stage 2 of the Project is the subject of this MDP and consists of a suite of infrastructure to reconfigure vehicle movements to Terminals 1, 2 and 3. It comprises construction of a new elevated roadway link that connects from Stage 1 of the Project into the Terminal 1, 2, 3 (T123) multi-storey car park. The intent is to use this route as a dedicated public access route for passenger drop-off and pick-up, connecting to the terminal via a pedestrian bridge. Level 3 and Level 2 of the T123 Car Park is to be re-purposed to allow for passenger drop-off and pick-up respectively, with the current forecourt to remain open to commercial vehicles only (this includes SkyBus, taxi/rideshare pick-up, long-term car park bus, shuttle bus services, staff and crew buses etc.). It also includes new exit ramps from the T123 structure, to connect onto Melbourne Drive and the Tullamarine Freeway.

Travel demand at Melbourne Airport is expected to increase significantly to 2038 and The Project will boost the capacity of the existing landside road system. There are currently (as in FY19) in the order of 140,000 vehicle trips to and from the airport on a typical busy day and this figure is expected to increase to 240,000 trips per busy day by 2038. The Project is part of a long term APAM initiative to more effectively distribute traffic at Melbourne Airport.

1.3 Major Airport Development Approvals

A major airport development requires the preparation of an MDP under Section 90 of the *Airports Act 1996* (Airports Act), which requires approval from the Commonwealth Minister for Infrastructure, Transport and Regional Development (the Minister). The MDP process is discussed in more detail in Section 3 of this report.

The Project is defined a major airport development under Section 89 of the Airports Act as it involves:

> *(h) constructing a new road or new vehicular access facility, where:*
>
> > *(i) the construction significantly increases the capacity of the airport to handle movements of passengers, freight or aircraft; and*
> >
> > *(ii) the cost of construction exceeds the threshold amount (see subsections (7) and (9));*

The threshold amount under subsection 9 is $25 million. As the cost of construction of the Project is anticipated to be above the threshold, and it will significantly increase the capacity of the airport to handle movements of passengers, freight or aircraft, it is considered a major airport development.

Table 1 below outlines the matters which must be considered by the Minister in determining whether to approve an MDP, pursuant to Section 94 of the Airports Act, and where these matters are addressed in this MDP.

Table 1 Ministerial Considerations

Ministerial Considerations	Addressed in this MDP
(aa) the extent to which the plan achieves the purpose of a major development plan (see subsection 91 (1A));	Section 2: Project Description Section 3.3: Consistency with the Airport Lease Section 3.4: Legal Compliance Section 3.5: Consistency with the Master Plan and Environmental Strategy Section 3.6: Consistency with State and Local Government Planning Section 3.7: Airport Development and Building Approvals
(a) the extent to which carrying out the plan would meet the future needs of civil aviation users of the airport, and other users of the airport, for services and facilities relating to the airport;	Section 2.2: Project Justification and Objectives
(b) the effect that carrying out the plan would be likely to have on the future operating capacity of the airport;	Section 2.2: Project Justification and Objectives
(c) the impact that carrying out the plan would be likely to have on the environment;	Section 5: Impact Assessment
(d) the consultations undertaken in preparing the plan (including the outcome of the consultations);	Section 8: Consultation and Approval Process
(e) the views of the Civil Aviation Safety Authority and Airservices Australia, in so far as they relate to safety aspects and operational aspects of the plan.	Section 5.12: Aviation Operations and Safety

Appendix A sets out the MDP requirements under the Act and demonstrates that this MDP is consistent with those requirements.

APAM, as the 'airport-lessee company' (ALC) under the Airports Act for Melbourne Airport, is responsible for the submission of the MDP for the Project.

1.4 Report Structure

This MDP is structured to address the requirements of the Airports Act:

- Section 2 describes the Project that is the subject of this MDP
- Section 3 describes the legislative context and consistency with relevant federal, state and local legislation and policy
- Section 4 defines the scope of the assessment and describes the assessment methodology used for the assessment of impacts associated with the Project
- Section 5 describes the impacts that might reasonably be expected to be associated with the Project and the plans proposed for ameliorating or preventing environmental impacts
- Section 6 provides a summary of the environmental effects of the Project
- Section 7 provides a summary of compliance with existing Environmental Management procedures
- Section 8 defines the consultation and approval process undertaken as part of this MDP.

Appendices

- Appendix A – Checklist for the Airports Act requirements
- Appendix B – Design Plans.

1.5 Project Proponent

As the ALC under the Act, APAM is the Project proponent. Contacts details for APAM are provided below:

Australia Pacific Airports (Melbourne) Pty Ltd

International Terminal,

Locked Bag 16,

Tullamarine, VIC, 3043

The APAM contact in connection with this proposal is:

Rosie Offord

Head of Master Planning

Rosie.Offord@melair.com.au

2 Project Description

2.1 The Project

The Project comprises construction of an elevated roadway network that connects the T4 Express Link (Stage 1) to the Terminal 1, 2, 3 (T123) Car Park, and repurposes Level 3 and Level 2 of the T123 Car Park to allow for passenger drop-off and pick-up respectively. The new elevated road will provide for an intersection free journey for public passenger vehicles for drop-off and pick-up, and will connect passengers to the terminal via a new pedestrian bridge link. The current forecourt will remain open to commercial vehicles (including SkyBus, taxi/rideshare pick-up, long-term car park shuttle bus, staff and crew buses etc.). New elevated exit ramps from T123 Car Park will join back onto the Tullamarine Freeway to complete the journey.

The Project follows Stage 1, which is an elevated road directly linking the Tullamarine Freeway to the T4 transport hub. A Major Development Plan (MDP) for the Stage 1 T4 Express Link was approved by the Commonwealth Minister for Infrastructure, Transport and Regional Development in October 2019.

The Project involves the following:

- A dedicated elevated roadway, joining the T4 Express Link elevated roadway to the Terminal 123 Car Park
- Re-purposing the existing Levels 2 and 3 of the T123 Car Park, to allow for designated passenger pick-up and drop-off forecourt areas
- Upgrade to the existing forecourt for commercial vehicles use (taxis, buses, coaches)
- Express exit ramps leading out of the T123 Car Park to join Tullamarine Freeway.

Figure 1 Project overview

The key infrastructure that is required for the Project is summarised as follows:

- Four new elevated roadway structures:
  - Elevated Road to T123 Car Park Entry
  - Level 3 Exit Ramp to Departure Drive
  - Level 2 Exit Ramp to Melbourne Drive
  - Elevated Road Off-Ramp to Airport Drive
- New pedestrian footbridge connecting Level 2 of T123 Car Park to Terminal Departures
- Forecourt ground level redevelopment works for two carriageways
- Intersection upgrades for the following areas:
  - Centre Road / Airport Drive
  - Centre Road / Terminal Drive
  - Centre Road / Melbourne Drive
  - Centre Road / Arrivals Drive
- At grade road works to suit elevated roadway tie-in locations at Airport Drive and Melbourne Drive, forecourt reconfiguration and intersection upgrades
- Reconfiguring T123 Car Park Level 3 open deck area from existing parking to new T123 drop-off area, configured with a 'finger' side-to-kerb layout
- Reconfiguring T123 Car Park Level 2 rear area from existing parking to new T123 pick-up area
- New Vertical Transport (VT) within the T123 Car Park to accommodate pick-up and drop-off including:
  - New VT within central void for Level 3/Level 2 access
  - New VT at rear of T123 Car Park for Ground/Level 6 access
  - New Goods Service Lift southern side of T123 Car Park for Ground/Level 3 access.

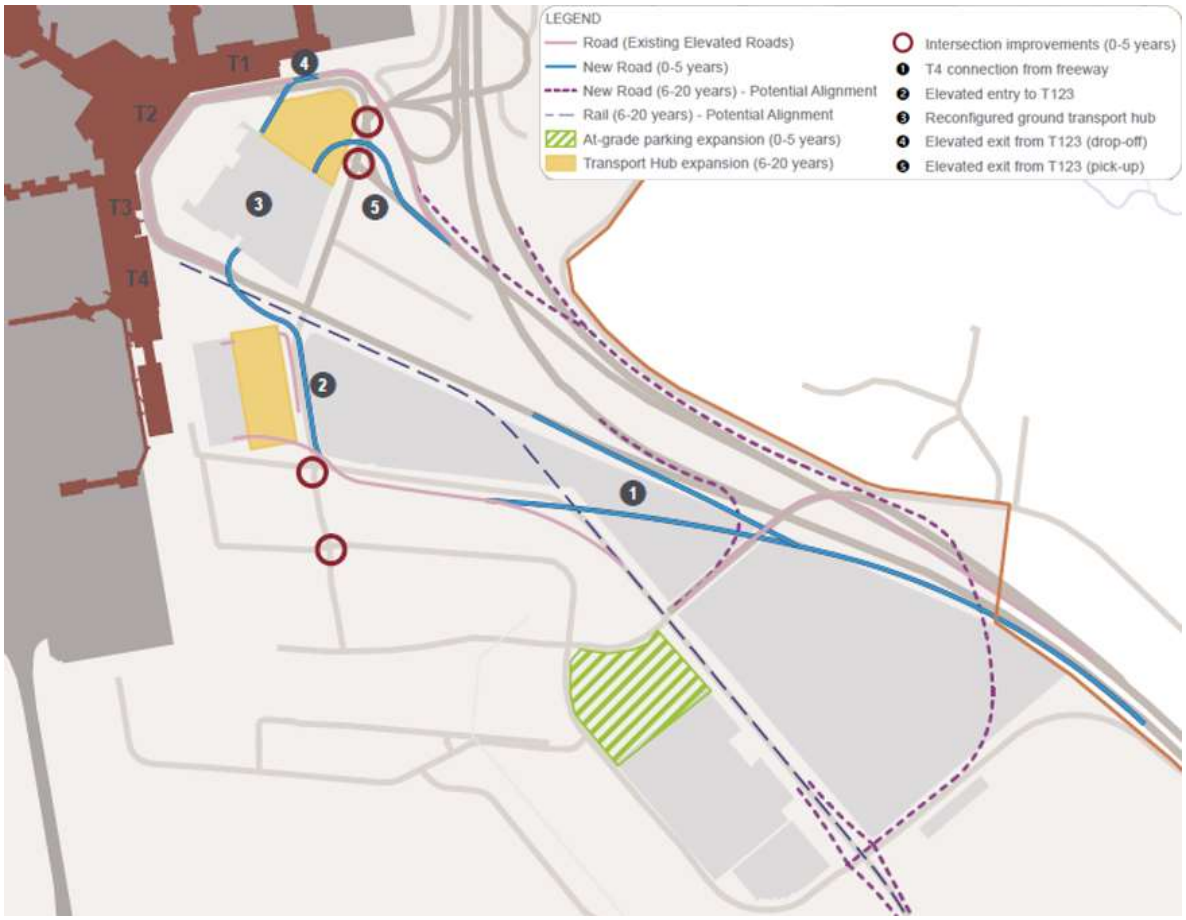
Figure 2 shows an overview of the extent of design for the Project, with design plans shown in Appendix B. Additional material, including 3D video animations, has been provided online to illustrate how the Level 3 drop-off area would function.

Figure 2 Project Overall Site Plan

The Project aligns with the Ground Transport Plan contained in the *Melbourne Airport Master Plan 2018* (the Master Plan). In section 14.1.2 of the Master Plan it states that an "*expansion of the on-airport road network is required to address existing peak-hour congestion issues and to accommodate future growth*" and that this will include "*an extension of elevated road concept first proposed in the 2013 Master Plan*". More specifically, the Master Plan states that the following key network improvements, which comprise the main elements of the Project, will be delivered in the Master Plan period:

- The construction of a one-way elevated road, connecting the existing T4 ramp into a reconfigured T123 ground transport hub, allowing intersection-free access to all terminal precincts
- An elevated connection from the reconfigured T123 ground transport hub directly into Departure Drive (for drop-off traffic)
- An elevated connection from the reconfigured T123 ground transport hub directly into Melbourne Drive (for pick-up traffic).

Figure 3 Melbourne Airport road network plan (from *Melbourne Airport Master Plan 2018*)



2.2 Project Justification and Objectives

Melbourne Airport is Victoria's main gateway for passengers and freight and a significant hub for employment. Currently, landside access for Melbourne Airport relies solely on the road network.

Landside travel demand is expected to increase in line with passenger growth, which will double to nearly 70 million by 2038. The capacity of the road network will more frequently be exceeded leading to landside issues such as congestion and delay, declining levels of service, increasing operational expenditure and poor customer experience.

The Project was developed in response to a series of identified key issues as follows:

- Vehicular access to the high demand Terminals 1, 2, 3 area is constrained by an at-grade signalised intersection, with the precinct subject to long queues and delays during peak demand periods
- The internal road layout is an inefficient use of network space, with multiple types of vehicular demand converging and approaching via a single corridor – resulting in poor resilience
- Existing drop-off and pick-up facilities are no longer fit-for-purpose, particularly regarding capacity, efficiency and security
- Future growth in passenger volumes will require increasing the capacity of the transport infrastructure, in order to maintain an acceptable standard of airport operations.

The Airport's ground transport access strategy has a direct impact on the passenger experience, influencing a traveller's first and last impressions of Melbourne. Provision of an intuitive and seamless customer experience is a key Project objective.

Importantly, the ground transport access arrangements must build in sufficient resilience to the network and be flexible enough not to preclude future opportunities for future development.

The key objectives for the Project include the following:

- Maximise vehicle throughput and provide for a transport network that can accommodate the forecast passenger demand to 2038 to an acceptable level of service
- Complement future aviation growth, as documented in the Master Plan, by freeing up space in the existing forecourt and enabling key mid-term aviation terminal efficiency projects, such as International Terminal Expansion
- Improve the customer journey by significantly improving access and safety to and from the airport whilst minimising traffic delays
- Reducing any impact from traffic delays to on-time performance for airlines
- Improve the reliability of the road infrastructure through the creation of two separate networks, elevated and at-grade (i.e. a flexible road network that can effectively manage peak congestion periods)
- Reduce unnecessary re-circulating traffic movement on the landside transport network
- Provide more intuitive, intersection free access to all terminals from the Tullamarine Freeway
- Allow for better management and distribution of traffic through intelligent traffic systems (ITS) and dynamic lane allocation.

2.2.1 Project benefits

The Project is adding new infrastructure to the airport, and as such will provide a range of benefits, summarised as follows:

- Increased road network capacity and improved vehicular throughput, not only for airport passengers but also staff, business park operators and surrounding road users
- Along with future infrastructure projects, it will provide passengers with a range of reliable travel options to and from the Airport best suited to their needs, whether that is through private vehicles (roads) or public transport (buses, taxis/rideshare/VHA and rail)
- Minimised traffic queues so they do not extend onto the Tullamarine Freeway during peak periods (particularly benefiting non-airport freeway users, such as residents commuting towards the Sunbury region)
- Reduced travel time for all passengers and all modes of transport (including pick up, drop off, taxis/rideshare, buses and private car parking customers)
- Improved road performance, resilience and reliability. In the event of a breakdown or incident, creates a secondary elevated network and frees up traffic flows and minimise the amount of traffic disruptions
- Increases pedestrian safety by:
    - Reducing the number of pedestrian crossings in the forecourt
    - Providing for a new elevated pedestrian connection to the car park
    - Providing the opportunity to fully pedestrianise Departures Drive in the future
- The reconfiguration of traffic lanes from the ground floor forecourt will enable more space for pedestrians at the terminal building front – thereby creating for a safer and more pleasant traveller experience
- The removal of vehicles from close proximity to the terminal buildings also improves security in accordance with current best practice international standards

- Generates a range of economic benefits to the state of Victoria by creating employment opportunities for construction staff, building contractors, designers and engineers.

2.2.2 Project Alternatives

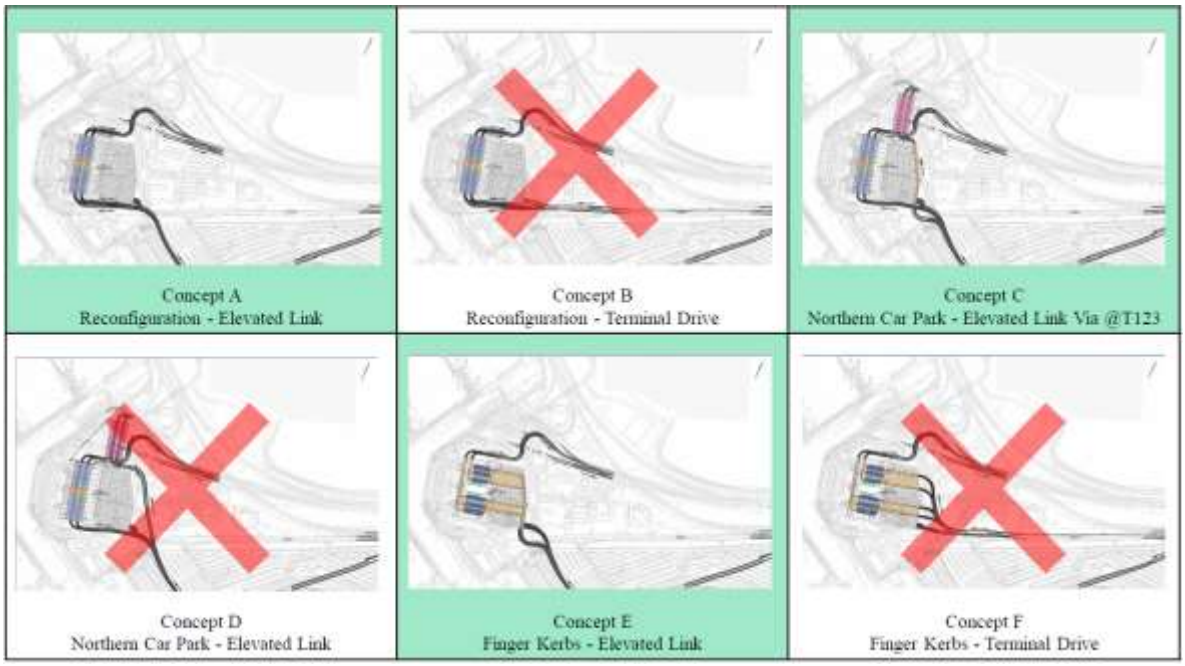
Throughout the design process there has been considerable work undertaken to ensure the preferred scheme is appropriate and meets the ongoing needs of Melbourne Airport users and other key stakeholders.

During concept design phase, a process was developed to explore a range of road network and forecourt options to respond to the landside travel demand and key problem statements. This included developing, sifting, refining, assessing and defining a preferred concept. Seven road network designs were developed for initial sifting. A preliminary multi-criteria assessment (MCA) was undertaken, ranking the concepts based on criteria developed from the strategic drivers identified.

Figure 4 Initial network concepts

Based on this assessment, a preliminary shortlisting process was undertaken, reviewing a further six concepts against planning principles aligned to the airport development long-term strategy.

Figure 5 Summary of shortlisted concepts



A preferred option was identified involving repurposing level 3 with 'finger' kerbs for pick-up/drop-off (Concept 'E' in the preceding figure). This layout uses side-to-kerb configuration for vehicles to drop-off and pick-up, set-out in parallel rows to enable maximum throughput capacity, and ensures vehicles do not need to reverse which provides safety benefits. Dual sided finger kerbs are used in other major international airports, including London Heathrow Airport.

APAM developed the preferred option which has been analysed in detail to refine and confirm the final design.

2.2.3 Interface with rail project

The proposed infrastructure included in this MDP also considers the requirements for a potential future rail connection in accordance with the Master Plan. As shown in Figure 3, the Master Plan provides an indicative alignment and reservation for a future rail line. This alignment interfaces with the elevated roadway route.

The Elevated Roads Project development was carried out incorporating future proofing requirements for the rail alignment identified in the Master Plan. Specifically, the Project design was developed to maintain a reservation for a rail line via Airport Drive and station located adjacent to Terminals 3 and 4, as per the previously agreed reference case incorporated into the Master Plan.

The rail proposal has since been further developed by the Victorian Government, with the November 2020 announcement of the Melbourne Airport Rail (MAR) route and operating features. Currently, Melbourne Airport is in discussions with Rail Projects Victoria (RPV) regarding the geometric interface requirements between the Project and the MAR proposal. Melbourne Airport and RPV will ensure that the MAR project's design and construction will incorporate and harmonise with the elevated roadway structures.

2.3 Location of the Project

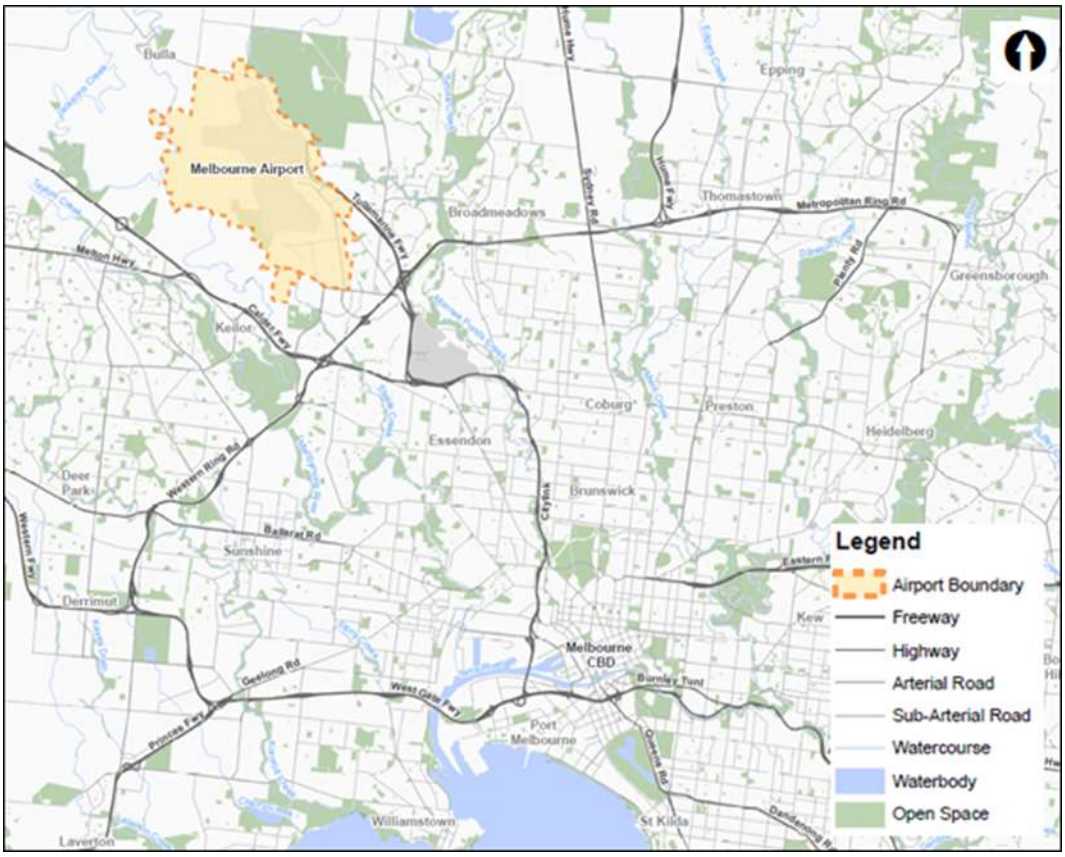
Melbourne Airport is located at the northern end of the Tullamarine Freeway, 22 kilometres north-west of the Melbourne Central Business District (CBD) (as shown in Figure 6).

The airport is well serviced by road transport links to metropolitan Melbourne, regional Victoria, and the ports of Melbourne and Geelong. The Hume Highway and Calder Freeway provide links to the

north, the Western Highway to the west, and Tullamarine Freeway to metropolitan Melbourne and the Port of Melbourne. The Tullamarine Freeway also provides a connection to the Western Ring Road to access the Port of Geelong.

The Project itself is located on the eastern side of the airport site, generally between the existing terminal buildings and the Tullamarine Freeway.

Figure 6 Melbourne Airport Location Plan



2.4 Airport and Regional Growth

Patronage and freight movement through Melbourne Airport is rapidly growing. Employment numbers at the airport are also expected to increase. Unsurprisingly, Melbourne Airport is one of the key contributors to the Victorian economy, contributing an estimated $17.6 billion to the Victorian economy in 2015–16.

Airport growth in the next 20 years will place increasing pressure on the ground transport network across the airport. In 2016–17, 35.2 million passengers passed through the airport, with this forecast to increase to 67.8 million by 2038. Airfreight is expected to nearly double from 463,000 to 901,000 tonnes annually, while the total airport workforce is expected to increase by more than 15,000 to a total workforce of 35,000 people by 2038.

To accommodate this increase in passenger, freight and employee demand, upgraded ground transport infrastructure is required. The project is the next stage of an elevated road network which will improve road transport efficiency and create additional road capacity.

Along with the projected growth in airport patronage, pressure on local and surrounding transport infrastructure will increase. The capacity and efficiency of airport infrastructure including the road network will need to expand appropriately to accommodate this growth.

Melbourne Airport will be a particularly important gateway for the northern and western metropolitan areas of Melbourne moving forward. Both regions are expected to almost double their population by 2050. Coupled with this population growth will be corresponding development of nominated Places of State Significance, Activity Centres, and existing and emerging employment clusters as defined by the Victorian Government in *Plan Melbourne*.

This Project is crucial to facilitate Melbourne Airport's expansion over the coming decades and to in turn support the growth and economic expansion of Melbourne – and Victoria generally. Planned developments at the airport include the third and potential fourth runways, new terminal buildings and associated facilities, new hotels and a major new freight terminal precinct. All these developments require greater ground transport accessibility.

2.4.1 Implications of COVID-19 on the Project

The airport's growth forecasts were prepared during Project development in 2018/2019 and it is recognised that the COVID-19 pandemic is now causing uncertainty to these forecasts. Though short-term recovery profiles are unreliable (they will be driven by near- and medium-term factors such as the re-opening of borders and implementation of a vaccine), Melbourne Airport is confident that demand for air travel will return and continue to grow. The uncertainty is expected to remain high during the early 2020s, while travel restrictions are constraining passenger volumes, but the International Air Transport Association (IATA) projected in July 2020 that the global aviation industry is expected to recover to 2019 activity levels in 2024 (IATA, 2020). In general, the expected near term trends include international travel remaining suppressed for several years, with domestic travel able to recover at a faster rate.

Melbourne Airport's road network was already at capacity in 2018/2019, with traffic queues frequently exceeding the acceptable capacity triggers and extending over one kilometre during the morning peak. Despite the uncertainty over how quickly the aviation industry can recover, the Project provides a long term strategic solution for landside access into Melbourne Airport and it is expected that demand for both domestic and international would have largely recovered by the time the project is completed. This is particularly the case given the lag between project approval and construction completion.

2.5 Existing Traffic Volumes and Future Demand

Melbourne Airport is a large traffic generator. In the 2018–19 period, 37.4 million people travelled through the airport. Within the airport precinct there is a workforce of approximately 20,600 employees. Due to the nature of airport operations, the ground transport demand generated by the airport is reasonably consistent throughout the day, week and year.

It is estimated that there are currently in the order of 140,000 vehicle trips to and from Melbourne Airport on a typical busy day. This demand is inclusive of passenger, employment, commercial development and freight and logistics trips directly associated with the Airport. The Master Plan has identified that by 2038, this figure is expected to increase to 240,000 vehicle trips per busy day. The growth in passenger demand and Airport workforce will place increased pressure on the ground transport network both internal and external to the Airport.

2.6 Construction

Construction of the Project will be located predominantly within the airport internal road network. A significant portion of works would take place outside road carriageways (such as Centre Road and Terminal Drive), as well as within levels 2 and 3 of the T123 car parking facility. At these locations there should be minimal disruption to road users, as the existing infrastructure will remain available for users. There are only a few locations where works will be needed to modify existing road carriageways (such as the forecourt), which would result in some temporary disruption while the works are completed.

Construction works along the main entry points into the airport, within the car park and within the ground forecourt will impact ground transport operations as areas will need to be hoarded off for construction to be completed. It is proposed that construction works takes place during non-peak periods in order to minimise operational disruption to the Airport. The Project contractor will also need to consider minimal changes to traffic layouts during these periods to maintain the highest capacity within the forecourt and airport network.

It is expected that construction for the Project will occur entirely above ground, with exception of excavation limited to structural piers, service relocation works and surface clearing as part of the site enabling works. Construction will be undertaken in accordance with an approved Construction Environmental Management Plan (CEMP).

During any such disruption, the works would be staged and managed to ensure that any disruptive construction activities are undertaken outside peak demand periods. At all times, access to terminals will remain open (e.g. via temporary measures if required), in accordance with APAM's contractual obligations. This will be planned and managed via a Construction Traffic Management Plan, for APAM's approval, which will demonstrate any temporary traffic management measures needed at given stages.

For the surrounding road network, it is noted that the Project's construction works do not require any significant changes to the Tullamarine Freeway, and at all times during this construction the freeway traffic flow will remain open (i.e. there are minimal road closures anticipated). Some changes to signage and linemarking will be needed at the Freeway northwest-bound carriageway, at the airport exits, however such works are not expected to require major road closures or any significant disruption.

3 Legislative and Policy Context

The following sections provide an overview of the current statutory and policy context for the project.

3.1 Introduction

The Project is located within the Melbourne Airport 'airport site' (as defined in the *Airports Regulations 1997* (Cth)) and on Commonwealth land.

Planning and development at Melbourne Airport is primarily regulated by the Airports Act. Part 5 of the Airports Act is particularly relevant as it relates to land use and planning, the airport's Master Plan, and this MDP. Section 112 sets out the Commonwealth's intention that Part 5 of the Airports Act applies to the exclusion of the law of a state, specifically laws of the state relating to land use and planning.

Notwithstanding section 112, section 91(1)(ga) requires this MDP to set out the likely effect of the proposed MDP on traffic flows at the airport and surrounding the airport, employment levels at the airport and the local and regional economy and community, including an analysis of how the proposed development fits within the local planning schemes for commercial and retail development in the adjacent area. In addition, section 91(4) requires that, in specifying a particular objective or proposal in section 91(1)(ga), this MDP will address the extent (if any) of consistency with planning schemes in force in Victoria and, if this MDP is not consistent with those planning schemes, the justification for the inconsistencies.

This section of the MDP describes the consistency of the development with relevant Commonwealth, State and local planning provisions.

3.2 Statutory and Policy Compliance

3.2.1 Airports Act 1996

The Project is considered a major airport development under Section 89 of the Airports Act, as the construction cost of the Project is anticipated to be above $25 million and the Project will significantly increase the capacity of the airport to handle movements of passengers, freight or aircraft.

Section 90 of the Airports Act provides that major airport developments must not be carried out except in accordance with an approved MDP.

Section 91 of the Airports Act sets out the required contents of an MDP, which includes:

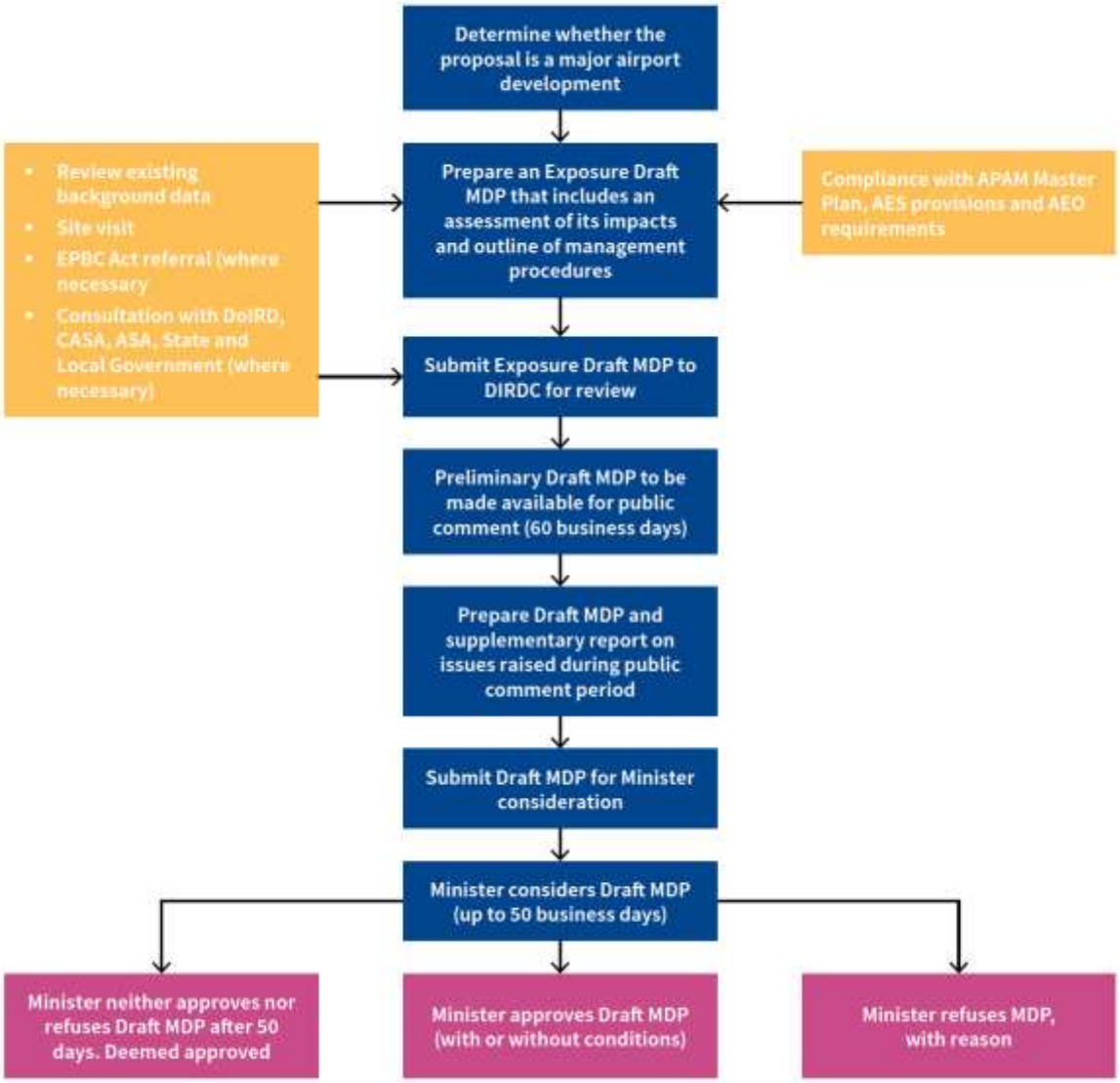
> *"the airport-lessee company's assessment of the environmental impacts that might be reasonably be expected to be associated with the development; and*
>
> *The airport-lessee company's plans for dealing with the environmental impacts…"*

This MDP has been prepared to address the requirements of the Airports Act. Impacts and proposed mitigation measures are described in Section 5.

Appendix A identifies the Airports Act requirements for an MDP and demonstrates that this MDP is consistent with the requirements.

The key steps in the approval process for an MDP under the Airports Act are shown in Figure 7. It is of note that the preparation and distribution of an Exposure Draft to external stakeholders is not a process mandated under the Airports Act.

Figure 7 MDP Approval Process



Under the Airports Act, a MDP is usually subject to a 60-business day consultation period.

3.2.2 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places – defined in the EPBC Act as matters of national environmental significance (MNES) which include:

- World Heritage properties
- National Heritage properties
- Wetlands of international importance
- National threatened species and communities
- Migratory species
- Nuclear actions

- Commonwealth marine environment
- Any additional matters specified by the regulations.

The EPBC Act also protects the environment on Commonwealth land and regulates those actions of the Commonwealth departments and agencies that may have a significant impact on the environment. As the Project is located on Commonwealth land it is subject to the provisions of the EPBC Act. For actions on Commonwealth land subject to an airport lease, Appendix D (Significant Impact Guidelines) states that an action which is the subject of an MDP does not need to be referred under the EPBC Act by the person proposing to take the action (as the Minister responsible for approving the MDP is required to seek the advice of the Commonwealth Environment Minister prior to approval).

Consideration of the potential impacts the Project may have on the environment, including matters covered by the EPBC Act, are contained in Section 5 of this MDP. Section 5.2 provides a breakdown of how the project addresses this potential risk and how project design and construction management processes will mitigate any potential impact to MNES or the environment on Commonwealth land.

Consideration of the potential impacts the Project may have on the environment, including matters covered by the EPBC Act, is contained in Section 5 of this MDP.

3.2.3 National Airports Safeguarding Framework

The National Airports Safeguarding Framework (NASF) is a national land-use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land-use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

The National Airport Safeguarding Advisory Group (NASAG), comprising high-level Commonwealth, state, territory and local government transport and planning officials, was formed to develop the Framework.

In February–March 2012, industry, local government and other interested stakeholders were invited to comment on a draft version of the NASF, which comprised several guidelines relating to particular airport safeguarding topics. Commonwealth, state and territory ministers subsequently agreed to the NASF principles and six guidelines at the Standing Council on Transport and Infrastructure meeting on 18 May 2012. Since then, three additional NASF guidelines have been adopted.

NASF represents a collective commitment from governments to ensure that an appropriate balance is maintained between the social, economic and environmental needs of the community and the effective use of airport sites. The framework applies at all airports in Australia and affects planning and development around airports, including development activity that might penetrate operational airspace and/or affect navigational procedures for aircraft.

NASF is comprised of a set of seven principles and nine guidelines. The NASF principles are:

- Principle 1: The safety, efficiency and operational integrity of airports should be protected by all governments, recognising their economic, defence and social significance
- Principle 2: Airports, governments and local communities should share responsibility to ensure that airport planning is integrated with local and regional planning

- Principle 3: Governments at all levels should align land-use planning and building requirements in the vicinity of airports
- Principle 4: Land-use planning processes should balance and protect both airport/aviation operations and community safety and amenity expectations
- Principle 5: Governments will protect operational airspace around airports in the interests of both aviation and community safety
- Principle 6: Strategic and statutory planning frameworks should address aircraft noise by applying a comprehensive suite of noise measures
- Principle 7: Airports should work with governments to provide comprehensive and understandable information to local communities on their operations concerning noise impacts and airspace requirements.

The nine guidelines are:

- Guideline A: Measures for Managing Impacts of Aircraft Noise
- Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports
- Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports
- Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation
- Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports
- Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports
- Guideline G: Protecting Aviation Facilities – Communications, Navigation and Surveillance (CNS)
- Guideline H: Protecting Strategically Important Helicopter Landing Sites
- Guideline I: Managing the Risk in Public Safety Areas at the Ends of Runways.

The design of the Project has taken the NASF guidelines into account and it generally complies with the guidance they provide. An assessment of the Project against the NASF guidelines is outlined in Section 5.12 of this MDP.

3.3 Consistency with the Airport Lease

The proposed development is consistent with the airport head lease for Melbourne Airport ("Head Lease"), held by APAM under the Airports Act. The major development:

- Is for a lawful purpose and does not breach legislation in accordance with Clause 3.1 (a) (iv) of the Head Lease and expanded on below
- Maintains the environment of the airport in accordance with clause 6 of the Head Lease
- Complies will all legislation relating to the airport sites and its structures or use or occupation in accordance with clause 7.1 of the Head Lease
- Does not grant any sublease or license prohibited under legislation, in accordance with clause 10 of the Head Lease
- Has regard to actual and anticipated future growth in, and pattern of, traffic demand for the Airport site as required by clause 12.1(a) of the Head Lease
- Will be to the quality standards reasonably expected of an airport in Australia and will have regard to good business practice, in accordance with clauses 12.1(b) and (c) of the Head Lease.

In developing this MDP, all interests existing at the time the Head Lease was created were identified including easements, licenses, leases and sub leases. There are no known conflicts or

inconsistencies existing between these interests and any part of the proposal in this MDP. There are no known impacts to any pre-existing interests of adjacent property owners. APAM will ensure that any development works allowed under this MDP will not interfere with the rights granted under any pre-existing interest, including impacts during construction.

3.4 Legal Compliance

An essential requirement of the Head Lease is that the lessee must comply with all legislation relating to the airport site. Section 91 (1A) of the Airports Act states that all major development is to be consistent with the airport lease.

APAM, as the ALC for Melbourne Airport, has an obligation to ensure all developments on airport land are consistent with the legislation and development to maintain appropriate urban planning and ensure safe and sustainable outcomes. APAM must confirm that any proposal on airport land is consistent with:

- The *Melbourne Airport Master Plan 2018*
- Any approved Major Development Plan for the airport (Airports Act, section 90), if applicable
- The approved Environmental Strategy (incorporated as part of the *Melbourne Airport Master Plan 2018*)
- APAM's planning objectives for the airport.

The Project is consistent with the above matters, as outlined below and elsewhere in this MDP.

3.5 Consistency with the Master Plan and Environment Strategy

The *Melbourne Airport Master Plan 2018* provides a development framework for the Airport to 2038. The Master Plan includes integrated planning for aviation activity, land use, commercial development and environmental management to achieve sustainable growth.

Within the Master Plan, the Ground Transport Plan provides direction in the planning of the internal road network, management of airport access modes and the external road network. The Master Plan explicitly lists development of the Project as a key segment of the network to be delivered in the 2018 Master Plan period.

In section 14.2.2 of the Master Plan it states that an "*expansion of the on-airport road network is required to address existing peak-hour congestion issues and to accommodate future growth*" and that this will include "*an extension of elevated road concept first proposed in the 2013 Master Plan*". More specifically, the Master Plan states that the following key network improvements, which comprise the main elements of the Project, will be delivered in the Master Plan period:

- Construction of a one-way elevated road, connecting the existing T4 ramp into a reconfigured T123 ground transport hub, allowing intersection-free access to all terminal precincts
- An elevated connection from the reconfigured T123 ground transport hub directly into Departure Drive (for drop-off traffic)
- An elevated connection from the reconfigured T123 ground transport hub directly into Melbourne Drive (for pick-up traffic).

Figure 14-1 in the Master Plan shows these road improvements (reproduced in Figure 3 of this document).

In addition to the internal and external road network, the Master Plan also provides direction on public transport access to the airport. Of note, the Master Plan provides an indicative alignment and reservation for a future rail connection. As outlined in Section 2.2.3, the Project has considered the future proofing requirements for the rail alignment identified in the Master Plan. APAM is currently in discussions with RPV regarding the geometric interface requirements between the Project and the

MAR proposal. Further coordination will be required between Melbourne Airport and RPV to ensure that the MAR project's design and construction will incorporate and integrate with the elevated roadway structures.

Further, the Project does not preclude any future expansions to the Tullamarine Freeway, which may be necessitated as part of any potential future road transport projects such as the Outer Metro Ring and Melbourne Airport Link. The Project's changes to the Freeway are limited to airport on-ramps and off-ramps, and do not involve any changes to verges or medians which may potentially be needed to accommodate future expansions.

Additionally, the Long Term Development Concept Plan in the Master Plan articulates the Airport's vision for long-term land use planning. The project is consistent with the airport land use plan on the basis it supports access to an intensified and consolidated terminal precinct, helping to enhance and expand the terminals to ensure ongoing essential passenger services.

The Environment Strategy embedded within the Master Plan details the environmental constraints on the airport lease and how development of the airport may impact these values. The Project is consistent with the Environment Strategy on the basis that it does not affect any environmentally sensitive areas as defined within the strategy. Further, construction works associated with the Project will be undertaken in accordance with a CEMP approved by the airport (as per the requirements of the strategy), managing any potential impacts to environmental values.

3.6 Consistency with State and Local Government Planning

Being on Commonwealth land, the Melbourne Airport Head Lease is subject to the planning provisions of the Airports Act and other relevant legislation including the EPBC Act. As a result, state and local planning provisions, under the *Planning and Environment Act 1987* and subsequent relevant planning scheme, *Environment Protection Act 2017* and *Environment Effects Act 1978* are not directly applicable to development occurring at the airport.

The Act does however require an MDP to address, where possible, the extent of any potential inconsistencies between the prevailing planning scheme in force, under a law of a State or Territory in which the airport is located. This requirement addressing relevant State and local planning provisions is discussed below.

3.6.1 State Planning Policy

a. Plan Melbourne 2017–2050

Plan Melbourne 2017–2050 is the State Government of Victoria's plan that outlines the vision for Melbourne's growth to the year 2050. It was released in March 2017, and outlines growth figures and objectives. *Plan Melbourne* identifies the infrastructure, services and major projects which need to be put in place to underpin the cities growth.

Melbourne Airport has been recognised in *Plan Melbourne* as a Place of State Significance. Melbourne Airport was also recognised as a Transport Gateway for the Victorian Region, a crucial hub for the movement of passengers and freight both in and out of Victoria.

This development supports objectives within *Plan Melbourne*, to "*ensure sufficient airport capacity with efficient landside access for passengers and freight…*" for the Melbourne Metropolitan region and wider Victoria.

b. Clause 18.04: Airports

Clause 18.04 of the Planning Policy Framework, which is part of the Victoria Planning Provisions, seeks to strengthen the role of Victoria's airports within the State's economic and transport

infrastructure and protect their ongoing operation. Of relevance to this MDP are the following strategies under Clause 18.04-1S:

- *Ensure the planning of airports identifies and encourages activities that complement the role of the airport and enables the operator to effectively develop the airport to be efficient and functional and contribute to the aviation needs of the state.*
- *Ensure the effective and competitive operation of Melbourne Airport at both national and international levels.*

Clause 18.04-1R relates specifically to Melbourne Airport and includes the following strategies:

- *Protect the curfew-free status of Melbourne Airport and ensure any new use or development does not prejudice its operation.*
- *Ensure any new use or development does not prejudice the optimum usage of Melbourne Airport.*

NASF is a policy document requiring consideration pursuant to Clause 18.04.

This MDP is consistent with Clause 18.04 of the Planning Policy Framework.

c. Victorian Freight Strategy

In July 2018, the Victorian Department of Transport (previously known as Department of Economic Development, Jobs, Transport and Resources) launched *Delivering the Goods – Victorian Freight Plan*. This Freight Plan outlines a long-term strategy for improving freight efficiency, productivity and connectivity to Victorian businesses with local, national and international markets.

This Freight Plan states that 28 per cent of Australia's international freight passes through Melbourne Airport, with air freight expected to increase steadily on the back of nearby Asian markets. This Freight Plan identifies that Victoria will need to address major projected growth in this sector (beyond population and economic growth) to remain competitive. To meet these challenges, the Freight Plan outlines several key strategies and actions to implement over coming years.

The Project aligns closely with the objectives and strategies of the Freight Plan, in allowing the local and surrounding Airport road network to efficiently handle increased volumes of freight traffic, namely by redirecting passenger vehicle away from the business park and maintaining a separate airport entry point for freight vehicles via Mercer Drive.

3.6.2 Hume Planning Scheme

An assessment of the Project against the provisions of the *Hume Planning Scheme* has been undertaken and is provided in Section 5.7.

3.7 Airport Development and Building Approvals

In addition to the preparation and approval of the MDP, new development is subject to Airport Lessee Consent from APAM and Building Approval from the Airport Building Controller (ABC).

As APAM is the project proponent, the internal APAM approval process will also be undertaken.

The Building Approval cannot be issued by the ABC without written consent from APAM, confirming that the new development is consistent with:

- *Melbourne Airport Master Plan 2018* as the current approved airport Master Plan
- Environmental Strategy
- Planning objectives for the Airport
- An approved MDP.

4 Assessment Methodology

4.1 Assessment Scope

In accordance with Section 91 of the Airports Act, the scope of the assessment includes consideration of the following potential impacts from the Project:

- Transport
- Land Contamination
- Surface Water drainage
- Ecology
- Air Quality
- Noise
- Land Use and Tenure
- Economic and Social
- Landscape
- Cultural Heritage
- Hazardous Goods
- Aviation Operations and Safety.

4.2 Document Review

Reference has been made to previous studies at Melbourne Airport to inform the description of the baseline environment at the site. This included analysis of information from previous MDPs including the Stage 1 T4 Express Link MDP approved in October 2019.

Additionally, detailed traffic and soil contamination investigations were undertaken to inform this MDP.

4.3 Site Investigations

A site investigation was conducted to inform the soil and land contamination investigation for the MDP. The scope of this investigation included:

- Collection of soil samples from 15 soil bores targeted at proposed pier locations along the elevated road alignment. Samples were collected using hand auger and non-destructive drilling techniques to maximum depths ranging 1.2 to 1.6 metres below ground level (m bgl) targeting fill and top of natural soils
- Collection of surface hard stand cover (concrete and asphalt) at eight locations
- Analysis of selected samples for contaminants of potential concern using methods accredited by the National Association of Testing Authorities (NATA).

Site investigations were also undertaken for the cultural heritage and ecology reference material used to inform this MDP.

4.4 Assessment of Impacts

To assist in the assessment of potential impacts identified in this report and to ensure consistency between topics, significance criteria have been defined which follow the generic framework shown in Table 2.

The use of significance criteria to assess impacts is a standard technique applied in impact assessments of this nature and is an approach that has been consistently used by APAM in MDPs at Melbourne Airport. This approach enables different topics (e.g. noise and ecology) to be assessed in a consistent manner against the same criteria which are set in an ascending scale of potential significant impact and ability to mitigate those impacts.

Impacts can also be beneficial, where a project delivers a positive outcome to the community and environment. This is particularly true for economic and social criteria.

Table 2 Environmental, Social and Economic Significance Criteria

Significance	Impact classification	Criteria
High	A significant impact	Environmental effects are likely to be important considerations at a local scale and, if adverse, are potential concerns to the Project depending upon the relative importance attached to the issue during the decision-making process. Considerable adverse change to current amenity, lifestyle and everyday community activities. Mitigation measures and detailed design work are unlikely to remove all the effects upon the affected communities or interests. Residual effects would be predominant.
Moderate	Impact moderate but liveable for most people	These effects, if adverse, while important at a local scale, are not likely to be key decision-making issue. Nevertheless, the cumulative effects of such issues may lead to an increase in the overall effects upon a particular area or on a particular resource. Noticeable adverse change to current amenity, lifestyle and everyday community activities but with scope for mitigation. They represent issues where effects would be experienced but mitigation measures and detailed design work may ameliorate/enhance some of the consequences upon affected communities or interests. Some residual effects would still arise.
Low	Impact recognisable but acceptable	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Nevertheless, they are of relevance in enhancing the subsequent design of the Project and consideration of mitigation measures. There may be localised or limited noticeable change to current amenity, lifestyle or everyday community activities.
Negligible	Minimal change	No effects or those which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
Beneficial	Benefit	Effect are likely to benefit the attribute under consideration.

5 Impact Assessment

5.1 Traffic

5.1.1 Baseline

The Tullamarine Freeway has traditionally been the primary access to the airport. In 2013, this route catered for over 70 per cent of traffic movements to the airport in the AM and PM peak hours. This has marginally reduced with the completion of Airport Drive and in 2018 it caters for over 60 per cent of traffic during peak periods.

The recent completion of the CTW project (City Tulla Widening) has improved access to the airport by increasing the capacity of the Tullamarine Freeway up to the Terminal Drive exit. Traffic data between 2016 and 2018 suggest daily volumes increasing from 41,250 vehicles to 42,420 vehicles on the northbound carriageway.

This increase is expected to continue, with the passenger turnover at the airport anticipated to double over the next 20 years. The airport currently caters for 127,000 vehicles per day, which is anticipated to increase to 240,000 vehicle trips per day by 2038.

Based on the 2018 traffic model, under a 2023 Do-Nothing scenario, traffic queuing in the AM peak period from the Centre Road and Terminal Drive intersection would extend over three kilometres back onto the Tullamarine Freeway, as shown in Figure 8.

Figure 8 'Do Nothing' traffic queues by 2023

The scale of the queuing as modelled, suggests that not only the airport road network would be impacted under the Do-Nothing scenario, but other areas including:

- Northbound traffic travelling to Sunbury, which may be caught in queues extending to the Tullamarine Freeway
- Access to the Melbourne Airport Business Park from Mercer Drive
- Mickleham Road on and off ramp traffic, which experience delays joining or exiting the freeway due to queuing traffic.

The term 'queuing' relates to a slow-moving queue where traffic is generally travelling slower than 10 kilometres per hour and no more than 12 kilometres per hour, rather than necessarily a stationary queue.

Because of the queuing anticipated, the average journey time for traffic from the Tullamarine Freeway to Terminal 1, 2 and 3 would increase by 10–15 minutes in the AM peak by 2023, and by 35–40 minutes by 2028.

5.1.2 Assessment of Impacts

Detailed traffic analysis has been undertaken as part of the project development, using best practice Verkehr In Städten - SIMulationsmodell (Traffic In Cities - Simulation Model) (VISSIM) microsimulation modelling. The modelling was undertaken to confirm the functionality of the Project design and to determine any Project impacts on the road network. It should be noted that the reports and technical notes prepared as part of the microsimulation modelling were submitted to the Victorian Department of Transport (DoT) during project consultation. A summary of key findings from the traffic analysis is included in this section, set out as follows:

a) Traffic flow changes resulting from project

b) Traffic performance of project – with/without project

c) Impacts on road users

d) Impacts during construction.

a. Traffic flow changes resulting from Project

A key feature of the Project is the relocation of the T123 pick-up/drop-off facilities, and in particular the access routes. In essence, most pick-up/drop-off traffic will be relocated from the existing ground network onto the new elevated road links. Because of this, the Project will result in a significant redistribution of traffic flows within the airport's terminal precinct.

It is important to note that this internal redistribution of traffic is the main change resulting from the Project. The Project will not affect any approach corridors to/from the airport (e.g. no access routes will be blocked and no new access routes are created) and does not affect traffic demand at all.

The changed traffic flows resulting from the redistribution has been determined from the traffic analysis. Traffic analysis was undertaken to reflect the Project's opening year and +5 year increment conditions. The future years' traffic demands were developed based on the following inputs:

- **Airport passenger generated traffic** – determined from Melbourne Airport passenger forecasts. The passenger generated traffic grows broadly in line with the forecasts presented in the *Melbourne Airport Master Plan 2018* (i.e. as a result of increased demand for air travel), with a significant portion allocated to the new elevated road links.
- **Other airport generated traffic** – determined from growth forecasts outlined in the 2018 Master Plan. This traffic includes employment, freight and commercial traffic associated with the airport, and uses the airport surface road network (not the elevated road links).
- **Non airport traffic (i.e. background traffic)** – determined from review of the strategic model used by DoT Victorian Integrated Transport Model (VITM). The non-airport traffic grows in-line with population growth forecasts for metropolitan Melbourne (e.g. as promulgated in *Plan Melbourne 2017–2050*). This traffic does not enter the airport road network but rather is through traffic on the Tullamarine Freeway. In this case, the growth in non-airport traffic, as sourced from VITM, is mainly attributed to the Sunbury growth area.

As noted earlier, the Project does not cause any change in traffic demand, only a redistribution of traffic flows. Traffic analysis of scenarios 'with project' and 'without project' apply the same traffic demands (determined from the above inputs). The demands are the same for both scenarios as the

traffic is generated not by the airport's road links but by fundamental factors such as air travel, employment and residential population.

The traffic flows used in the traffic analysis are presented in Table 3 on the following page, showing AM and PM peak 1-hour periods for Existing (2018) and Future (2023 and 2028). The changes in traffic volumes on each road link are shown to enable comparison between without-project and with-project cases. The location of each road link is shown in Figure 9 and Figure 10 on the following pages.

Table 3 shows that the traffic redistribution resulting from the Project will substantially reduce traffic volumes on the following roads for Existing (2018) and Future (2023 and 2028):

- Terminal Drive
- Centre Road
- Airport Drive (west of APAC Drive)
- Arrival Drive
- Departure Drive (this road can be removed following completion of the Project).

Traffic volumes from these roads are redistributed to the new elevated road links, resulting in a positive reduction in traffic volumes on existing roads.

The traffic volumes on some existing road links are lower in future years when compared to existing year volumes. Where lower on the 'without Project' case, this is because the traffic performance is so poor that the network speeds are lower, resulting in fewer vehicles able to complete journeys within a 1-hour time period. Where lower on the 'with Project' case, this is due to the redistribution of traffic as a result of the Project. Generally, the existing surface road network within the airport experiences a reduction in traffic volumes as a result of the Project.

Table 3 Traffic flow changes resulting from Project (comparing 'without Project' and 'with Project')

		Existing (2018)		Future – 2023				Future – 2028			
		AM peak 1-hr	PM peak 1-hr	AM peak 1-hr		PM peak 1-hr		AM peak 1-hr		PM peak 1-hr	
				w/out Proj.	with Proj.	w/out Proj.	with Proj.	w/out Proj.	with Proj.	w/out Proj.	with Proj.
A	Tulla Fwy-in, after Mercer Dr	2,640	3,400	2,590	3,390	3,490	3,820	2,470	4,190	3,590	6,200
B	Tulla Fwy-in, before Terminal Dr	2,640	3,400	2,360	1,160	3,390	2,320	2,300	1,690	3,510	4,040
C	Terminal Dr, east of Centre Rd	2,480	1,930	2,200	980	1,970	730	2,180	1,310	1,740	890
D	Terminal Dr, west of Centre Rd	2,410	2,260	2,270	1,180	2,370	1,030	2,240	1,560	2,380	1,130
E	Arrival Dr	960	1,230	860	840	1,130	770	840	1,080	1,160	760
F	Mercer Dr	970	690	770	960	860	450	740	1,150	730	530
G	Airport Dr (east of APAC Dr)-in	1,250	1,380	1,070	1,520	1,620	1,590	1,000	1,860	1,690	2,230
H	Airport Dr (east of APAC Dr)-out	710	610	780	900	730	800	650	1,050	790	920
I	Airport Dr (west of APAC Dr)-in	610	710	560	550	710	660	520	640	720	1000
J	Airport Dr (west of APAC Dr)-out	1,020	1,050	1,060	1,480	1,180	1,570	1,280	1,980	1,370	2,170
K	Centre Rd-northbound	780	1,290	960	1,090	1,220	1,300	620	1,410	1,280	1,650
L	Centre Rd-southbound	1,550	1,550	1,700	2,120	1,770	2,360	1,780	2,530	1,940	2,770
M	Elevated Road-i (T4 Expr. Link)	-	-	160	2,230	30	1,520	1`70	3,100	20	2,370
N	Elevated Road-ii (existing)	470	530	420	3,110	620	2,710	380	3,690	570	3,220
O	Elevated Road-iii (p-u/d-o entry)	-	-	-	2,510	-	2,070	-	2,920	-	2,490
P	Elevated Road-iv (drop-off exit)	-	-	-	1,890	-	1,400	-	2,100	-	1,640
Q	Elevated Road-v (pick-up exit)	-	-	-	470	-	650	-	1,220	-	1,400
R	Departure Dr	1,350	1,030	1,290	-	1,050	-	1,300	-	1,080	-

Note: The location of each road link is shown in Figure 9 and Figure 10 on the following pages.

Figure 9 Location of road links reporting traffic flow changes – surface roads

Note: Traffic flow changes for each lettered road link can be found in Table 3 on the preceding page. Road segments with no callout have no changes to traffic flows (i.e. not affected by traffic redistribution).

Figure 10 Location of road links reporting traffic flow changes – elevated roads

b. Traffic performance of road network – with/without Project

Traffic performance of the road network, resulting from the Project, was assessed using microsimulation modelling. The model area includes the airport's internal road network (excluding the Business Park) and the Tullamarine Freeway (around two kilometres either side of the main terminal precinct).

Table 4 below reports key network statistics, including completed trips and average speed, under existing conditions and future conditions (2023), comparing with/without project. The table shows only 2023 which is considered the most relevant for understanding the traffic performance impact of the Project (noting that 2028 results are more complex due to externalities, particularly forecast traffic from Sunbury growth area). The table also shows traffic volumes, to demonstrate changes in demand.

Table 4 Traffic road network performance key statistics with/without Project

	Traffic volumes		Completed trips		Average speed	
	AM-1hr	PM-1hr	AM-2hr	PM-2hr	AM-2hr	PM-2hr
2018 existing	6,910	6,970	16,205	18,509	45 km/h	44 km/h
2023 'do nothing'	8,370	8,385	16,290	18,700	22 km/h	27 km/h
2023 'with project'	8,370	8,385	19,117	21,909	41 km/h	40 km/h
Comparisons						
2018 existing vs 2023 'do nothing'	+21%	+20%	+1%	+1%	-51%	-39%
2023 'do nothing' vs 2023 'with project'	0%	0%	+17%	+17%	+86%	+49%

Comparing between 2018 existing and 2023 'do nothing' shows the following:

- Traffic volumes increase
- Completed trips is almost unchanged, despite the increased demand – this is indicative of the network being saturated, with low speeds and significant queuing, resulting in traffic unable to complete trips through the model area
- Average speed is slower, around half the speed of do nothing – correlating with the poor network conditions.

This means that with demand increasing, traffic performance within the road network will deteriorate as there is insufficient capacity in the existing road infrastructure.

Comparing the 2023 scenarios between 'do nothing' and 'with project' shows the following:

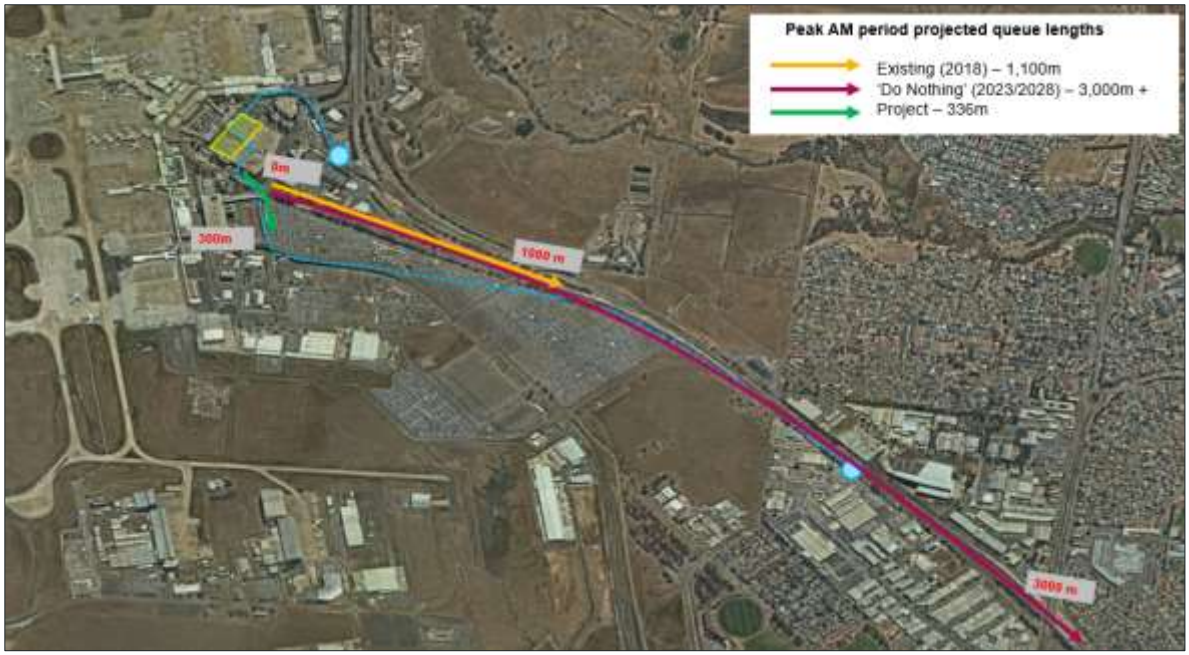
- Completed trips increases by 17 per cent – indicative of traffic being able to move through the network as expected
- Average speed improves by 86 per cent and 49 per cent in the AM and PM peak respectively, further substantiating the improved network conditions.

This means that the additional road infrastructure from the Project increases capacity such that the increased traffic volumes can be accommodated, which is reflected in the improved traffic performance across the road network.

In addition to the network statistics, the queue lengths along the Tullamarine Freeway (northbound), determined from the microsimulation modelling, have been summarised in Figure 11 below. This shows queue lengths for northbound traffic, extending back from the intersection of Terminal Drive

and Centre Road, comparing between existing and future years, with and without project. Also shown is queue lengths on the elevated road links.

Figure 11 Traffic queues towards Tullamarine Freeway under modelled scenarios



The above figure shows that without the Project, traffic queues during peak periods will extend to around three kilometres. This is due to the limited capacity of the existing forecourt infrastructure and the pinch point at the signalised intersection with Centre Road and Terminal Drive.

With the Project, traffic is redistributed to the elevated road and traffic queues from the Centre Road intersection decrease to around 300 metres. This demonstrates the excellent outcome that the Project will have on the surrounding roads, as the three kilometres queues would otherwise severely impact the performance of the motorway network currently operated by DoT.

On the elevated road links, the increased capacity for T123 pick-up/drop-off facilities means that the queues are relatively short, and entirely contained within the elevated road links, without impacting other roads or functions.

Overall, the above review of traffic performance demonstrates the Project will result in improved traffic performance within the road network.

c. Impacts on road users

Further to the changes in traffic flows and network performance, the extent of changes from the Project (i.e. the relocated pick-up/drop-off facility, reconfigured forecourt and associated redistribution of traffic) will result in practical changes for all road users.

Table 5 below has been prepared to describe these other changes, based on a qualitative assessment, for all relevant road users. It is noted that Melbourne Airport collaborated with DoT during the Project development, particularly with regards to potential implications for Tullamarine Freeway users, and that following this collaboration DoT provided in-principle support for the Project.

Table 5 Description of Project impacts on road users

Road user	Impacts as a result of the Project
Forecourt traffic – car drop-off (public/taxi/rideshare), public pick-up	**Improved outcome** – increased capacity of new pick-up/ drop-off facilities reduces delays in accessing
Forecourt traffic – SkyBus, coaches, shuttles, taxi/rideshare pick-up	**Improved outcome** – relocation of public pick-up from forecourt will improve access, reducing delays for remaining forecourt traffic
Airport road network users	**Improved outcome** – reduced traffic volumes on the surface roads results in improved traffic conditions for non-terminal airport road network users
Freeway users	**Improved outcome** – eliminated queuing (which would otherwise occur without the Project) results in improved travel time and reliability for all freeway users, including non-airport traffic
Public transport (buses)	**Improved outcome** – reduced traffic volumes on the surface roads results in improved travel time and reliability for buses
Pedestrians	***T123 forecourt*** – **improved outcome** – reconfigured forecourt reduces pedestrian crossings
	All other locations – no changes
Bicycle riders	**No changes overall** – no change to bicycle riding infrastructure from this project; no significant changes in bicycle riding conditions
Emergency services vehicles	**Improved outcome** – reconfigured forecourt and reduced traffic volumes on the surface roads will improve emergency services' vehicle access, e.g. reduced chance of being delayed by pick-up/drop-off traffic

Table 5 above shows that the Project will generally result in **beneficial** outcomes for almost all road users, with the remaining users experiencing no change overall.

d. Impacts during construction

Construction of the Project will be located predominantly within the airport internal road network. A significant portion of works would take place outside road carriageways (such as Centre Road and Terminal Drive), as well as within levels 2 and 3 of the T123 car parking facility. At these locations there should be minimal disruption to road users, as the existing infrastructure will remain available for users. There are only a few locations where works will be needed to modify existing road carriageways (such as the forecourt), which would result in some temporary disruption while the works are completed.

During any such disruption, the works would be staged and managed to ensure that any disruptive construction activities are undertaken outside peak demand periods. At all times, access to terminals will remain open (e.g. via temporary measures if required), in accordance with APAM's contractual obligations. This will be planned and managed via a Construction Traffic Management Plan, for APAM's approval, which will demonstrate any temporary traffic management measures needed at given stages.

For the surrounding road network, it is noted that the Project's construction works do not require any significant changes to the Tullamarine Freeway, and at all times during this construction the freeway traffic flow will remain open (i.e. there are minimal road closures anticipated). Some changes to signage and linemarking will be needed at the Freeway northwest-bound carriageway, at the airport exits, however such works are not expected to require major road closures or any significant disruption.

Overall, during the construction phase the impact to the airport road network is expected to be **low**, while the impact to the surrounding road network is expected to be **negligible**. The minor impacts to the airport road network (which would be temporary) will be able to be mitigated through an effective Construction Traffic Management Plan.

5.1.3 Mitigation Measures

Mitigation measures to reduce the impact of the Project's construction on the transport network will be implemented through a Construction Traffic Management Plan as part of the CEMP process.

5.2 Soils, Land and Groundwater Contamination

5.2.1 Baseline

Ground conditions at Melbourne Airport are detailed on the 1:63,360 geological map sheet of Sunbury, indicating that all of Melbourne Airport is underlain by Quarternary age Newer Volcanics. This material is reported on the map sheet to comprise basalt rock, ash and tuff. The generalised soil profile encountered during the soil investigation works is described in Table 6.

Table 6 Generalised Soil Profile

Approximate Depths (m bgl)	Lithology Type	Description
0.0 – 0.25	Fill	Concrete / asphalt of good condition
0.0 – 1.3	Fill	Brown to grey brown, fine to medium grained gravel, fine to medium grained sand, low to high plasticity silty clay
0.2 – 1.6	CLAY to Silty CLAY	Dark grey to brown, medium to high plasticity, firm to stiff
1.2 – 1.5	Sandy CLAY	Brown, medium plasticity clay, fine to coarse grained sand
1.2 – 1.6	BASALT	Borehole refusal was encountered at four locations on suspected basalt bedrock at 1.2 to 1.6 m bgl

Previous geotechnical investigations around Melbourne Airport are consistent with this assessment, with the materials encountered in boreholes typically comprising two to three meters of stiff to very stiff basaltic clay, overlying basalt rock.

The operation and development of the site as an airport presents the potential for contamination of soil and groundwater from sources including fuels, oils, solvent based chemicals and aqueous film forming foams.

The *Melbourne Airport Master Plan 2018* acknowledges the historical land contamination present on the airport lease. It also states the need for this contamination to be effectively managed. As the airport expands, it is likely that works will interact with areas of contamination and that the risk of new impacts will need to be minimised.

Site specific monitoring data shows groundwater levels at least 15 metres, and generally 20–25 metres, below ground level (bgl). This excludes two wells located near Moonee Ponds Creek (which are more than 600 meters to the north of the Project's alignment). Groundwater is expected to flow from east to west towards the airport runways and in the direction of Arundel Creek and the Maribyrnong River.

5.2.2 Assessment of Impacts

A Preliminary Environmental Site Assessment (PESA) was completed in order to gain an understanding of the contamination status along the project alignment. The scope of site investigation is summarised as follows:

- Collection of soil samples from 15 soil bores targeted at proposed pier locations along the elevated road alignment. Samples were collected using hand auger and non-destructive drilling techniques to maximum depths ranging 1.2 to 1.6 metres below ground level (m bgl) targeting fill and top of natural soils.
- Collection of surface hard stand cover (concrete and asphalt) at eight locations.
- Analysis of selected samples for contaminants of potential concern using methods accredited by the National Association of Testing Authorities (NATA).

Figure 12 Sampling locations

Sampling results were compared against health based criteria and relevant soil waste management criteria. The results of this analysis demonstrate:

- No concentrations of chemical analytes, including Per- and poly- fluorinated alkyl substances (PFAS), exceeded health-based criteria for ongoing commercial/industrial use.
- No concentrations of chemical analytes exceeded the accepted limits outlined in Schedule 3, Table 1 of the *Airports (Environment Protection) Regulations 1997* (AEPR).
- A total of 11 samples reported exceedances of the adopted maintenance of ecosystems criteria for commercial/industrial land use:
    - A total of eight primary samples and one secondary sample exceeded the adopted criterion for nickel (60 mg/kg) in isolated fill soil samples (up to 134 mg/kg) and a single natural sample (112 mg/kg). These concentrations are considered to be representative of naturally occurring concentrations.
    - Two samples exceeded the adopted criterion for PFOS (0.01 mg/kg) in isolated fill soil samples (up to 0.103 mg/kg).
- With regard to EPA waste classification criteria[1], a total of nine samples reported exceedances of the adopted upper limits for Fill Material:
    - Concentrations of nickel in isolated fill soil samples (up to 134 mg/kg) and natural samples (up to 112 mg/kg) exceeded the Fill Material upper limits. Leachable concentrations of nickel were below Category C upper limits.
    - A single sample reported a pH concentration of 9.1 pH units marginally exceeding the Fill Material upper limit of 9.0 pH units. This reported concentration is considered to be representative of alkaline basaltic soils.
- Total sum of perfluorohexane sulfonic acid and perfluorooctanesulfonic acid (PFHxS and PFOS) concentrations were detected within 17 primary samples and 3 duplicate samples (up to 0.121 mg/kg).
- Leachable sum of PFHxS and PFOS concentrations were detected within the fill and natural soils in 21 primary and 9 duplicate/secondary samples. The concentrations relied upon for data interpretation ranged from non-detect up to 4.18 µg/L.

Overall, the risk to human health associated with contaminated soils encountered during the project is considered to be **low**. With the adoption of appropriate control measures, the risk to ecological receptors associated with excavation and management of contaminated soils is considered to be **low**.

Given the expected depth to groundwater of approximately 20 metres it is highly unlikely that any aquifer will be intersected during the construction works. For this reason, dewatering is not expected to be required during the construction works. Through using appropriate control measures, should unexpected (e.g. perched) groundwater be encountered, the potential impacts of the Project on groundwater contamination has been assessed as **negligible** during both construction and operation.

1 EPA Victoria Publication IWRG621, *Soil Hazard Categorisation and Management*, June 2009

5.2.3 Mitigation Measures

To ensure compliance with the AEPR, EPA Industrial Waste Resource Guidelines and the PFAS National Environmental Management Plan (PFAS NEMP)[2], the Project CEMP will outline control measures and requirements for the handling, segregation, stockpiling, reuse and disposal of excavated soils and hardstand material during the project.

APAM has developed a PFAS Management Framework[3] which outlines minimum environmental management requirements to be included in any project-specific CEMPs. This framework is based on APAM's PFAS management goals and commitment and provides guidance that is consistent with the PFAS NEMP. The Department of Infrastructure, Transport, Regional Development and Communications provided support for APAM's PFAS Management Framework on 22 January 2020.

Concentrations of PFAS were not detected in the majority of hardstand samples. Some asphalt samples reported low level concentrations of PFAS contamination. Excavated hardstand which is not impacted by PFAS can be transported off-site to a licenced recycling facility (subject to approvals from the facility) or recycled and reused on-site.

The fill and natural soils along the proposed alignment were generally impacted by PFAS of varying levels. Where materials are impacted by PFAS, they will be segregated during excavation and either:

- Managed on-site in accordance with APAM's PFAS Management Framework, or
- Disposed off-site in accordance with EPA Victoria requirements (i.e. via the EPA "Classification" process).

Additional contamination testing may be undertaken to further delineate or characterise excavated material prior to or during construction. In particular, it is noted that the current testing frequency does not meet the minimum number of samples for off-site disposal, should this option be selected. The findings of the PESA will be consolidated with any additional chemical testing works undertaken at the Project site.

The CEMP will also cover control measures should unexpected groundwater be encountered. While appreciable levels of groundwater are not expected, small pockets of perched water may require management. Such mitigation measures would include:

- Storage of water within enclosed containers, such as IBCs
- Testing of water prior to disposal
- Transportation under appropriate EPA licences.

2 HEPA, *PFAS National Environmental Management Plan*, January 2018

3 Melbourne Airport, *PFAS Management Framework*, Rev 0, 22 January 2020

5.3 Surface Water and Drainage

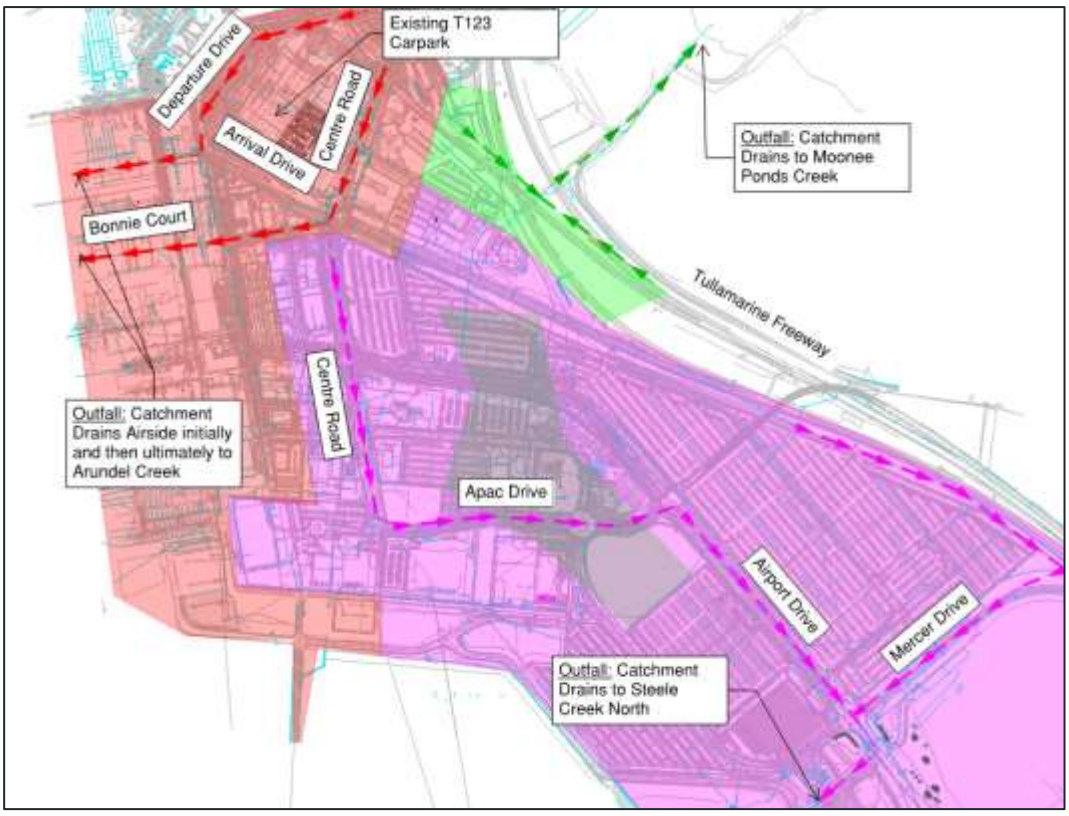
5.3.1 Baseline

This Project area is located within the Moonee Ponds Creek and Steele Creek North sub-catchments of the Maribyrnong and Arundel Creek catchment. Under existing conditions rainwater in the Project area falls into the following areas:

- The Departure Drive ramp
- T123 multi-storey car park
- Full extents of Centre Road
- Full extents of Arrival Drive
- Terminal Drive
- A western portion of Melbourne Airport long term car park
- Melbourne Drive.

The existing drainage network has been assessed using Dial Before You Dig (DBYD) information and APAM existing drawing conditions and services data. Existing drainage routes relevant to this study area are summarised by their corresponding outfall locations in Figure 13, and in the following sections.

Figure 13 Existing Catchments and Corresponding Outfall Locations



a. Discharges into Steele Creek North

This catchment is represented by the magenta shading in Figure 13.

Surface water within the Melbourne Airport long-term car park and carriageway extents along Centre Road, Terminal Drive and Airport Drive drain towards Apac Drive via a pit and pipe network owned by APAM. Surface water falling on Airport Drive drains in a southerly direction, while the

remaining catchment area will traverse an eastern section of the long-term car park, before draining in a southerly direction on the western side of the Tullamarine Freeway. The network then drains back in a westerly direction along Mercer Drive before out-falling into an open channel between DHL Express and the bus holding facility (beside the intersection of Francis Briggs Road and Airport Drive). The open channel outlets to Steele Creek North, northwest of the access road located behind DHL express.

b. Discharges into airside catchments (via Arrival Drive)

The total catchment draining airside is represented by red shading in Figure 13.

Surface water from the T123 multi-storey car park drains via pit and pipe network along the buildings northwest elevation and into a 750mm diameter trunk drainage line, draining in a southerly direction along Arrival Drive. Similarly, flow from much of the Departure Drive ramp (next to Terminal 2 and 3) drains via grated pits located at bridge piers along the elevated road which then connects into the trunk 750mm diameter drainage line along Arrival Drive. The network drains in a westerly direction from Departure Drive via a 900mm and 1050mm diameter drainage pipe section, passing the Terminal 3 departures zone before entering the airside drainage network.

c. Discharges into airside catchments (via Centre Road)

The total catchment draining airside is represented by red shading in Figure 13.

Surface water from the elevated roadway along a northern section of Departure Drive (next to Terminal 1) drains via grated pits located at bridge piers before connecting into a drainage network on Arrival Drive. Surface water from northern portion of Arrival Drive and Melbourne Drive (next to Terminal 1) connect into the Arrival Drive network then drain through a 525mm diameter pipe in a southerly direction along Centre Road, before draining in a westerly direction along Bonney Court. The network then passes the northern edge of Terminal 4 departure zone before entering the airside network.

d. Discharges into Moonee Ponds Creek

This catchment area is represented by the green shading in Figure 13.

Surface water from the eastern section of the Melbourne Drive/Centre Road junction drains east before turning north and eventually out-falling to Moonee Ponds Creek.

5.3.2 Assessment of Impacts

a. Construction

Potential impacts to surface water during construction include:

- Erosion and sediment runoff from exposed areas entering the stormwater drainage network
- Chemical spills or other effluent entering the stormwater drainage network
- Impacts to water quality where stormwater comes into contact with contaminated soils.

During construction, the Contractor will be responsible for ensuring that erosion, sediment control and water quality are appropriately managed. It is considered that any potential surface water impacts during construction can be adequately managed via the implementation of best practice methods, which will be incorporated into the Project CEMP. As such the overall risk to surface water during construction is considered to be **low**.

b. Operation

Post development drainage conditions have been assessed using design information provided by APAM in the Stage 2 Melbourne Airport Precinct Traffic Model Option Testing report prepared by

Aurecon (2019). It is anticipated there will be no changes to existing catchment boundaries as a result of the Project.

The Project will pass over both existing impervious hardstand areas and existing pervious soft landscaping. Where proposed roadways traverse existing hardstand areas, there will be limited effects to existing surface water flow entering existing drainage networks, other than the location at which surface water enters the existing network.

Where proposed roadways traverse soft landscaped areas, surface water flows will increase due to the increase in total impervious surfacing, which will reduce the available capacity of the existing network. However, this is expected to have a minor impact to the overall airport drainage system.

Based on the above, it is considered that the impacts to surface water and drainage arising from the Project are **low**, as the issues are expected to be local in nature and capable of being mitigated during detailed design through effective measures such as providing detention storage and utilizing existing pollutant traps and filters.

5.3.3 Mitigation Measures

Construction phase impacts can be managed by implementing controls in line with the International Erosion Control Association (IECA) Best Practice and Sediment Control Guidelines (2008). Appropriate surface water management measures will be included in the CEMP for the Project. At a minimum, the requirements of the Melbourne Airport Environmental Management Plan will be met.

The drainage design along each of the elevated roads will be developed to match existing drainage conditions as much as possible by avoiding changes to concentration of flows and avoiding increases in surface water discharge rates and volumes. This approach maximises the use of existing drainage infrastructure, avoiding costs associated with infrastructure upgrades and minimises effects on hydrology downstream, avoiding impacts associated with flood risk.

In a major flood event (one per cent Annual Exceedance Probability event), it is expected that surface flows will bypass the elevated road drainage system and drain to the Tullamarine Freeway. The impact on flow width on the Tullamarine Freeway has been considered during design. Detention systems are expected to be required to offset increases in surface water runoff in areas with increased impervious surfaces as well as to accommodate the projected increase in rainfall intensity due to climate change. There is limited opportunity to incorporate storage along elevated roadways, so it may be necessary to incorporate storage in areas of soft landscaping (detention ponds or swales) or in hardstand areas (buried storage tanks or upgraded pipe storage).

Similarly, it is expected that it will be challenging to implement treatment measures to achieve pollutant reduction targets within the Project. It is recommended that existing treatment elements used to treat runoff from the long-term car park and Mercer Drive be assessed to determine if there is capacity for additional flows. If this is not the case, alternative options such as gross pollutant traps and filters beneath the long-term car park to treat runoff from the elevated road will be investigated.

5.4 Ecology

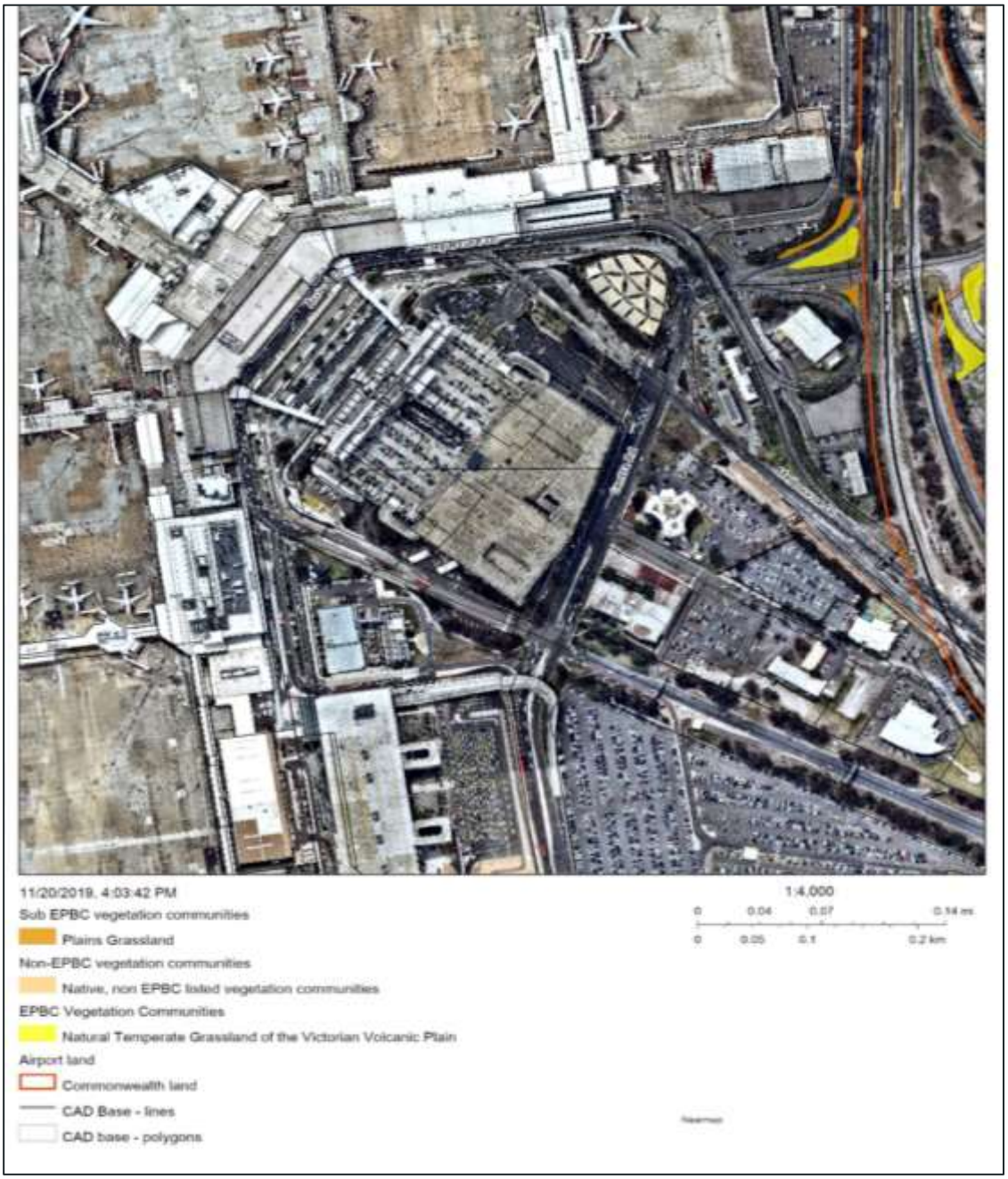
5.4.1 Baseline

The area generally surrounding the Project is a highly urbanised, modified environment that has been previously developed to accommodate the current land use. The existing ground conditions within the Project footprint are predominantly hardstand, with pockets of landscaped areas.

APAM has mapped known ecological values across the airport estate, including identified Matters of National Environmental Significance (MNES) under the EPBC Act and known Ecological Vegetation Classes (EVC) protected by state legislation.

There are no known ecological values within the Project footprint. There are small patches of protected native vegetation to the north of the Centre Road realignment, as shown in Figure 14.

Figure 14 Known Ecological Values in the Vicinity of the Project



As discussed in Section 5.3, stormwater within the Project area falls within three different catchments. The stormwater infrastructure in these catchments ultimately discharges to Moonee Ponds Creek, Steele Creek North and Arundel Creek. The Growling Grass Frog *Litoria raniformis*, which is listed as threatened under the EPBC Act, is known to inhabit both Moonee Ponds and Arundel Creeks.

5.4.2 Assessment of Impacts

Construction of the Project will not impact on identified areas of protected native vegetation. There is potential for impacts to stormwater quality during construction which may result in reduced water quality in receiving waterways if not managed appropriately.

Some landscaping, including trees, will need to be removed to facilitate construction. This is not considered to have an impact on threatened species or ecological communities as the landscaped vegetation is not classed as protected under Commonwealth or State legislation.

Stormwater quality during operation is expected to be similar to current conditions, and as such is not expected to impact on Growling Grass Frog habitat in Moonee Ponds and Arundel Creeks.

The projects location in a heavily disturbed landscape and physical separation from identified vegetation or ecological communities, further negates any potential impact.

As such, there are expected to be **negligible** on-site impacts during the construction and operation of the Project.

5.4.3 Mitigation Measures

While there are not expected to be any direct impacts to known ecological values as a result of the Project, the following mitigation measures will be implemented:

- Reinstatement of vegetation removed through landscaping where possible in accordance with the Melbourne Airport Planting Guidelines
- Any removal of landscaped vegetation will be conducted in accordance with the Melbourne Airport Removal of Trees and Vegetation on Airport Property procedure
- Potential construction phase impacts on stormwater quality will be managed by identifying appropriate control measures in the CEMP for the Project. At a minimum, the requirements of the Melbourne Airport Environmental Management Plan will be met.

5.5 Air Quality

5.5.1 Baseline

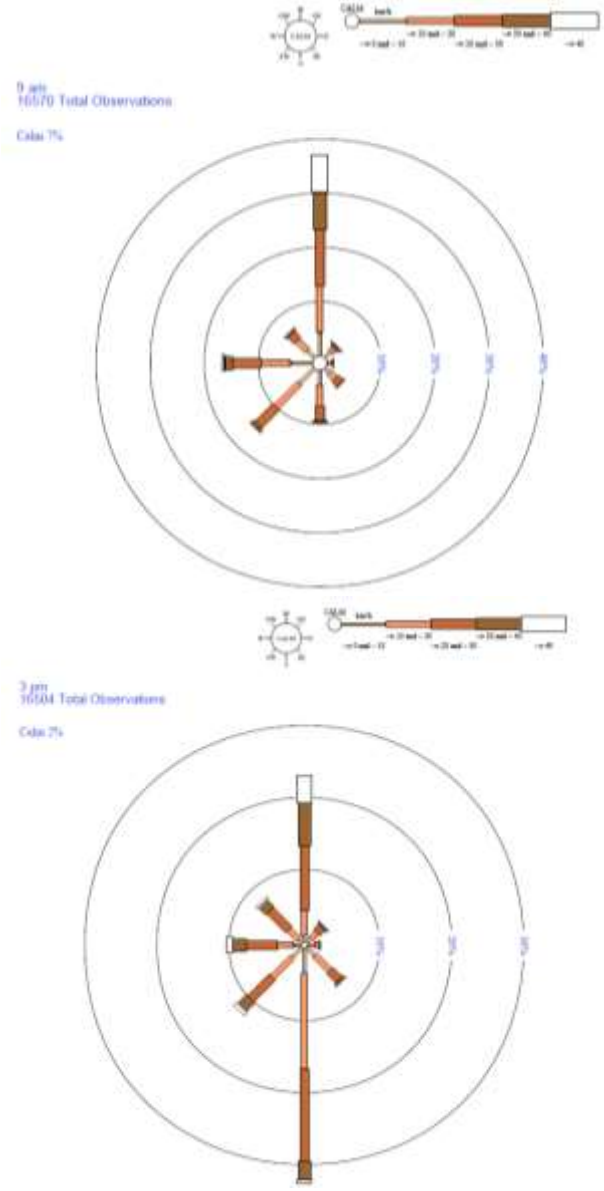
a. Local meteorology

Local meteorology conditions, such as wind direction and speed, affect dispersion of pollution in the local area. Local meteorology conditions have been determined using data from the Bureau of Meteorology (BoM) operated meteorological station at Melbourne Airport.

Typical wind roses for 9am and 3pm at Melbourne Airport are shown in Figure 15. The predominant wind direction in the vicinity of Melbourne Airport is from the north. Strong northerly winds dominate during the winter months, with mild southerlies dominating during the afternoon in summer months. A greater percentage of calms (wind spend of 5m/s or less) is experienced in the morning compared to the afternoon.

Pollution from the airport would be dispersed downwind, therefore it is likely that areas to the south and north of the airport are most affected by pollution depending on wind direction.

Figure 15 Wind Roses for Melbourne Airport for 9am and 3pm



b. Air quality objectives

The *Airports (Environment Protection) Regulations 1997* sets ambient air quality objectives for pollutants over specific averaging periods on airport land. The pollutants listed in these regulations are those generated by numerous sources at an airport including aircraft, stationary sources, ground equipment and other surface transportation. The relevant air quality objective in relation to the Project is an hourly standard for nitrogen dioxide (NO_2) shown in Table 7.

As the Project is on Commonwealth land it is appropriate to consider the national air quality standards and goals within the National Environment Protection (Ambient Air Quality) Measure[4] (NEPM AAQ). In Victoria these are applied through the Victorian Government State Environmental Protection Policy (Ambient Air Quality) (SEPP AAQ) as state-wide air quality standards and goals in line with those set out in the NEPM AAQ. This applies to the outdoor air environment across Victoria.

The SEP AAQ includes standards for a number of different pollutants relevant to the project. Table 7 below shows the standards for particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2) which are the main pollutants generated by vehicles. The SEPP AAQ also includes more stringent limits for $PM_{2.5}$ which will apply from 2025: a 24-hour average standard of 20µg/m^3 and an annual average standard of 7µg/m^3. As the Project would continue to operate beyond 2025, these more stringent limits have been considered in this assessment.

Some pollutants have criteria expressed as annual average concentrations due to the chronic way in which they potentially affect health or the natural environment (i.e. effects occur (long-term) after a prolonged period of exposure to elevated concentrations) and others have criteria expressed as 24-hour, 1-hour or 15-minute average concentrations (short-term) due to the potentially acute way in which they affect health or the natural environment (i.e. after a relatively short period of exposure).

Table 7 Air Quality Standards

Pollutant	SEPP AAQ Standard	Airports Regulation Standard	Averaging Period	Allowable exceedance
NO_2	120 ppb	160 ppb	1-hour	1 day per year
	30 ppb	-	Annual	None
PM_{10}	50 µg/m^3	-	24-hour	None
	20 µg/m^3	-	Annual	
$PM_{2.5}$	25 µg/m^3	-	24-hour	None
	8 µg/m^3	-	Annual	
	20 µg/m^3	-	24-hour (Post 2025)	
	7 µg/m^3	-	Annual (Post 2025)	
Notes: ppb = parts per billion **µg/m^3 = micrograms per cubic metre**				

4 National Environment Protection Council, *National Environment Protection (Ambient Air Quality) Measure*, February 2016

c. Local air quality

Existing or baseline ambient air quality refers to the concentration of relevant substances that are already present in the environment. These are present from various sources, such as industrial processes, commercial and domestic activities, traffic and natural sources.

A desktop review of air quality monitoring reports available from Melbourne Airport and the Environment Protection Authority (EPA) AirWatch website has been carried out to determine baseline conditions of air quality in this assessment.

APAM undertakes air quality monitoring to the south of the airfield (MAS) and in Westmeadows (MAE), a residential area to the east of the airport, shown as locations '1' and '2' on Figure 16 respectively. The MAS monitoring station has been in operation since 2013 and the MAE station was commissioned in May 2017.

Figure 16 Melbourne Airport air quality monitoring stations

Data available from Melbourne Airport for the 2018/2019 financial year[5] show that air quality standards are met with the exception of daily PM_{10} and $PM_{2.5}$ standards. Annual average data provided in Table 8 has been taken direct from Melbourne Airport's air quality monitoring report, hourly and daily means have been interpreted from graphs provided in the monitoring report.

5 Lear Siegler Australasia, *Air Quality Monitoring Report*, October 2019

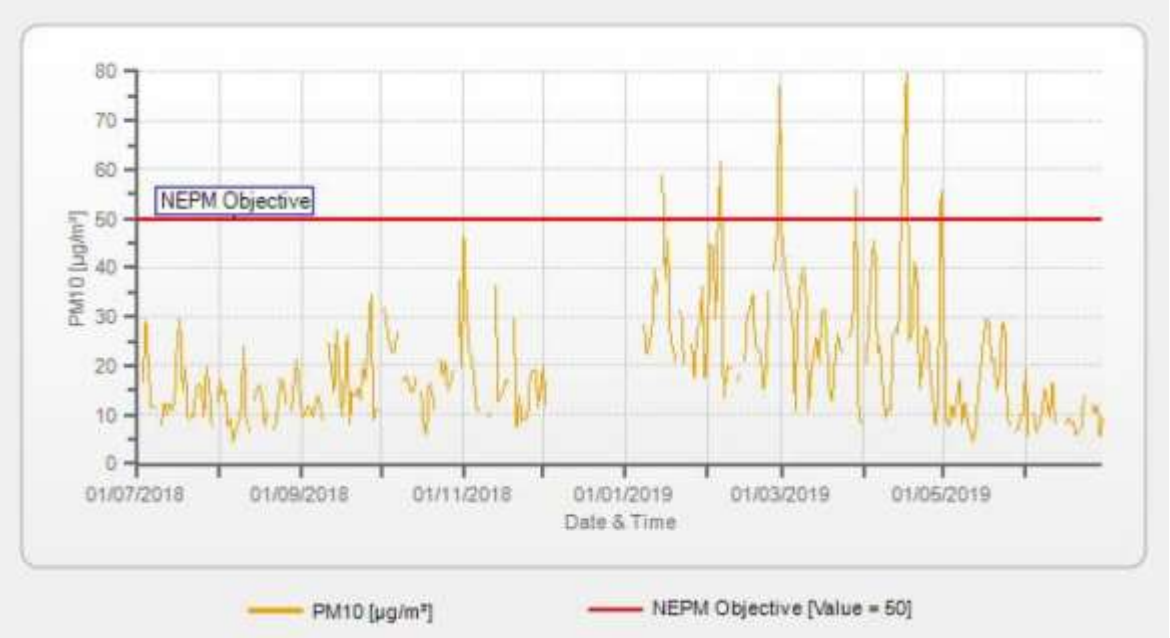
Figure 17 shows monitored PM_{10} concentrations at the MAS station, as data was not available in a format suitable to complete. Data capture of PM_{10} at the MAS station was compromised due to equipment failure, at 88 per cent across the year. PM_{10} is not monitored at the MAE Station.

Table 8 Air Quality Monitoring Information for Financial Year 2018/2019

Parameter	Standard	MAS (Site 1)	MAE (Site 2)
NO_2			
Annual average	30 ppb	6.9 ppb	7.0 ppb
Maximum hourly mean	120 ppb	< 40 ppb	40 ppb
$PM_{2.5}$			
Annual average	8 µg/m^3	7.1 µg/m^3	7.1 µg/m^3
Maximum daily mean	25 µg/m^3	**75** µg/m^3	23 µg/m^3

Note: Exceedances of the standards are highlighted as **bold**

Figure 17 Monitored PM_{10} concentrations at the MAS station



One exceedance of the daily $PM_{2.5}$ standard was recorded at the MAS station in April 2019. Occasional exceedances of the daily mean PM_{10} standard were also recorded at the MAS Station from January 2019 through to May 2019.

Exceedances of the PM_{10} and $PM_{2.5}$ standards are common at monitoring locations across Melbourne and other urban centres across Australia. In Melbourne, these exceedances are generally attributed by the EPA to smoke from hazard-reduction burns and bushfires, and local dust sources.

Local air quality at Melbourne Airport is considered to be reasonably good compared with other locations in Melbourne. This is primarily due to its location, north-west of the metropolitan area, which is the area considered to contribute significantly to pollution in Melbourne including traffic

sources. As noted earlier, the predominant wind direction is northerly, therefore the airport is not subject to dispersion of pollution from the metropolitan area for the majority of the year[6].

d. Sensitive receptors

The Project is located on Melbourne Airport land, approximately one kilometre west of the closest residential area of Westmeadows. The Holiday Inn Melbourne Airport and Ibis Budget Melbourne Airport are adjacent to the Project.

The majority of the receivers in the area of the Project are transient, including passengers using long-term car parks, short stays in airport hotels and using pick-up and drop-off services from airport terminals, therefore these receivers are less sensitive to changes in local air quality as their exposure would be over a short period.

Airport staff, including SkyBus operators, taxi rank supervisors and those working in commercial premises are present adjacent to the existing drop-off and pick-up forecourt immediately outside of the terminal.

e. Traffic movement

Currently pick-up and drop-off services for all terminals occur at the existing forecourt directly outside of the terminals. This includes all services including taxi and rideshare facilities, SkyBus, airport shuttle buses, crew buses and private vehicles.

At peak times, the existing forecourt experiences congestion due to its limited capacity and queue lengths can become excessive within the Melbourne Airport complex. During congestion, local air quality is adversely impacted as vehicles generate higher emissions when queuing than under free-flowing traffic conditions.

5.5.2 Assessment of Impacts

a. Construction

Dust generation would occur throughout construction and be exacerbated during dry and windy conditions, particularly on hot days. Potential impacts can be minimised through the implementation of best practice dust suppressant measures such as use of water trucks on site throughout construction.

Exhaust emissions from construction plant, machinery and vehicles would also generate emissions that could impact on local air quality. Such emissions are associated with the combustion of fossil fuels during vehicle movement and the operation of on-site plant and construction machinery. It is expected that all construction vehicles, plant and machinery would be operated in accordance with the manufacturer's guidelines and therefore associated emissions and air quality impacts would be negligible in the context of existing vehicular movements in the area.

There would also be the potential for odour associated with the construction of the road pavement, specifically during the application of asphalt and line-marking. Again, this would be temporary in nature and minimised through the implementation of safeguard measures, however given the lack of sensitive receivers no amenity impacts would be anticipated.

While amenity impacts are limited due to the lack of sensitive receivers, dust deposition on vehicles located in the car parks surrounding the Project is a potential risk and would need to be minimised.

Overall, potential air quality impacts during construction of the Project are considered to be **low**.

6 Jacobs, Air Quality Monitoring Program, *Monitoring Report FY2016/2017*, October 2017

b. Operation

Growth at the airport, with or without the Project in place, is likely to result in an increase in air emissions, which has the potential to affect local air quality at the airport and immediate surrounds. With regard to the Project, pollutant concentrations are likely to increase in some areas as a result of increased traffic emissions and the redistribution of vehicles on to the Project.

Traffic using an elevated road at approximately eight metres above ground level, would result in lower pollutant concentrations at ground level, in comparison to a road at grade. This is due to pollution having more opportunity to disperse from source to receiver at elevation, in comparison to at grade where the public would be exposed. The Project would also provide increased capacity of drop-off and pick up services and help reduce congestion within the Melbourne Airport complex.

For the surrounding land uses that are a similar height as the road and pick-up and drop-off services, i.e. terminal concourse or adjacent hotel facilities, compliance with short-term standards should be a focus for the protection of human health.

As noted in Section 5.5.1, monitored 1-hour average NO_2 concentrations in the area are well below the 1-hour NO_2 standard, therefore it is not anticipated that the Project would result in an exceedance of this standard. Exceedances of the 24-hour PM_{10} and $PM_{2.5}$ standard have been measured however it is unlikely these exceedances are generated by routine operations the airport. While the Project may result in an increase in PM_{10} and $PM_{2.5}$ concentrations that may have the potential to worsen existing exceedances, any impact is anticipated to be minor.

It should be noted that the relationship between increased traffic and air quality impacts are not linear (i.e. ten times more traffic does not result in a tenfold increase in pollutant concentrations). There are many factors which contribute to dispersion such as meteorology and topography. In addition, vehicle emissions are predicted to improve with time as a result of cleaner fuel technologies entering the vehicle fleet so impacts are likely to differ in the short-term compared to the longer term when the vehicle fleet is cleaner.

Overall, potential air quality impacts associated with operation of the Project are considered to be **low**.

5.5.3 Mitigation Measures

Potential local air quality impacts as a result of the Project have been identified. Air emissions are expected to result from fugitive dust and construction vehicles during the construction phase and traffic using the Project in the operational phase.

Construction phase impacts would be managed by implementing standard best practice construction management to minimise dust generation as well as minimising vehicle emissions where possible. Air quality management measures will be included in the CEMP for the Project. At a minimum, the requirements of the Melbourne Airport Environmental Management Plan will be met.

While the Project may result in an increase in particulate concentrations at some locations, any impact is anticipated to be minor. Air quality impacts from operation of the Project can be mitigated by minimising vehicle idling at the elevated forecourt as far as practicable.

5.6 Noise

5.6.1 Baseline

Noise sensitive receivers that may be impacted by road traffic noise associated with the Project include:

- Commercial hotel receivers in the order of 20 metres to the south of the proposed level two T123 Car Park exit to Melbourne Drive and 170 metres to the north of the proposed T123 Car Park entry
- Commercial office receivers in 80 metres south of the proposed T123 Car Park entry.

These receivers are currently exposed to significant existing levels of road traffic noise and aircraft noise.

5.6.2 Assessment of Impacts

a. Construction

The construction noise impact for hotel and office receivers has been assessed based on Schedule 4 of the *Airports (Environment Protection) Regulations 1997* (AEPR) and relevant EPA documents which are:

- EPA Publication 480, *Environment Guidelines for Major Construction Site*s, February 1996
- EPA Publication 1254, *Noise Control Guidelines*, October 2008.

The AEPR provides a guideline for external noise limit of 75 $dBL_{A10,\ 15\ min}$.

EPA Publication 1254 provides noise criteria for works that occur outside typical daytime hours as in Table 9 below.

Table 9 EPA Publication 1254 Construction Noise Criteria

Period	Work Hours	Noise Criteria
Normal Working Hours	7am to 6pm Monday to Friday 7am to 1pm Saturdays	There are no limiting noise criteria for the Daytime period, however there is still a duty to minimise noise impacts on the surrounding environment
Evening Period / Weekend Period	6pm to 10pm Monday to Friday 1pm to 10pm Saturdays 7am to 10pm Sundays and Public Holidays	Noise levels at any residential premises not to exceed background noise level by: • 0 dB(A) or more for up to 18 months after project construction commencement; and • 5 dB(A) or more after 18 months
Night Period	10pm to 7am Monday to Sunday	Noise inaudible within a habitable room of any residential premises

The AEPR noise limit of 75 $dBL_{A10,\ 15\ min}$ is predicted to be met for typical construction activities.

Where construction is required outside normal working hours, a Construction Noise and Vibration Management Plan should be developed with consideration to appropriate noise mitigation.

Overall, potential noise impacts during construction of the Project are considered to be **low**.

b. Operation

The road traffic noise impact for hotel and office receivers has been assessed based on Schedule 4 of the AEPR and checked with respect to guidance from Australian Standards.

The AEPR provides a guideline for external noise limits of 60 $dBL_{Aeq, 24\ hour}$ and 55 $dBL_{Aeq, 8\ hour}$ to provide some level of external amenity.

Australian Standards provide internal noise limits for sleeping areas or general office spaces which are provided in Table 10.

Table 10 Australian Standard Internal Noise Criteria

Receiver	Space	Noise Level (internal)
Hotel	Sleeping area near inner city or major roads	35 to 40 $dBL_{Aeq, peak\ hour}$
Office	General office space	40 to 45 $dBL_{Aeq, peak\ hour}$

The following road traffic volumes have been taken from the *Stage 2 Traffic Model Option Testing Report* (Aurecon 2019) and have been used to predict peak noise levels at sensitive receivers:

- Peak 1-hour peak traffic volume of 2,280 vehicles per hour using proposed T123 Car Park entry
- Peak 1-hour peak traffic volume of 300 vehicles per hour using level two T123 Car Park exit.

Additional information used to predict peak noise levels at sensitive receivers includes:

- Traffic travelling at 40 kilometres per hour on proposed elevated roads
- A typical sealed non-openable 6mm glazed façade for sensitive buildings
- A 3 dB correction between L_{eq} and L_{10} acoustic parameters.

The predicted peak noise levels at sensitive receivers due to the Project are provided in Table 11 below.

Table 11 Predicted Peak Noise Levels

Receiver	Noise Level (external)	Noise Level (internal)
Hotel	61 $dBL_{A10, 1hr\ (peak)}$ 59 $dBL_{Aeq, 1hr\ (peak)}$	38 $dBL_{A10, 1hr\ (peak)}$ 35 $dBL_{Aeq, 1hr\ (peak)}$
Office	63 $dBL_{A10, 1hr\ (peak)}$ 60 $dBL_{Aeq, 1hr\ (peak)}$	41 $dBL_{A10, 1hr\ (peak)}$ 38 $dBL_{Aeq, 1hr\ (peak)}$

The following noise impacts are based on the predicted noise levels in Table 11:

- Noise from the new elevated roads is predicted to meet the AEPR guidelines for external noise at sensitive receivers for some level of external amenity
- Noise from the new elevated roads is predicted to meet Australian Standard guidelines for internal office and hotel sleeping spaces.

The noise impacts of the Project are considered to be **low** as the predicted impacts on receivers will meet the recommended guidelines and policy requirements.

5.6.3 Mitigation Measures

Typical construction noise mitigation measures will be included in the CEMP for the Project. At a minimum, the requirements of the Melbourne Airport Environmental Management Plan will be met. Where construction is required outside normal working hours, a Construction Noise and Vibration Management Plan should be developed with consideration to appropriate noise mitigation.

The operational noise impacts of the Project are low and are predicted to meet recommended guidelines. Based on the above assessment, no specific noise mitigation is recommended or proposed to mitigate operational noise impacts.

5.7 Land Use and Tenure

5.7.1 Baseline

Melbourne Airport is located approximately 22 kilometres north-west of the city centre and is connected to Melbourne's freeway and arterial road network; allowing access via public and private vehicles. The site is near industrial areas including Tullamarine and Sunshine located to the southeast and south respectively and Somerton and Campbellfield located to the east. Melbourne's residential growth corridors have also expanded to include development of Attwood and Westmeadows to the east and Hillside and Taylor's Hill to the west. This provides the airport the opportunity to serve as a hub for the freight and logistics industry as well as capitalise on a growing labour market.

Currently Melbourne Airport is primarily accessed via the Tullamarine Freeway. The internal Melbourne Airport road system provides access across the airport lease, between the Tullamarine Freeway and a range of land uses that generate passenger, employee and commercial trips. Passenger trips are generally concentrated in the terminal precinct and car parking areas, where congestion in these areas during peak and shoulder periods can be experienced. Commercial trips are usually concentrated in the Melbourne Airport Business Park and commercial and mixed-use areas to the south of the terminal precinct. Employee trips are dispersed across the lease depending on employment.

To encourage strategic and complimentary land uses, several policies and plans as well as legislation are in place.

The Land Use Plan for Melbourne Airport, as included in the *Melbourne Airport Master Plan 2018*, demonstrates how airport land is currently used for a mix of airport functions and ancillary uses, including:

- Airside facilities – runways, taxiways, aprons and air navigation facilities)
- Terminal development
- Non-aviation development
- Infrastructure development -water, sewerage, stormwater drainage, electricity and other utilities
- Airport roads and connections.

The Project falls largely in the Landside Main Precinct, and partly in the Terminal Precinct.

As discussed in Section 3.5, the Project is consistent with the objectives of the Master Plan.

While the provisions of state planning policy and local planning schemes do not apply to land covered by the Airports Act, the Act requires an MDP to address any potential inconsistencies between the prevailing planning scheme in force, under a law of a State or Territory in which the airport is located. As such Victoria's principle land use plan and the *Hume Planning Scheme* have been considered in this MDP.

At a state level, *Plan Melbourne 2017–2050* emphasises the need to keep up with the growing transport demands across the city. *Plan Melbourne* aims to secure the status of Melbourne's airport(s) as efficient gateways with capacity for moving passengers and freight into and out of Victoria, as well as supporting future employment and economic development opportunities.

Plan Melbourne highlights the competitive advantages of Melbourne Airport, namely its curfew-free international airport status and the perceived benefits this, in conjunction with improved efficiency of the road network, can bring to the state of Victoria. This directly relates to the Project, and the broader vision of the airport elevated road network.

At a local level, land surrounding the airport is in the municipality of City of Hume and therefore subject to the provisions of the *Hume Planning Scheme*. As such the following State planning policies in the *Hume Planning Scheme* should be considered in this MDP:

- Clause 11 – Settlement: aims to anticipate and respond to the needs of existing and future communities through provision of zoned and serviced land including employment, commercial and infrastructure. Furthermore, consideration planning should prevent environmental and amenity problems created by siting incompatible land uses close together.
- Clause 15 – Built Environment and Heritage: aims to ensure all land use and development appropriately responds to its surrounding landscape and character, valued built form and cultural context.
- Clause 17 – Economic Development: aims to provide for a strong and innovative economy, where all sectors are critical to economic prosperity, including industry, commercial and tourism.
- Clause 18 – Transport: aims to ensure an integrated and sustainable transport system that provides access to social and economic opportunities, facilitates economic prosperity, contributes to environmental sustainability, coordinates reliable movements of people and goods, and is safe.
- Clause 19 – Infrastructure: aims to allow the logical and efficient provision and maintenance of infrastructure.

Hume's Municipal Strategic Statement further demonstrates key issues and influences facing Hume that should be taken into consideration. These include:

- Urban Structure and Settlement
- Liveable Neighbourhoods and Housing
- Built Environment and Heritage
- Activity Centres
- Economic Development
- Transport Connectivity and Infrastructure
- Natural Environment and Environmental Risk.

The *Hume Planning Scheme*'s zones reflect the main use of land areas while the overlays ensure that important aspects of the land are recognised. For context, the planning zones used in the land use strategies in the Master Plan have been derived from the Victoria Planning Provisions (VPP).

Hume Planning Scheme surrounding zones generally include:

- Green Wedge Zone in the north and west (Oaklands Junction, Bulla, Diggers Rest and Keilor)
- Commercial and industrial zones to the south (Tullamarine)
- Public Conservation and Resource Zone to the north-east (Woodlands Historic Park)
- A mix of zones to the east including industrial, public use, farming, commercial and residential zones (Westmeadows and Tullamarine)
- Road Zone Category 1 (Tullamarine Freeway) to the north and east (and partially through the airport site).

Hume Planning Scheme surrounding overlays include:

- Development Plan Overlay (Western Avenue Development Plan)
- Environmental Significance Overlay and Land Subject to Inundation Overlay (mainly Maribyrnong River and Moonee Ponds Creek)
- Environmental Audit Overlay

- Melbourne Airport Environs Overlay
- Special Building Overlay
- Public Acquisition Overlay (adjacent north boundary Sunbury Road)
- Heritage Overlay.

The objectives of these zones and overlays are detailed in Table 12.

Table 12 Zone and Overlay Objectives

Zone/Overlay	Objectives
Green Wedge	To protect green wedges of Melbourne from inappropriate development while also protecting major state infrastructure and resource assets, such as airports.
Commercial Zones	To encourage development that meets the communities' needs for retail, entertainment, office and other commercial services and locate commercial facilities in existing or planned activity centres.
Industrial Zones	To facilitate the sustainable development and operation of industry and protect state significant industrial precincts from incompatible land uses (including Campbellfield, Somerton and Thomastown).
Public Conservation and Resource Zone	To protect and conserve the natural environment and natural processes for their historic, scientific, landscape, habitat or cultural values.
Public Use Zone	To recognise public land use for public utility and community services and facilities. To provide for associated uses that are consistent with the intent of the public land reservation or purpose.
Residential Zone	To promote a housing market that meets community needs, locate new housing in designated locations that offer good access to jobs, services and transport. To provide for a range of housing types to meet diverse needs and to deliver more affordable housing closer to jobs, transport and services.
Road Zone	To identify significant existing roads and identify land which has been acquired for a significant proposed road.
Development Plan (Western Avenue Development Plan)	No use or development of land can commence, until a Development Plan showing the overall use and development of all land affected by this clause has been prepared to the satisfaction of the responsible authority.
Environmental Significance Overlay	To identify areas where the development of land may be affected by environmental constraints and to ensure that development is compatible with identified environmental values.
Land Subject to Inundation Overlay	To identify land in a flood storage or flood fringe area and to ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
Environmental Audit Overlay	To ensure that potentially contaminated land is suitable for a use which could be significantly adversely affected by any contamination.
Melbourne Airport Environs Overlay (Schedule 2)	To identify areas that are or will be subject to high or moderate levels of aircraft noise based on the Australian Noise Exposure Forecast (ANEF) contours and to limit use and development to that which is appropriate to that level of exposure.
Special Building Overlay	To identify land in urban areas liable to inundation by overland flows.
Public Acquisition Overlay	To identify land which is proposed to be acquired by a Minister, public authority or municipal council. To reserve land for a public purpose and to ensure that changes to the use or development of the land do not prejudice the purpose for which the land is to be acquired.
Heritage Overlay	To conserve and enhance heritage places of natural or cultural significance.

Melbourne Airport was owned and operated by the Commonwealth Government until 1997, when Commonwealth airports were privatised. APAM acquired the lease for Melbourne Airport in July 1997, operating under a 50-year long-term lease from the Commonwealth Government, with an option for a further 49 years.

The Commonwealth Government retains ownership of the site and has responsibility for control over land-use planning and development on airport land, including all leased land, under the provisions of the Airports Act.

5.7.2 Assessment of Impacts

All development on the Melbourne Airport site must comply with relevant Commonwealth legislation and State legislation where appropriate. As discussed in Section 3.6, the provisions of the Victoria *Planning and Environment Act 1987* do not apply to airport land, however under the Airports Act, Melbourne Airport is required to give consideration to and address any inconsistencies between an MDP and state and local legislation.

Any impacts to land use arising during construction are expected to be temporary, such as the use of land in the long-term car park for construction laydown and stockpiling of materials. These impacts are appropriately mitigated through the availability of long-term car parking elsewhere on the airport estate in close proximity. It is noted that during construction there would be no impacts to the operation of the ParkRoyal Hotel, which is located on levels 4–9 (and cannot be accessed from level 3). However, some construction noise impacts may be felt within the hotel, as such this will need to be monitored and appropriate mitigation measures applied. As such the expected construction impacts to land use are **low**.

There are land use impacts of the Project during operation due to the changed vehicle access arrangements in the forecourt and the repurposing of the T123 Car Park to accommodate public drop-off and pick-up on Level 3 and Level 2. Overall, these changes are considered to have a **beneficial** impact.

An assessment of the Project has been undertaken against the objectives of the Melbourne Airport Land Use Plan, as included in the Master Plan, the State land use plan (*Plan Melbourne 2017–2050*) and the *Hume Planning Scheme*. This assessment has determined that the Project is generally consistent with the objectives of the land use planning policy relevant to the Project and therefore will have a **beneficial** impact on land use planning at Melbourne Airport. This is considered on the basis that the project facilitates the ultimate planning outcomes of these planning documents. Table 13 provides a breakdown of this assessment.

With regards to land tenure, the Project has been prepared with consideration of the interests that existed at the time the airport lease was created. This included easements, licenses, leases and sub-leases. There are no perceived conflicts or inconsistencies between these interests. During construction however, there will be sections of the long-term car park occupied by construction activity. This may be perceived as an issue for operators of the long-term car park who will potentially seek claim for loss of earning during construction. As such the impact to land tenure during construction is **moderate**.

5.7.3 Mitigation Measures

No mitigation measures for land use and tenure are proposed. This is due to the minimal impact the Project will have on current and future land use and the Project's consistency with planning documentation.

Ongoing refinement of the connections to the existing underlying roads, ground transport hubs and forecourts are likely, and as these changes occur, impacts associated with the Project may be reassessed as a result. This will ensure any impacts will be identified and managed as far as practicable during the design stage.

Table 13 Assessment of relevant policy objectives against Project

Policy	Project Response
Melbourne Airport Master Plan 2018	
The objectives of the Airport Land Use Plan in the *Melbourne Airport Master Plan 2018* are to: • Facilitate land use and development in accordance with the ***Melbourne Airport Master Plan 2018*** • Advance Melbourne Airport as one of the state's key activity centres • Provide for the airport's long-term growth requirements • Support a range of uses, including complementary business and shopping activities, employment, travellers' accommodation, leisure, transport and community facilities • Support sustainable urban outcomes that optimise the use of infrastructure • Create an attractive, pleasant, safe, secure and stimulating environment through good urban design • Support good environmental practice to minimise the impact on the environment and protect environmentally sensitive heritage areas.	The Project meets the requirements of the *Melbourne Airport Master Plan 2018* as it provides for the extension of the elevated road network which will: • Meet projected demand (supported by traffic modelling), highlighting the need for the proposed Project • Separate road access to terminals and thus improve safety and reducing congestion allowing passengers and staff to efficiently access the Airport • Further integrate the airport's ground transport network into the wider local and state-wide road network, enhancing the airport's long-term viability and accessibility • Improve the road network, ensuring ongoing access for private transport, shuttles, taxis, and emergency services • Ensure the additional capacity within the internal road network will provide opportunity for diversity in transport modes across other parts of the airport including dedicated bus lanes within the current road system and overall improving private and public vehicle transport movement.
Plan Melbourne	
Under ***Plan Melbourne***, Melbourne Airport is identified as a transport gateway. The purpose of a Transport Gateway is: *"To secure adequate gateway capacity for moving passengers and freight in and out of Victoria and support future employment opportunities at major ports, airports and interstate terminals. They will be protected from incompatible land uses but adjacent complementary uses and employment-generating activity will be encouraged."*	Transport Gateways such as Melbourne Airport are recognised as places where complementary uses and employment-generating activities are encouraged. The Project is complimentary to these activities, ensuring the safe and efficient movement of passengers, employers and services to and from Melbourne Airport. Due to its proximity to Melbourne's freeway network, the airport is well serviced in terms of high-capacity road access. However, given high travel demand of the airport, congestion is a regular problem on both the internal and external road network during peak periods. The proposed design aims to support the development of a long-term solution which addresses congestion in the peak periods and details opportunities to increase the efficient vehicle movement, passenger access to the airport and to manage travel demand through infrastructure solutions. This significant investment in Melbourne Airport's internal road network is supportive of *Plan Melbourne* and the objective relevant to transport gateways.

Policy	Project Response
Hume Planning Scheme	
Provisions of the *Hume Planning Scheme* applicable to the Project include: • Clause 11 – Settlement: aims to anticipate and respond to the needs of existing and future communities through provision of zoned and serviced land including employment, commercial and infrastructure. Furthermore, consideration planning should prevent environmental and amenity problems created by siting incompatible land uses close together • Clause 15 – Built Environment and Heritage: aims to ensure all land use and development appropriately responds to its surrounding landscape and character, valued built form and cultural context • Clause 17 – Economic Development: aims to provide for a strong and innovative economy, where all sectors are critical to economic prosperity, including industry, commercial and tourism • Clause 18 – Transport: aims to ensure an integrated and sustainable transport system that provides access to social and economic opportunities, facilitates economic prosperity, contributes to environmental sustainability, coordinates reliable movements of people and goods, and is safe • Clause 19 – Infrastructure: aims to allow the logical and efficient provision and maintenance of infrastructure Note: The Project is considered to be consistent with the zones and overlays of the Planning Scheme due to the imbedded nature of the zones into the Master Plan land use plan.	The Project meets the requirements of the *Hume Planning Scheme* as it: • Anticipates the need for future access to the airport given the expected increase in activity. • Appropriately locates infrastructure in an already disturbed environment, reducing any impact on the natural environment or causing any additional amenity issues. Further, appropriate measures such as a robust CEMP during construction will reduce any further impacts to the surrounding environment or amenity. • Provides enhanced access to the airport, benefiting airport users as well as the surrounding commercial and industrial areas as the Project will ultimately help minimise traffic congestion across the broader road network. This should result in economic benefits for freight and commercial vehicles accessing adjoining industrial estates as less congestion is assumed. • Non-aviation development plays a vital role in Melbourne Airport's economic vitality and complements its key functions. This integral piece of road infrastructure will assist in increasing the capacity of the internal and external road network and reduce travel times. Reliable and efficient transport links between Melbourne Airport, the CBD and the metropolitan area are critical to ensure there are appropriate levels of access to the state's major airport. This could have far reaching effects across the adjoining and surrounding road networks. Furthermore, design will aim to ensure pedestrian safety during drop-off and pick-up. The specific developments proposed in the *Melbourne Airport Master Plan 2018* are supportive of the plans, policies and legislation and are unlikely to conflict with surrounding *Hume Planning Scheme*. • Supporting Melbourne through the provision of critical ancillary airport infrastructure, ensuring greater and more reliable transport connectivity between Melbourne and Melbourne Airport. The Project is to be undertaken on a logical staged basis, ensuring the timely delivery of infrastructure when it is required.

5.8 Economic and Social

5.8.1 Baseline

In 2018, Deloitte Access Economics was commissioned by the Australian Airports Association to undertake an assessment of the economic and social contribution of Australia's Airports. This report, *The economic and social contribution of Australia's airports* (Deloitte Access Economics, 2018) determined that Australia relies on an efficient and reliable aviation sector and airport network allowing for both the movement of people and freight domestically and internationally.

This report is relevant to this MDP as the Project adds capacity to the existing landside road system in the face of increasing travel demands.

In relation to the economic contribution of the aviation sector, the report identified several findings, including:

- In 2011, Australia's airports generated a total economic contribution of approximately $34.6 billion or two per cent of Australia's Gross Domestic Product (GDP). In Victoria, the *Melbourne Airport Master Plan 2018* identifies the 2015–16 economic contribution of Melbourne Airport to Victoria as $17.6 billion (or seven per cent of state GDP).
- The Deloitte report identifies the aviation industry as a significant employer across Australia, identifying jobs in core airport operations, airport precincts, the aviation industry and domestic tourism industry. The 2018 Master Plan identifies the airport precinct as an anchor employer in Victoria directly supporting more than 20,600 jobs, directly and indirectly supporting a further 150,000 jobs across Victoria in various sectors. Employment within the airport precinct is projected to increase to 35,000 jobs by 2038. This projected growth is stronger than state-wide and national averages.
- The report identifies the role major airports play in Australia's logistics network, with the volume of international air freight carried increasing by an average of three per cent annually over the last decade (from 755,000 tonnes in 2006–07 to over 1 million tonnes in 2016–17). International air freight makes up nearly 21 per cent of freight by value and in 2011–12 this was worth over $110 billion. In 2016–17 Melbourne Airport handled 277,000 tonnes of international air freight worth $16 billion, on top of 186,000 tonnes of domestic air freight.

From a social perspective, it was noted that airports and aviation:

- Play an important social role in connecting individuals, families, and communities with each other, the rest of the country and world
- Provide vital services, such as the facilitation of main, time sensitive deliveries and the Royal Flying Doctors
- Facilitate the provision of workers to their place of employment in remote locations across Australia
- Provide training facilities for high value employment
- Are increasingly engaged and an asset in their community.

Section 6.2 of the *Melbourne Airport Master Plan 2018* provides more specific information relating to the economic and social significance of Melbourne Airport. As stated in this section of the Master Plan:

> *Melbourne Airport makes a significant contribution to the Victorian economy. As a key driver of tourism and trade-based industries that support jobs and create economic growth, Melbourne Airport plays an important role in the lives of Victorians through job creation, and connects them with other parts of Australia and the rest of the world.*

To keep pace with this economic growth, constant upgrades are required to the landside access of Melbourne Airport. Without the Project, the existing road system will be challenged to maintain

current levels of service. This is due to both the initial additional network capacity the Project provides as well as the facilitation of future projects, namely the elevated forecourt.

5.8.2 Assessment of Impacts

During design and construction of the Project, several employment opportunities will be generated for construction staff, building contractors and designers resulting in a **beneficial** impact.

While the construction of the Project is subject to detailed design, it is envisaged the impacts to the broader transport network at the airport would be minimal (as discussed in section 5.1). This is due to the Project being capable of being constructed largely offline, meaning the existing infrastructure will remain available for users allowing the existing road network to remain operational throughout construction with only temporary disruptions envisaged. This reduces potential impacts on employees, visitors and services accessing the airport.

The economic and social impacts of the Project during operation, particularly in terms of the 2038 elevated road network (with the elevated forecourt) are overall beneficial. The Project will provide greater access to the airport for employees, visitors and services. Therefore, the operational impact is considered **high beneficial**.

5.8.3 Mitigation Measures

During construction, general measures will be employed as part of the CEMP to reduce any potential impacts on amenity. This will incorporate the general principles of minimizing amenity impacts, such as through dust suppression, and include measures to address other potential environmental impacts.

No mitigation measures are proposed during operation of the Project as the impacts on economic and social aspects would be beneficial.

5.9 Landscape and Visual

5.9.1 Baseline

The landscape and visual amenity of the airport is influenced by the existing topography and drainage, vegetation cover, and land use and development. A summary of these key components is provided below.

a. Topography and Drainage

- The broader airport environment is characterised by its low lying, flat topography, with the terrain declining towards Arundel Creek and the Maribyrnong River to the west and Moonee Ponds Creek and Steel Creek to the east and south-east
- A number of drainage tributaries traverse the airport site including Arundel Creek, Deep Creek, Broad St Drain, Moonee Ponds Creek and Steel Creek
- The topography of the area where the Project is proposed to be located is generally flat, gradually sloping toward the Steel Creek North drain to the south-west.

b. Vegetation cover

- The vegetation cover beyond the airport environment largely consists of open grassland with intermittent scattered trees along the creek lines
- The existing north-south runway is marked at the northern extent by mature vegetation to the east and west, including an area of Grey Box woodland to the west and Woodlands Historic Park to the east; the southern extent is marked by Melbourne Airport Golf Course
- Mature vegetation lines the southern edge of Tullamarine Freeway and occupies the space between Terminal Drive, Tullamarine Freeway and Western Avenue
- No significant vegetation is present within the area where the Project is proposed to be constructed.

c. Land use and development

- The airport environment predominantly includes aviation and urban infrastructure, including aviation services, car parks, airside operations, passenger and freight terminals, terminal support infrastructure, maintenance and cargo areas, with commercial / industrial development to the south
- The area where the Project is proposed to be constructed is dominated by existing road and car parks, including the existing multi-level T123 Car Park and hotel
- The residential area of Tullamarine occupies an area immediately to the east of the airport boundary
- Buffer screen planting frequently bounds the western edge of residential development, particularly to the east of Airport Drive
- Westmeadows residential area is situated to the east of Tullamarine Freeway, with the western edge of the residential area experiencing views across gently rolling agricultural land.

5.9.2 Assessment of Impacts

The Project will involve the construction of elevated road bridges and associated approach roads generally in the vicinity of the existing T123 Car Park structure.

While the exact construction methodology is unknown at this stage, it is assumed that the construction phase elements that have the potential to alter the visual amenity include:

- Clearance of vegetation

- Earthworks and transportation of materials
- Lighting during night time construction works
- Closure of sections of the long-term car park.

The operational phase that have the potential to alter the visual amenity include:

- The Project itself, namely the road structures providing access to and from the T123 Car Park
- Additional road infrastructure within a heavily urbanised environment.

The proposed works will be situated within an environment dominated by road and aviation infrastructure, including the existing T123 Car Park. This existing environment is judged to have the capacity to absorb this type of change, although it is anticipated to result in incremental further development of the existing heavily urbanised environment.

Outside the airport site and beyond the immediate environment, it is unlikely there will be significant visual impacts. It is not anticipated that the proposed vegetation clearance or additional infrastructure would be highly evident when viewed from outside the site and it would be set against the backdrop of the existing development, including the existing T123 and T4 Car Parks.

In terms of landscape and visual amenity sensitive receptors, the Holiday Inn and ParkRoyal are situated on the airport site in the vicinity of the Project. It is anticipated that hotel staff and visitors would experience views of the Project, however these views would be experienced in the context of existing road and car park infrastructure.

As such, due to the highly disturbed and heavily urbanised character of the airport area, namely the existing car parks and other infrastructure, the Project is expected to have a **low** impact on landscape and visual amenity during construction and operation.

5.9.3 Mitigation Measures

While the Project is not expected to have a significant impact on landscape and visual amenity, there are a few potential landscape and visual mitigation measures that will be incorporated into the design, where possible, to help avoid, minimise and manage any potential impacts that may arise.

Landscape and urban design treatments for consideration in detailed design include:

- Reinstatement of mature vegetation removed during construction
- Mitigation of potential adverse visual effects using a combination of planting, walls and/or earth mounds to reduce or filter views towards the proposed infrastructure
- Appropriate design of bridges, approach roads and retaining walls to contribute to defining the roadway to the T123 Car Park as an airport arrival point
- Consider how the infrastructure forms part of a wider network and sequence of events as part of arrival point
- Planting of vegetation, in accordance with any APAM landscaping guideline or policy.

5.10 Cultural Heritage

5.10.1 Baseline

Previous archaeological investigations across Melbourne Airport have indicated the high archaeological significance of the area with a total of 93 Aboriginal places and 30 historic places identified and recorded within airport land. Many of these recorded places are centred along Maribyrnong River, Moonee Ponds Creek, Deep Creek, Arundel Creek and other waterways and have been found to retain cultural material in disturbed and in situ deposits illustrating that intact landforms remain.

The Project area is a highly urbanised, modified environment that has been previously developed to accommodate the current land use. There are no known Aboriginal or historic heritage places within or adjacent to the project footprint.

5.10.2 Assessment of Impacts

Given that there are no known Aboriginal or historic heritage places within or adjacent to the project footprint, there will be **negligible** impacts to heritage during construction and operation.

5.10.3 Mitigation Measures

Specific mitigation measures for heritage are not required, however the Project CEMP will include contingencies in the case that unexpected items of potential heritage value are encountered during construction. At a minimum, the contingency procedures outlined in the Melbourne Airport Environmental Management Plan will be adopted.

5.11 Hazardous Goods

5.11.1 Baseline

The Melbourne Airport Environmental Management Plan outlines required environmental management measures for the storage and handling of fuels and chemicals, including dangerous and hazardous goods.

It also outlines detailed spill response procedures in the event of an uncontrolled or accidental release of chemicals in order to mitigate any potential impacts on the environment. Current operations within the project area include minor storage of chemicals, and the potential for fuel or oil leaks from vehicles accessing the forecourt and car park areas.

5.11.2 Assessment of Impacts

Hazardous goods that may be present at the site during the construction phase include:

- Waste oils from machinery or plant equipment
- Paint products and associated waste streams
- Small quantities of fuel for machinery.

There is potential for impact on land, groundwater and surface water in the event of a spill or improper use of chemicals during construction of the Project. The impact of hazardous goods during construction has been assessed as **low**.

During operation, there will be no additional types of hazardous goods outside of those already present on the site. Hazardous goods will continue to be handled and stored in accordance with the Melbourne Airport Environmental Management Plan. The impact of hazardous goods during operation has therefore been assessed as **negligible**.

5.11.3 Mitigation Measures

The Project CEMP will outline mitigation measures for the storage and handling of fuels and chemicals, including spill response procedures. At a minimum, the requirements of the Melbourne Airport Environmental Management Plan will be met.

5.12 Aviation Operations and Safety

An assessment of the project against the NASF guidelines (outlined in section 3.2.3) and Civil Aviation and Safety Authority (CASA) Guidelines has been undertaken. The key considerations are set out below in Table 14.

Table 14 Considerations for Aviation Operations and Safety

Consideration	Guidelines	Relevance to the Project
Aircraft Noise	NASF – Guideline A: Measures for Managing Impacts of Aircraft Noise	The Project is located within the 20-30 ANEF contours. It is not a "building type" covered by AS2021-2015. The Project would not impact on aircraft movement numbers and/or associated noise. Assessment based on AS2021-2015 leads to "acceptable" rating.
Windshear	NASF – Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports	No impacts. Meets 1:35 requirement. Considered further in Section 5.12.1.
Wildlife Strikes	NASF – Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports	The Project is located within the 3km wildlife buffer. The land use type is not specified within Guideline C. Considered further in Section 5.12.2.
Wind Turbine Farms	NASF – Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation	Wind turbine farm impacts have not been considered as part of this assessment as wind turbines are not part of the Project.
Lighting and Reflection	NASF – Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports	The development is outside Zones A to D but within 6km radius. Considered further in Section 5.12.3.
Protected Airspace	NASF – Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports	There will be no protected airspace impacts from the Project. Considered in Section 5.12.4.
Communication, Navigation and Surveillance Facilities	NASF – Guidelines G: Communication, Navigation and Surveillance (CNS)	Airservices has confirmed there will be no CNS impacts from the Project. Considered further in Section 5.12.5.
Development of Helicopter Landing Sites	NASF – Guidelines H Protecting Strategically Important Helicopter Landing Sites	This guideline relates to Strategically Important Helicopter Landing Sites (SIHLS) not located on the aerodrome. A SIHLS is a site declared by a state or territory to be of critical need to the provision of identified services. Victoria Planning Schemes have hospital based HLS flight paths protected through land use planning instruments (up to 1,130m). Based on this distance, no SIHLS has been identified in the vicinity of the Project site.
Public Safety Areas	NASF – Guidelines I Managing the Risk in Public Safety Areas at the Ends of Runways	While the project is located outside the Public Safety Area of both existing and proposed runways at Melbourne Airport, the project is considered to be a compatible use within both the 1 in 100,000 and 1 in 10,000 public safety areas at the end of runways.
Plume Rise	CASC – CASA Advisory Circular AC 139-5(1): Plume Rise Assessments	The potential impacts from plume rise and dust emissions have been assessed as negligible during construction and operation. Considered in Section 5.12.6.

In preparing the MDP, preliminary details of the Project were provided to Airservices (Airport Developments) and CASA (Airspace Protection) for review and initial advice. Both organisations responded indicating that the Project did not raise any safeguarding issues.

5.12.1 Windshear

The Project is located inside the assessment trigger areas for Runways 27L and 27R as defined by Guideline B. A 1:35 assessment has been undertaken by Aurecon which confirms none of the proposed works exceed the 1:35 requirement.

It is noted that there are substantial buildings already existing between the runway centrelines and the proposed works.

The proposed works are all essentially additions to the existing T123 Car Park / ParkRoyal hotel structures rather than standalone structures and they will be no higher than the existing structures.

The impact of the Project on windshear has been assessed as **negligible** during construction and operation.

5.12.2 Wildlife Strikes

Wildlife, particularly bird strikes are known to cause significant damage to aircraft if collisions occur. Any bird is a potential hazard to aircraft, with the hazard increasing with the size of individual birds and the presence / size of flocks of birds. The number of wildlife strikes and the attendant risk of fatalities, injuries, aircraft damage and operational delays can be reduced by managing land use around airports to minimize the potential for wildlife to conflict with aircraft operations.

Most wildlife strikes occur on and near airports, where aircraft fly at lower elevations. The risk of a strike on airport relates to the level and form of wildlife activity. Wildlife attracted to land uses around airports can mitigate onto the airport or across flight paths, increasing the risk of strikes.

During construction, the CEMP will outline procedures to keep the site clean and limit stockpiles. Further, species selection in accordance with the Melbourne Airport Planting Guidelines will avoid bird-attracting species and mitigate the risk of bird strike during operation.

The potential impact of the Project on wildlife strikes is therefore **negligible** during the construction and operation.

5.12.3 Lighting

Lighting near Airports has the potential to distract pilots therefore it is important that it is configured appropriately to avoid this risk. Under Regulations 94 of the *Civil Aviation Regulations 1988* (CAR 1988). CASA can require lights which may cause confusion, distraction or glare to pilots in the air, to be extinguished or modified.

Reference has been made to NASF Guideline E – Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports, which provides guidance for the installation of lighting within six kilometres of an aerodrome (from the centre point of each runway). Within this large area there exists a primary area which is divided into four light control zones: A, B, C and D. These zones reflect the degree of interference ground lights can cause as a pilot approaches to land.

The Project is located outside Zones A to D but within the six kilometre radius.

The lighting design will comply with Australian Standards and requirements of APAM, CASA and Airservices. External lighting will be designed to minimise upward waste light. This will include consideration of factors such as light intensity, light colours and light spill above the horizontal. Similarly, any lighting required during construction will be configured to comply with requirements and minimise the risk of light distraction to pilots.

The potential impacts from lighting during construction and operation of the Project has been assessed as **negligible**.

5.12.4 Protected Airspace

a. Obstacle Limitation Surface

Obstacle Limitation Surfaces (OLS) are a series of surfaces that set the height limits of objects around an aerodrome. Objects that project through the OLS become obstacles. OLS are prescribed to ensure the safe obstruction-free operation of aircraft in the protected airspace in the vicinity of airports. Building heights and the height of other fixed objects are limited so that they do not intrude into the airspace defined by the OLS.

The maximum height of the proposed works will be 136.4 metres AHD (Source: Aurecon). This is below the OLS surface (Inner Horizontal Surface 157.5 metres). The proposed works are all essentially additions to the existing T123 Car Park / ParkRoyal hotel structures rather than standalone structures and they will be no higher than those existing structures.

Additional assessments will be required as part of any construction activity (for example when cranes are used).

During construction, it is likely that equipment including cranes will be used, however these are not expected to protrude into the OLS. If it is identified during detailed design that temporary infringement of the OLS is required, Melbourne Airport will work with Airservices and CASA, and seek the appropriate internal and external approvals from the Department of Infrastructure, Transport, Regional Development and Communications under the *Airports (Protection of Airspace) Regulations 1996*.

Impact to the OLS during construction and operation is **negligible**.

b. Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) Surface

PANS-OPS surfaces are established to protect aircraft operating under instrument flight rules which requires a greater margin of error than the OLS. Consequently, PANS-OPS surfaces are generally higher than the OLS. At the site, the PANS-OPS surface is approximately 162 meters AHD.

The maximum height of the proposed works (136.4 metres AHD) is below the PANS-OPS surface (162.74 metres AHD). As previously stated, the proposed works are all essentially additions to the existing T123 car park / ParkRoyal hotel structures rather than standalone structures and they will be no higher than those existing structures.

Additional assessments will be required as part of any construction activity (for example when cranes are used). If it is identified during detailed design that temporary infringement of the PANS-OPS is required, Melbourne Airport will work with Airservices and CASA, and seek the appropriate internal and external approvals from the Department of Infrastructure, Transport, Regional Development and Communications, under the *Airports (Protection of Airspace) Regulations 1996*.

The Project was referred to Airservices for assessment. By email dated 05 December 2019 Airservices advised:

> *Airspace Procedures:*
>
> *With respect to procedures designed by Airservices in accordance with ICAO PANS-OPS and Document 9905, at a maximum height of 136.6m (449ft) AHD, the development will not affect any sector or circling altitude, nor any instrument approach or departure procedure at Melbourne Airport.*
>
> *The development will not affect the Melbourne RTCC.*
>
> *At a height of 136.6m (449ft) AHD the development will not affect the LAHSO operations at Melbourne Airport.*
>
> *Note that procedures not designed by Airservices at Melbourne Airport were not considered in this assessment.*

The impact of the Project on the protected airspace has been assessed as **negligible** during construction and operation.

5.12.5 Communication, Navigation and Surveillance Facilities

The Project was referred to Airservices for assessment. By email dated 05 December 2019 Airservices advised:

> *Communications/Navigation/Surveillance (CNS) Facilities:*
>
> *This development, to a maximum height of 136.6m (449ft) AHD, will not adversely impact the performance of Precision/Non-Precision Navigational Aids, HF/VHF Communications, A-SMGCS, Radar, PRM, ADS-B, WAM or Satellite/Links.*
>
> *Air Traffic Control (ATC) Operations:*
>
> *ATC has no objections to this development.*

The impact of the Project on CNS facilities has been assessed as **negligible** during construction and operation.

5.12.6 Plume Rise and Dust Emissions

Aircraft operations may be affected by an exhaust plume of significant vertical velocity and CASA has identified that there is a need to assess the potential hazard to aviation posed by vertical exhaust plumes more than 4.3 metres per second (m/s) velocity. This would generally relate to plumes generated from industrial facilities with vents or stacks. The Project will not produce any exhaust plumes, so this impact is **negligible**.

During construction, there are likely to be minor dust emissions due to ground disturbance and movement of vehicles at the site. Dust generation during construction will be managed through measures in the CEMP and are not likely to pose a risk to aircraft. No dust is expected to be generated during operation.

The potential impacts from plume rise and dust emissions have been assessed as **negligible** during construction and operation.

5.12.7 Summary of Aviation Operations and Safety Impacts

Overall the Project is considered to have a **negligible** impact on aviation operations and safety during construction and operation.

6 Summary of Impacts

This environmental assessment component of the MDP has been undertaken to meet the requirements of Section 91 (1) (h) of the Airports Act. Table 15 provides a summary of the potential environmental and social impacts considered in the assessment.

Overall the project is considered to have a low impact on the environment during construction and operation.

The benefits the project will ultimately deliver to the way passengers and workers access Melbourne Airport will far outweigh the potential impacts outlined in this assessment.

Table 15 Summary of Environmental and Social Impacts

Section	Environmental and social factors	Impacts	
		Construction	Operation
5.1	Traffic	Low / negligible	Beneficial
5.2	Soils and Land Contamination	Low	Low
	Groundwater Contamination	Negligible	Negligible
5.3	Surface Water and Drainage	Low	Low
5.4	Ecology	Negligible	Negligible
5.5	Air Quality	Low	Low
5.6	Noise	Low	Low
5.7	Land Use	Low	Beneficial
	Tenure	Moderate	Low
5.8	Economic and Social	Low	Beneficial
5.9	Landscape	Low	Low
5.10	Cultural Heritage	Negligible	Negligible
5.11	Hazardous Goods	Low	Negligible
5.12	Aviation Operations and Safety	Negligible	Negligible

7 Environmental Management

7.1 Environmental Policy

APAM has an Environment Policy[7] which outlines our goals and commitments for environmental management. APAM actively engages with tenants, contractors and other stakeholders to achieve these commitments.

7.2 Environment Strategy

As discussed in Section 3.5, the 2018 Environment Strategy provides a framework for environmental management at Melbourne Airport. All development within the Melbourne Airport precinct must comply with and meet the relevant commitments made within the Environment Strategy. Those most relevant to the Project are outlined in Table 16.

Table 16 Relevant Environment Strategy Commitments

Topic	Key commitments
Waste Management	Continue to ensure that waste management and resource recovery are considered through development proposals for both construction and operational phases
Air Quality	Ensure CEMPs outline strategies to manage dust Undertake monthly site inspections of construction sites to make sure dust is appropriately managed
Land and Water Management	Conduct soil contamination testing prior to all major construction activities Implement the PFAS National Environmental Management Plan, or any other such documents that may supersede this in time
Hazardous Materials	Reduce the use of hazardous substances Undertake regular inspections of hazardous materials storage areas
Sustainability	Integrate ESD principles in new developments

These commitments have been considered in the design of the Project to date and will continue to be considered through the detailed design and construction of the Project.

7.3 Environmental Management Procedures

APAM maintains a comprehensive Environmental Management System (EMS) which has been audited and certified against the International Standard for Environmental Management Systems (ISO14001:2015). The EMS includes a range of established systems and processes which must be adhered to during the construction and operation of the Project.

7.3.1 Construction Environmental Management Plan (CEMP)

All construction activities that have the potential to cause environmental harm within the airport boundaries require a CEMP to be submitted and approved by the Melbourne Airport Environment and Sustainability Team prior to construction.

7 Melbourne Airport Environment Policy, August 2018

The CEMP must address all potential environmental impacts identified in this MDP, and meet the requirements of the Melbourne Airport Environmental Management Plan, at a minimum. During construction, a representative of the APAM Environment and Sustainability Team will conduct regular audits of the Project site to verify compliance with the approved CEMP. If any non-conformances are identified, corrective actions must be implemented by the Contractor in accordance with procedures outlined in the approved CEMP.

7.3.2 Operational Environmental Management

Potential environmental impacts during the operational phase are limited and are expected to be similar to current operations. Environmental management of the Project area during operation will be in accordance with the Melbourne Airport Environmental Management Plan.

8 Consultation and Approval Process

8.1 Consultation Objectives

Melbourne Airport has a commitment to proactive community consultation and stakeholder engagement. This commitment is underpinned by a desire for Melbourne Airport to be positioned within the community as a responsible corporate citizen and meeting the requirements under the Airports Act for community consultation.

Melbourne Airport is a member of the International Association of Public Participation Australasia and our approach to engagement is underpinned by the IAP2 Core values.

In undertaking this project our consultation objectives are to:

- Increase the project's awareness and the work Melbourne Airport undertakes to manage growth
- Inform key stakeholders about the project and how they can make a submission
- Identify issues and concerns with the project and involve key stakeholders to develop appropriate management strategies
- Enhance the connection and understanding that stakeholders and community groups have with Melbourne Airport.

8.2 Preliminary Consultation

In the preparation of this MDP, APAM has been consulting extensively with VicRoads/Department of Transport (name changed during consultation) as part of the Project's development since through a series of meetings, presentations and provision of technical memos. A summary of the meetings held is provided below:

- 04 July 2019 –VITM/VISSIM base modelling workshop
- 03 September 2019 – DoT acceptance of modelling methodology
- 24 September 2019 – Update to DoT on Stage 2 planning work and MDP preparation
- 04 December 2019 – Update on Stage 2 final design features and traffic analysis findings
- 11 February 2020 – Technical discussions to address comments received
- 21 February 2020 – Intelligent Transport Systems (ITS) integration meeting
- 16 March 2020 – Phone conference confirming key requirements for RRC/NDRG meetings
- 12 May 2020 – Regional Review Committee (RRC) meeting held
- 17 July 2020 – Technical discussion on comments received following RRC meeting
- 21 July 2020 – Further technical discussion on comments received following RRC meeting
- 10 December 2020 – Update following previous meetings and correspondence.

The following stakeholders have also been consulted to date:

- Airservices Australia
- Civil Aviation Safety Authority
- Melbourne Airport Planning Coordination Forum
- Department of Transport (Vic) (encompassing Rail Projects Victoria and Freight Victoria)
- Department of Environment, Land, Water and Planning (Vic)
- Department of Agriculture, Water and the Environment (Cth)
- Department of Infrastructure, Transport, Regional Development and Communications (Cth).

8.3 Advice to Government

In accordance with Section 92(1A) of the Airports Act, the following persons and authorities were advised of the Preliminary Draft MDP:

- Minister for Planning
- Minister for Roads
- Minister for Transport Infrastructure
- Department of Environment, Land, Water and Planning (inclusive of the Department of Transport)
- Cities of Hume, Brimbank, Maribyrnong and Moonee Valley.

In addition, Section 94 of the Airports Act requires that consultation be undertaken with the Civil Aviation Safety Authority and Airservices Australia.

The Preliminary Draft MDP was distributed to the organisations listed above for comment.

8.4 Public Comment

Pursuant to Section 92(1) of the Airports Act, the Preliminary Draft MDP was subject to a formal 60 business day period of public comment. This period was 15 March 2021 to 08 June 2021. Notices were published in a newspaper circulating within Victoria stating that a Preliminary Draft MDP had been prepared, and copies of the Preliminary Draft MDP were made available for public view and comment.

The comments/submissions received during the public comment period was given due consideration in preparing this MDP.

8.5 Submission to Minister

Following completion of the above consultation, this MDP has been submitted to the Minister for Infrastructure, Transport and Regional Development for approval.

Any comments or submissions received on the Preliminary Draft MDP were forwarded with this MDP (documented in the MDP Supplementary Report) for consideration by the Minister. In addition, all comments were addressed with a written response demonstrating that the comments have been given due consideration.

9 Conclusion

The Melbourne Airport Elevated Road and Forecourt Stage 2 MDP has been prepared in accordance with the requirements of the Airports Act. Appendix A sets out the requirements of Section 91 of the Act in relation to the contents of an MDP and demonstrates that the MDP is consistent with these requirements.

Importantly, the proposed works are consistent with the *Melbourne Airport Master Plan 2018* and State and local planning policy relating to the airport.

Appendix A: Airports Act MDP Checklist

This Appendix indicates the requirements under Section 91 of the Airports Act for the contents of an MDP and demonstrates that this MDP is consistent with these requirements.

Section 91 Contents of a Major Development Plan	Relevant Section of this MDP
(1) A major development plan, or a draft of such a plan, must set out: (a) the airport lessee company's objectives for the development; and	Section 2.2
(b) the airport lessee company's assessment of the extent to which the future needs of civil aviation users of the airport, and other users of the airport, will be met by the development; and	Section 2.2
(c) a detailed outline of the development; and	Section 2.1
(ca) whether or not the development is consistent with the airport lease for the airport; and	Section 3.3 and Section 5.7
(d) if a final master plan for the airport is in force, whether or not the development is consistent with the final master plan; and	Section 3.5 and Section 5.7
(e) if the development could effect noise exposure levels at the airport - the effect that the development would be likely to have on those levels; and	Section 5.6
(ea) if the development could affect flight paths at the airport - the effect that the development would be likely to have on those flight paths; and	Section 5.12
(f) the airport-lessee company's plans, developed following consultations with the airlines that use the airport, local government bodies in the vicinity of the airport and--if the airport is a joint user airport--the Department of Defence, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels; and	Not applicable to this development
(g) an outline of the approvals that the airport-lessee company, or any other person, has sought, is seeking or proposes to seek under Division 5 or Part 12 in respect of elements of the development; and	Section 3.7
(ga) the likely effect of the proposed developments that are set out in the major development plan, or the draft of the major development plan, on: (i) traffic flows at the airport and surrounding the airport; and (ii) employment levels at the airport; and (iii) the local and regional economy and community, including an analysis of how the proposed developments fit within the local planning schemes for commercial and retail development in the adjacent area; and	(i) Section 5.1 (ii) Section 5.8 (iii) Section 5.7
h) the airport-lessee company's assessment of the environmental impacts that might reasonably be expected to be associated with the development; and	Section 5 and summarised in Section 6

Section 91 Contents of a Major Development Plan	Relevant Section of this MDP
(j) the airport-lessee company's plans for dealing with the environmental impacts mentioned in paragraph (h) (including plans for ameliorating or preventing environmental impacts); and	Section 5 and Section 7
(k) if the plan relates to a sensitive development—the exceptional circumstances that the airport-lessee company claims will justify the development of the sensitive development at the airport; and	Not applicable
(l) such other matters (if any) as are specified in the regulations.	See below
(3) The regulations may provide that, in specifying a particular objective, assessment, outline or other matter covered by subsection (1), a major development plan, or a draft of such a plan, must address such things as are specified in the regulations.	See Regulation 5.04 below
(4) In specifying a particular objective or proposal covered by paragraph (1)(a), (c) or (ga), a major development plan, or a draft of a major development plan, must address: (a) the extent (if any) of consistency with planning schemes in force under a law of the State in which the airport is located; and (b) if the major development plan is not consistent with those planning schemes—the justification for the inconsistencies.	(a) Section 5.7 (b) Not applicable
(6) In developing plans referred to in paragraph (l)(f), an airport-lessee company must have regard to Australian Standard AS2021—1994 (“Acoustics—Aircraft noise intrusion—Building siting and construction”) as in force or existing at that time.	Section 5.12
Regulation 5.04 For subsection 91 (3) of the Act, a major development plan must address the obligations of the airport-lessee company as sublessor under any sublease of the airport site concerned, and the rights of the sublessee under any such sublease, including: (a) any obligation that has passed to the relevant airport-lessee company under subsection 22 (2) of the Act or subsection 26 (2) of the Transitional Act; or (b) any interest to which the relevant airport lease is subject under subsection 22 (3) of the Act, or subsection 26 (3) of the Transitional Act.	Section 3.3 and Section 5.7

Appendix B: Design Plans

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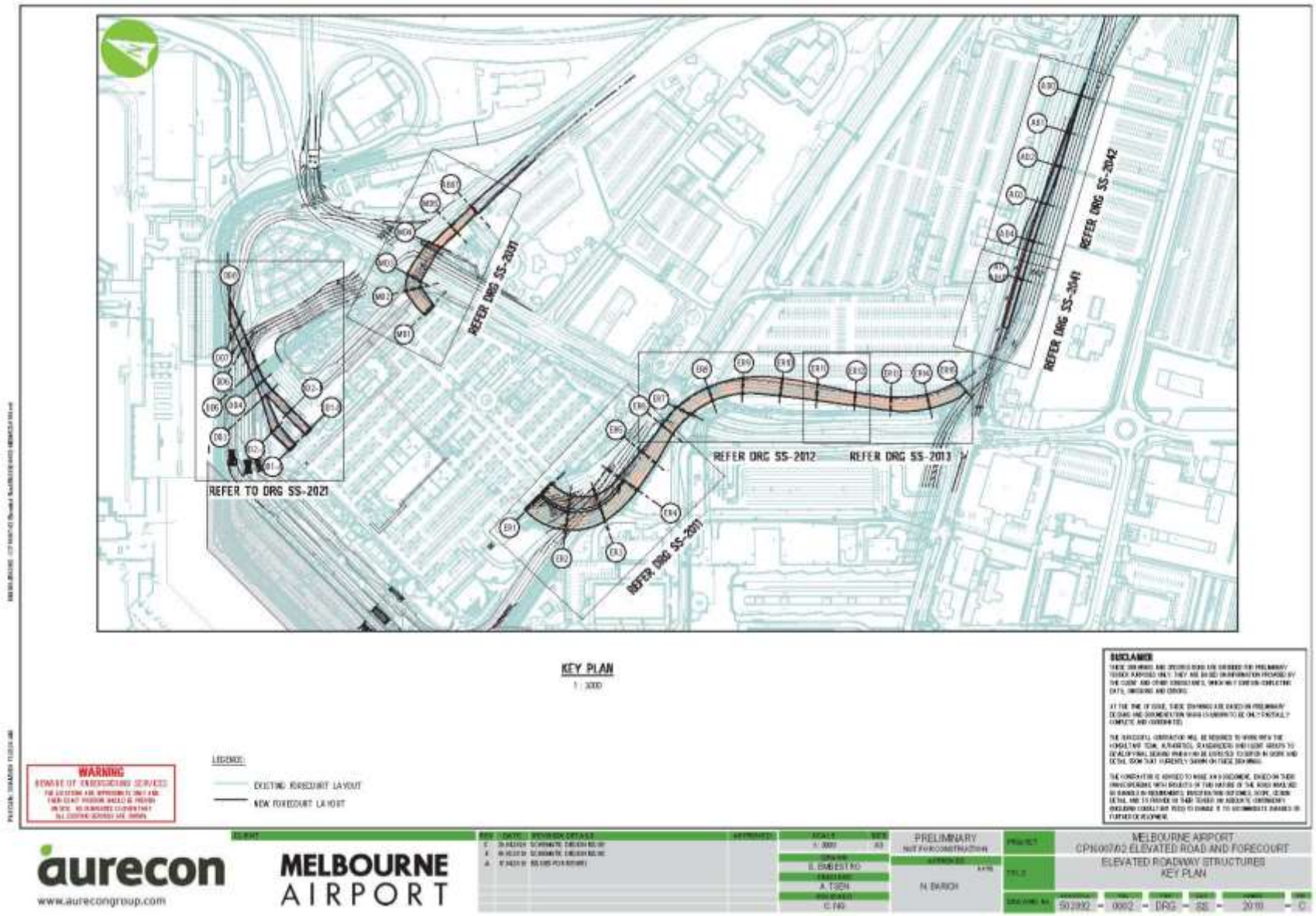
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KEY PLAN
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DISCLAIMER
WARNING
LEGEND:
EXISTING FORECOURT LAYOUT
NEW FORECOURT LAYOUT
aurecon
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MELBOURNE AIRPORT
PRELIMINARY
Not For Construction
MELBOURNE AIRPORT
CPN007/2 ELEVATED ROAD AND FORECOURT
ELEVATED ROADWAY STRUCTURES
KEY PLAN
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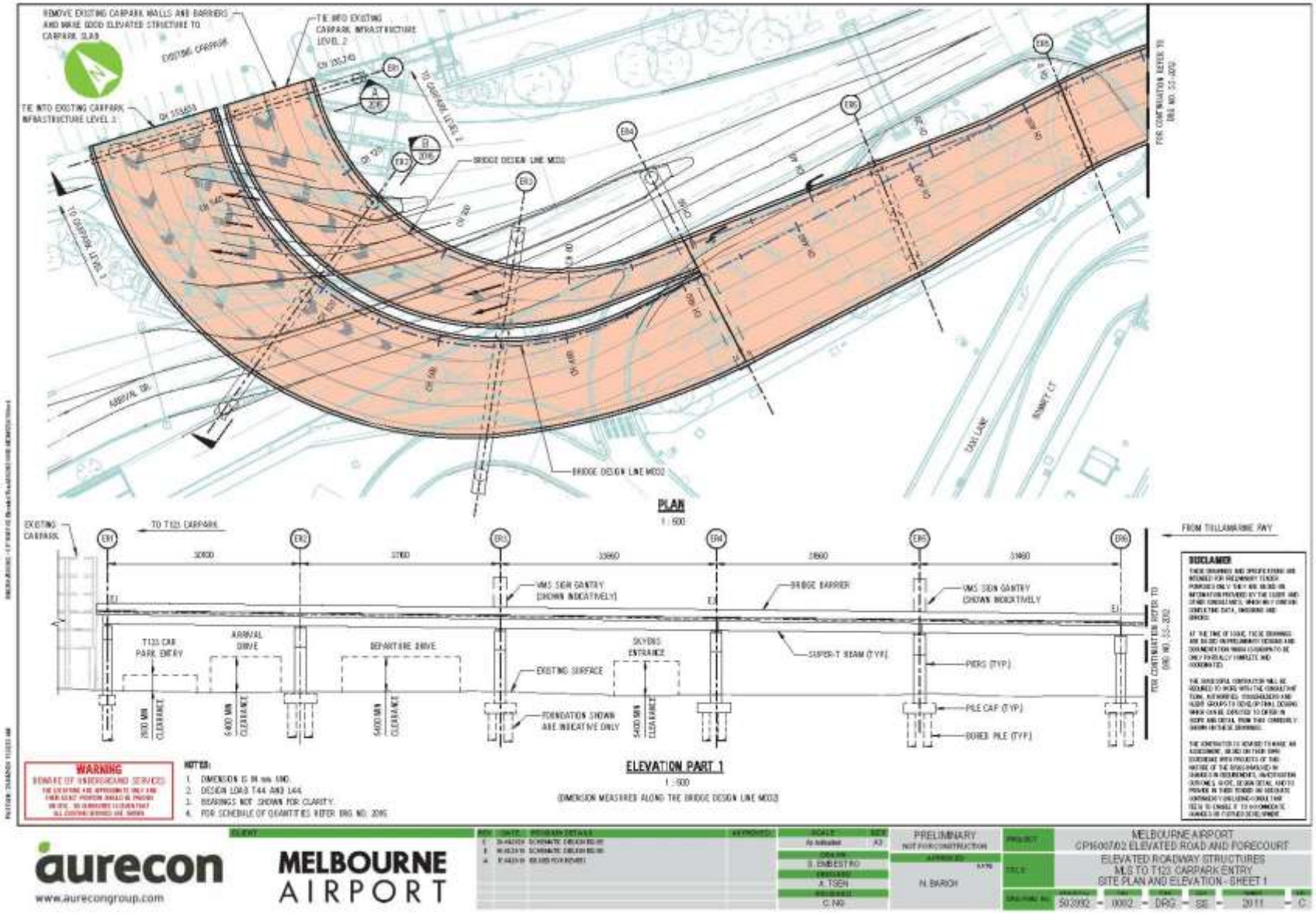
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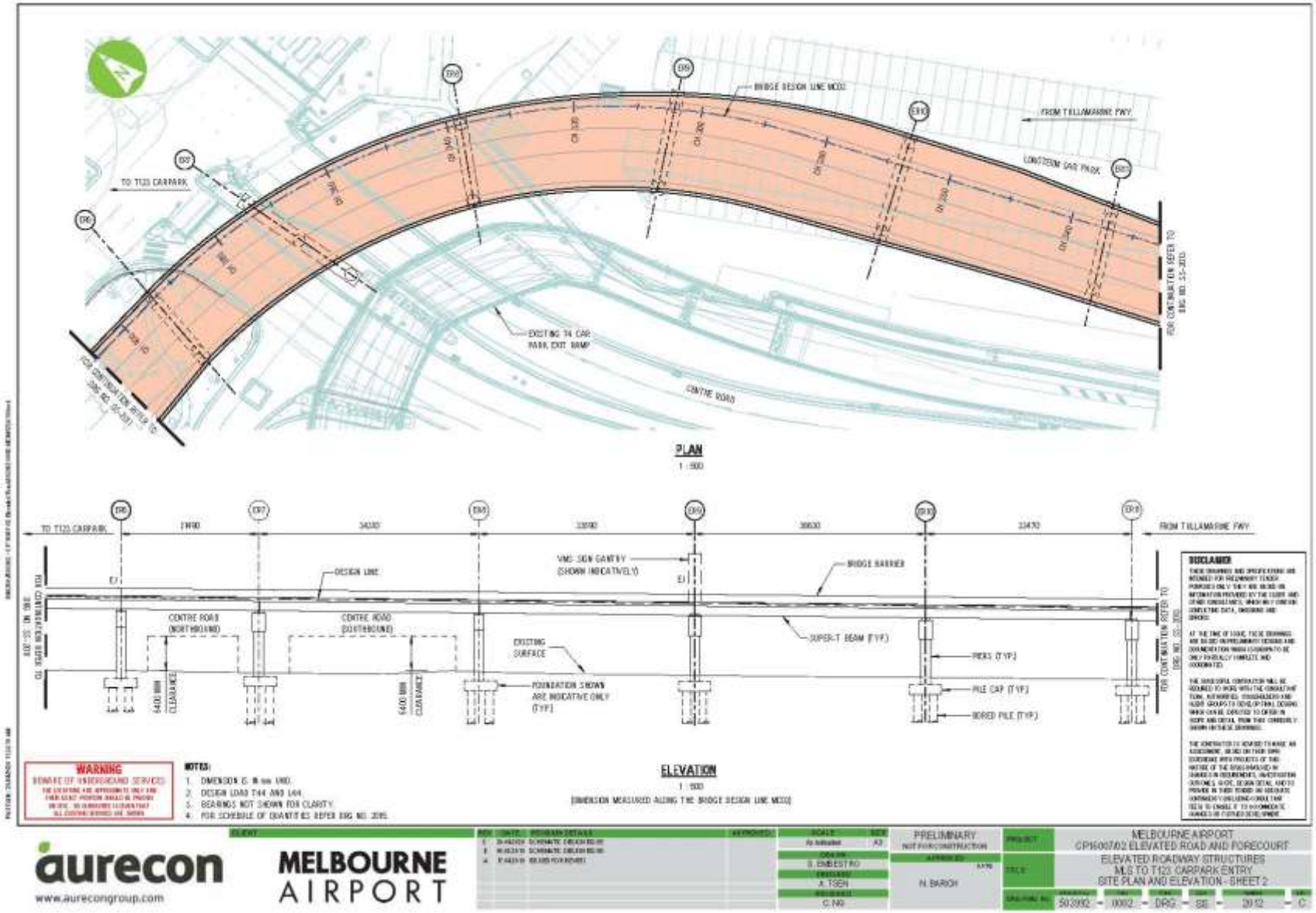
TIE INTO EXISTING CARPARK INFRASTRUCTURE LEVEL 2
TIE INTO EXISTING CARPARK INFRASTRUCTURE LEVEL 3
EXISTING CARPARK
TO CARPARK LEVEL 2
TO CARPARK LEVEL 1
ARRIVAL DR
BRIDGE DESIGN LINE MD02
PLAN
1 : 500
EXISTING CARPARK
TO T1D1 CARPARK
FROM TULLAMARINE FWY
VMS SIGN GANTRY (SHOWN INDICATIVELY)
BRIDGE BARRIER
T1D1 CAR PARK ENTRY
ARRIVAL DRIVE
DEPARTURE DRIVE
SKYBUS ENTRANCE
EXISTING SURFACE
FOUNDATION SHOWN ARE INDICATIVE ONLY
SUPER-T BEAM (TYP)
PIERS (TYP)
PILE CAP (TYP)
BORED PILE (TYP)
1800 MIN CLEARANCE
5400 MIN CLEARANCE
WARNING
BEWARE OF UNDERGROUND SERVICES
NOTES:
1. DIMENSION IS IN mm UNO.
2. DESIGN LOAD T44 AND L44.
3. BEARINGS NOT SHOWN FOR CLARITY.
4. FOR SCHEDULE OF QUANTITIES REFER DRG NO. 2016
ELEVATION PART 1
1 : 500
(DIMENSION MEASURED ALONG THE BRIDGE DESIGN LINE MD02)
DISCLAIMER
aurecon
www.aurecongroup.com
MELBOURNE AIRPORT
PRELIMINARY
NOT FOR CONSTRUCTION
S. EMBESTRO
A. TSEN
N. BARGH
C. NG
MELBOURNE AIRPORT
CP1600702 ELEVATED ROAD AND FORECOURT
ELEVATED ROADWAY STRUCTURES
M.L.S TO T1D1 CARPARK ENTRY
SITE PLAN AND ELEVATION - SHEET 1
503992 - 0002 - DRG - SE - 2011 - C


PLAN
1 : 500
TO T123 CARPARK
FROM TULLAMARINE FWY
LONGTERM CAR PARK
EXISTING T4 CAR PARK EXIT RAMP
CENTRE ROAD
ELEVATION
1 : 500
[DIMENSION MEASURED ALONG THE BRIDGE DESIGN LINE MCG]
DESIGN LINE
VMS SIGN GANTRY (SHOWN INDICATIVELY)
BRIDGE BARRIER
CENTRE ROAD (NORTHBOUND)
CENTRE ROAD (SOUTHBOUND)
EXISTING SURFACE
FOUNDATION SHOWN ARE INDICATIVE ONLY (TYP.)
SUPER-T BEAM (TYP.)
PIERS (TYP.)
PILE CAP (TYP.)
BORED PILE (TYP.)
6400 MIN CLEARANCE
WARNING
BOARDS OF UNDERGROUND SERVICES
NOTES:
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2. DESIGN LOAD T44 AND L44.
3. BEARINGS NOT SHOWN FOR CLARITY.
4. FOR SCHEDULE OF QUANTITIES REFER DRG NO. 2015.
DISCLAIMER
PRELIMINARY
NOT FOR CONSTRUCTION
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MELBOURNE AIRPORT
MELBOURNE AIRPORT
CP1600702 ELEVATED ROAD AND FORECOURT
ELEVATED ROADWAY STRUCTURES
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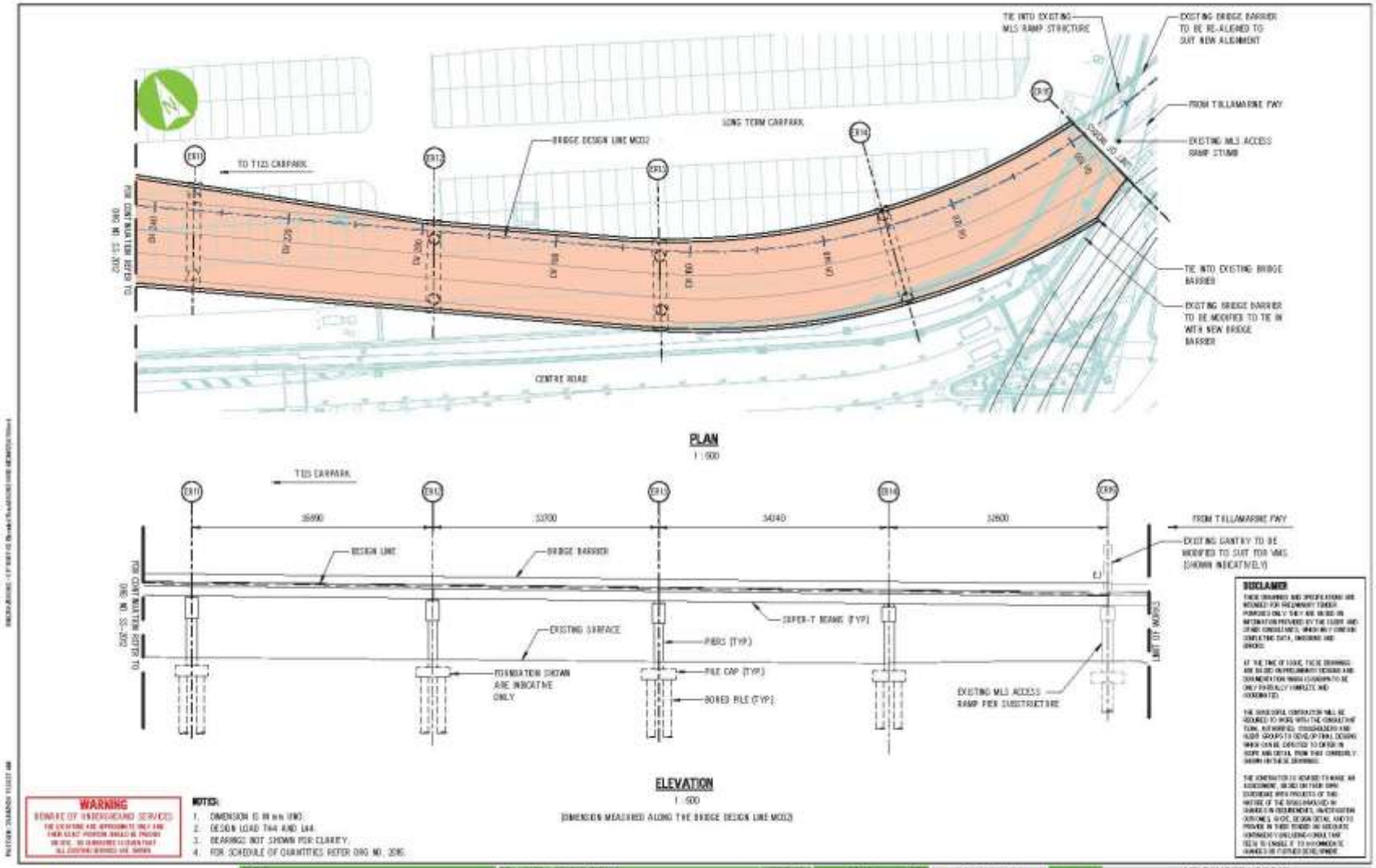
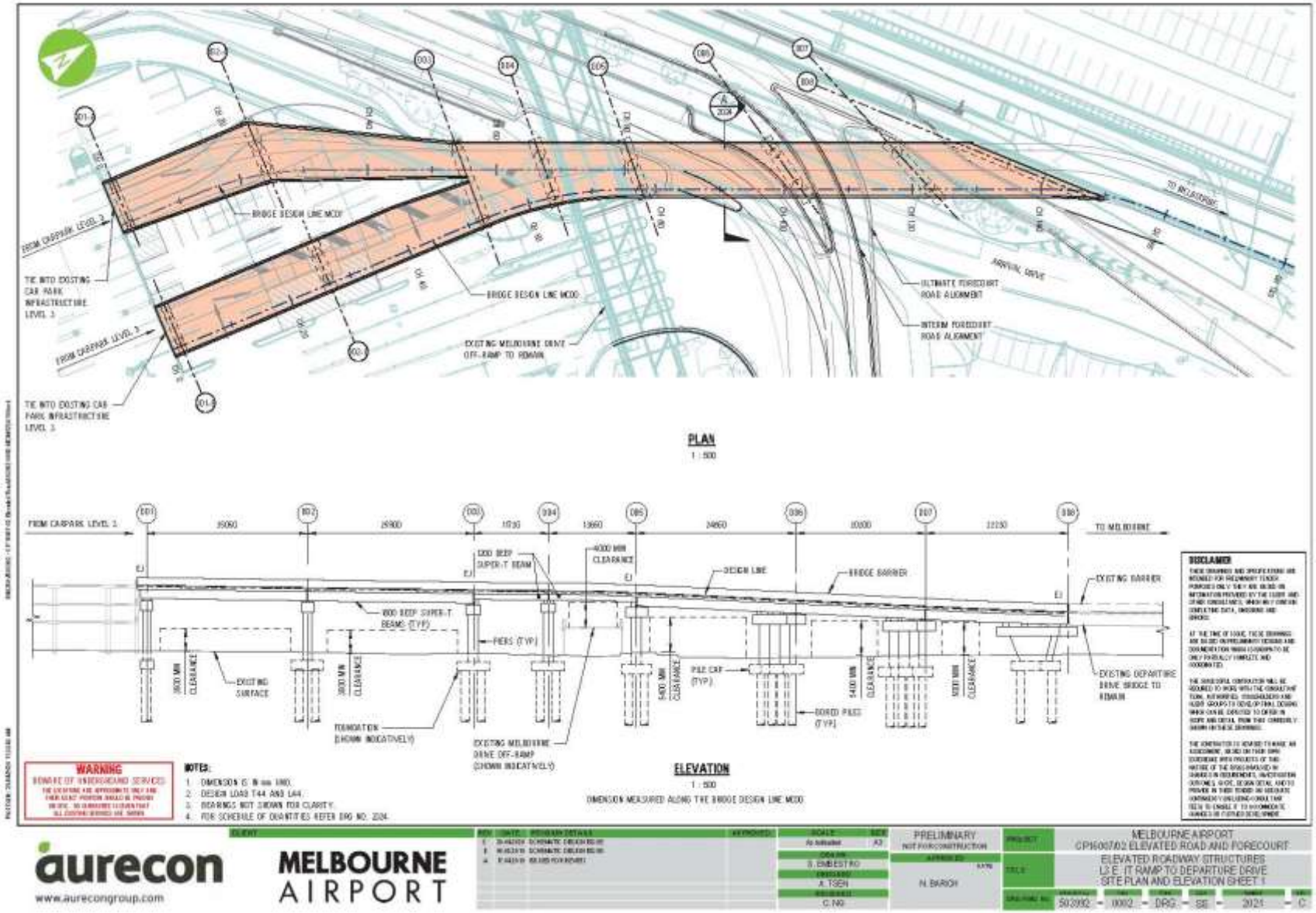
SITE PLAN AND ELEVATION - SHEET 2
S. EMBESTRO
A. TSEN
C. NG
N. BARGH


TIE INTO EXISTING MLS RAMP STRUCTURE
EXISTING BRIDGE BARRIER TO BE RE-ALIGNED TO SUIT NEW ALIGNMENT
FROM TULLAMARINE FWY
EXISTING MLS ACCESS RAMP STUMB
LONG TERM CARPARK
BRIDGE DESIGN LINE MC02
TO T123 CARPARK
EX11
EX12
EX13
EX14
EX15
EXPAND 30 JOINT
TIE INTO EXISTING BRIDGE BARRIER
EXISTING BRIDGE BARRIER TO BE MODIFIED TO TIE IN WITH NEW BRIDGE BARRIER
CENTRE ROAD
PLAN
1 : 500
T123 CARPARK
35800
33700
34040
32600
FROM TULLAMARINE FWY
EXISTING GANTRY TO BE MODIFIED TO SUIT FOR VMS SIGNAGE INDICATIVELY
DESIGN LINE
BRIDGE BARRIER
EJ
SUPER-T BEAMS (TYP)
EXISTING SURFACE
PIERS (TYP)
FOUNDATION SHOWN ARE INDICATIVE ONLY
PILE CAP (TYP)
BORED PILE (TYP)
EXISTING MLS ACCESS RAMP PIER SUBSTRUCTURE
LIMIT OF WORKS
ELEVATION
1 : 500
(DIMENSION MEASURED ALONG THE BRIDGE DESIGN LINE MC02)
WARNING
BEWARE OF UNDERGROUND SERVICES
NOTES:
1. DIMENSION IS IN m.m UNO.
2. DESIGN LOAD T44 AND L44.
3. BEARINGS NOT SHOWN FOR CLARITY.
4. FOR SCHEDULE OF QUANTITIES REFER DRG NO. 2015.
DISCLAIMER
PRELIMINARY
NOT FOR CONSTRUCTION
A1
S. EMBESTRO
A. TSEN
N. BARGH
C. NG
MELBOURNE AIRPORT
CP1600702 ELEVATED ROAD AND FORECOURT
ELEVATED ROADWAY STRUCTURES
MLS TO T123 CARPARK ENTRY
SITE PLAN AND ELEVATION - SHEET 3
503992 - 0002 - DRG - SE - 2013 - C
aurecon
www.aurecongroup.com
MELBOURNE AIRPORT


PLAN
1 : 500
FROM CARPARK LEVEL 3
TIE INTO EXISTING CAR PARK INFRASTRUCTURE LEVEL 3
BRIDGE DESIGN LINE MOD
EXISTING MELBOURNE DRIVE OFF-RAMP TO REMAIN
ULTIMATE FORECOURT ROAD ALIGNMENT
INTERIM FORECOURT ROAD ALIGNMENT
ARRIVAL DRIVE
TO MELBOURNE
ELEVATION
1 : 500
DIMENSION MEASURED ALONG THE BRIDGE DESIGN LINE MOD
FROM CARPARK LEVEL 3
TO MELBOURNE
DESIGN LINE
BRIDGE BARRIER
EXISTING BARRIER
EXISTING SURFACE
FOUNDATION (SHOWN INDICATIVELY)
PILES (TYP.)
PILE CAP (TYP.)
BORED PILES (TYP.)
EXISTING DEPARTURE DRIVE BRIDGE TO REMAIN
EXISTING MELBOURNE DRIVE OFF-RAMP (SHOWN INDICATIVELY)
WARNING
BEWARE OF UNDERGROUND SERVICES
NOTES:
1. DIMENSIONS IS IN mm UNO.
2. DESIGN LOAD T44 AND L44.
3. BEARINGS NOT SHOWN FOR CLARITY.
4. FOR SCHEDULE OF QUANTITIES REFER DRG NO. 2024.
DISCLAIMER
PRELIMINARY
NOT FOR CONSTRUCTION
MELBOURNE AIRPORT
CP1600702 ELEVATED ROAD AND FORECOURT
ELEVATED ROADWAY STRUCTURES
L2 E - IT RAMP TO DEPARTURE DRIVE
- SITE PLAN AND ELEVATION SHEET 1
S. EMBESTRO
A. TSEN
N. BARICH
C. NG
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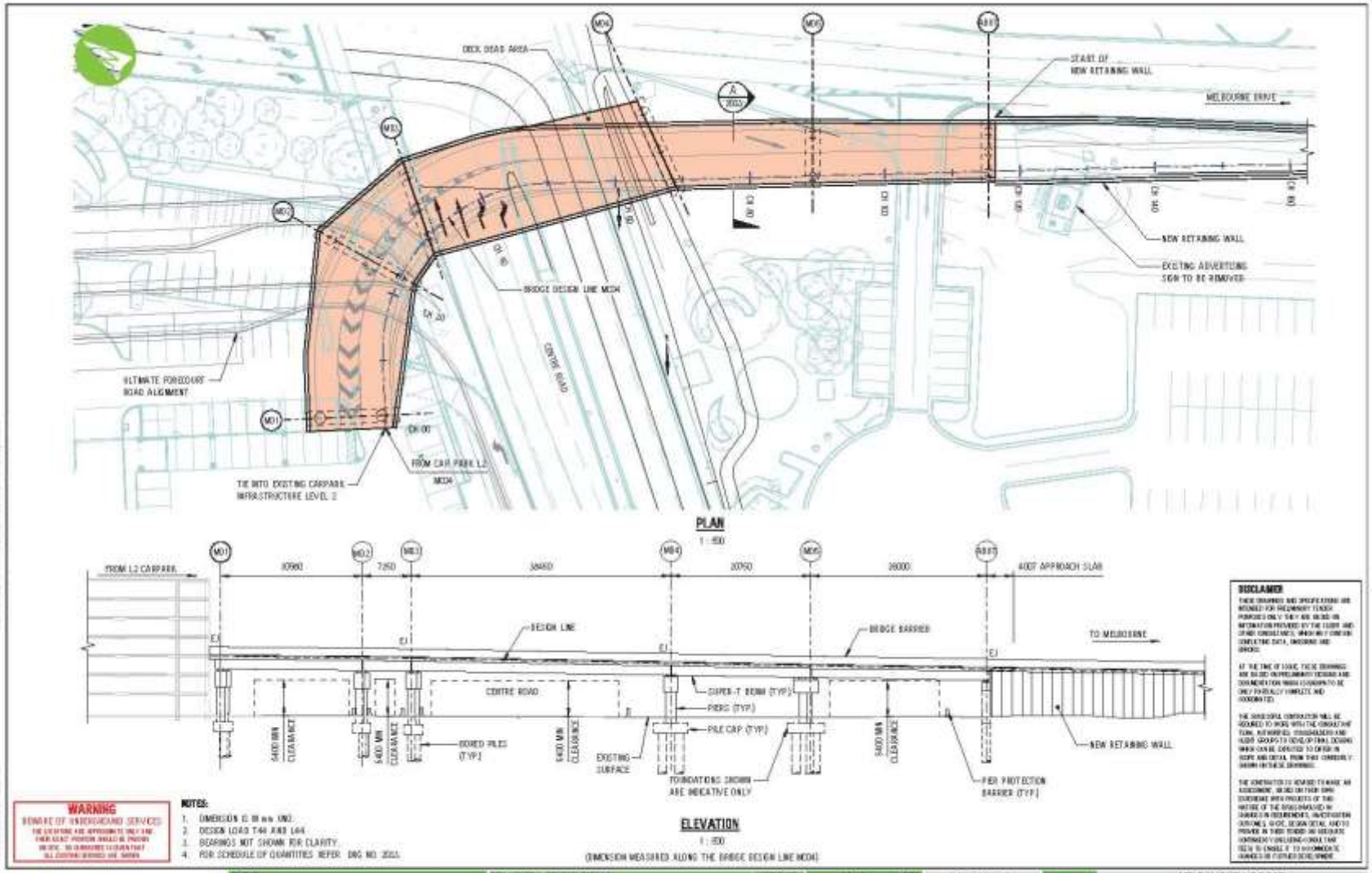
DECK EDGE AREA
START OF NEW RETAINING WALL
MELBOURNE DRIVE
NEW RETAINING WALL
EXISTING ADVERTISING SIGN TO BE REMOVED
BRIDGE DESIGN LINE MD04
CENTRE ROAD
ULTIMATE FORECOURT ROAD ALIGNMENT
TIE INTO EXISTING CARPARK INFRASTRUCTURE LEVEL 2
FROM CAR PARK L2
MD04
PLAN
1 : 400
FROM L2 CARPARK
10960
7250
38460
20750
38000
400T APPROACH SLAB
DESIGN LINE
BRIDGE BARRIER
TO MELBOURNE
CENTRE ROAD
SUPER-T BEAM (TYP.)
PIERS (TYP.)
PILE CAP (TYP.)
BORED PILES (TYP.)
EXISTING SURFACE
FOUNDATIONS SHOWN ARE INDICATIVE ONLY
NEW RETAINING WALL
PIER PROTECTION BARRIER (TYP.)
9400 MIN CLEARANCE
ELEVATION
1 : 400
(DIMENSION MEASURED ALONG THE BRIDGE DESIGN LINE MD04)
DISCLAIMER
WARNING
BOWAE OF UNDERGROUND SERVICES
NOTES:
1. DIMENSION IS IN mm UNO.
2. DESIGN LOAD T44 AND L44.
3. BEARINGS NOT SHOWN FOR CLARITY.
4. FOR SCHEDULE OF QUANTITIES REFER DRG NO. 2001.
PRELIMINARY
NOT FOR CONSTRUCTION
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A. TSEN
N. BARGH
C. NG
MELBOURNE AIRPORT
CP1600702 ELEVATED ROAD AND FORECOURT
ELEVATED ROADWAY STRUCTURES
L2 E IT RAMP TO MELBOURNE DRIVE
SITE PLAN AND ELEVATION - SHEET 1
503992 - 0002 - DRG - SE - 2021 - C
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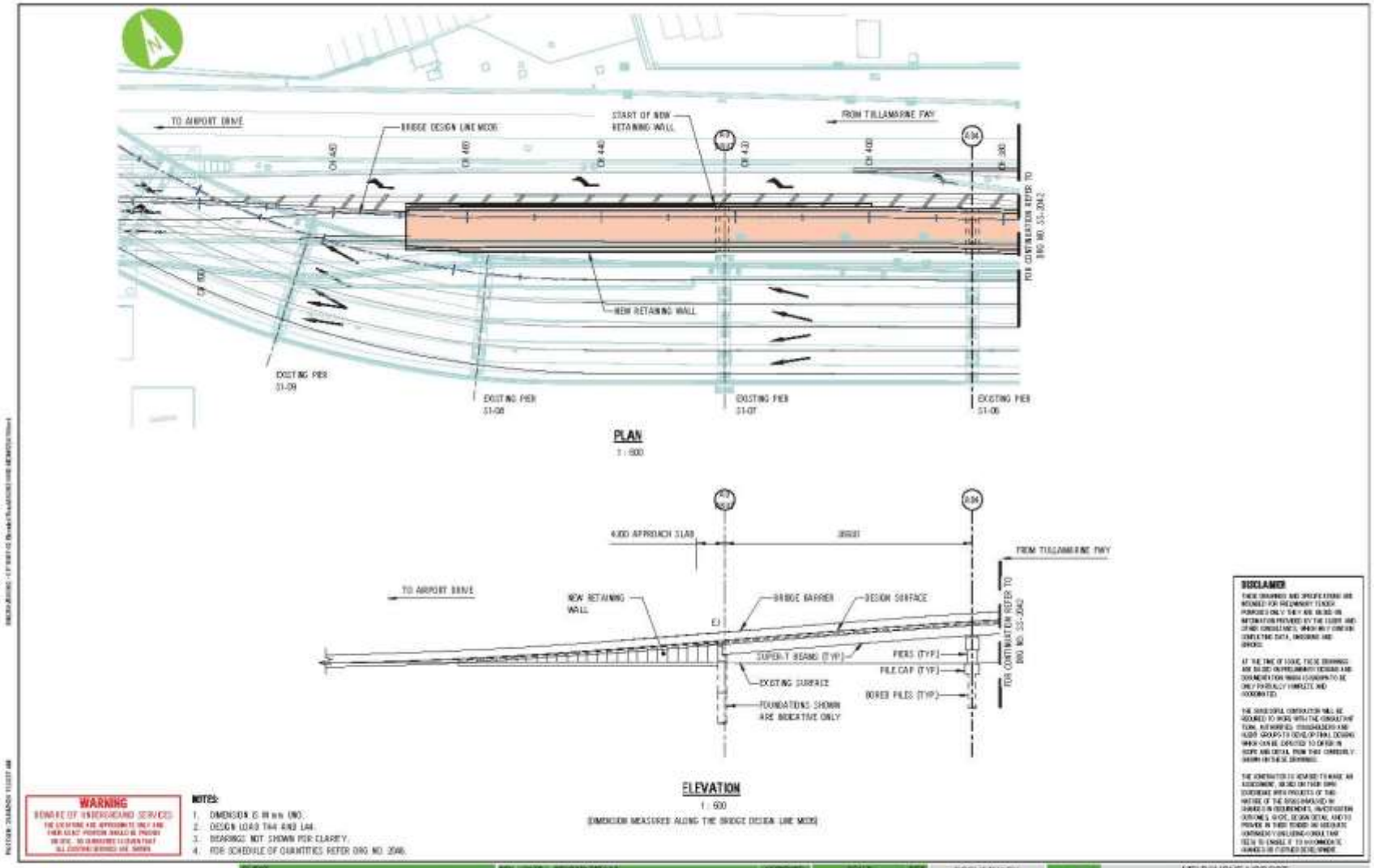
TO AIRPORT DRIVE
BRIDGE DESIGN LINE MODS
START OF NEW RETAINING WALL
FROM TULLAMARINE FWY
CH 450
CH 440
CH 430
CH 420
CH 400
CH 380
FOR CONTINUATION REFER TO DRG NO. 55-2042
NEW RETAINING WALL
EXISTING PIER S1-09
EXISTING PIER S1-08
EXISTING PIER S1-07
EXISTING PIER S1-06
PLAN
1 : 500
4.000 APPROACH SLAB
TO AIRPORT DRIVE
NEW RETAINING WALL
EJ
BRIDGE BARRIER
DESIGN SURFACE
SUPER-T BEAMS (TYP.)
PIERS (TYP.)
PILE CAP (TYP.)
EXISTING SURFACE
BORED PILES (TYP.)
FOUNDATIONS SHOWN ARE INDICATIVE ONLY
FROM TULLAMARINE FWY
FOR CONTINUATION REFER TO DRG NO. 55-2042
ELEVATION
1 : 500
(DIMENSION MEASURES ALONG THE BRIDGE DESIGN LINE MODS)
WARNING
BEWARE OF UNDERGROUND SERVICES
NOTES:
1. DIMENSION IS IN m.m UNO.
2. DESIGN LOAD T44 AND L44.
3. BEARINGS NOT SHOWN FOR CLARITY.
4. FOR SCHEDULE OF QUANTITIES REFER DRG NO. 2046.
DISCLAIMER
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MELBOURNE AIRPORT
PRELIMINARY
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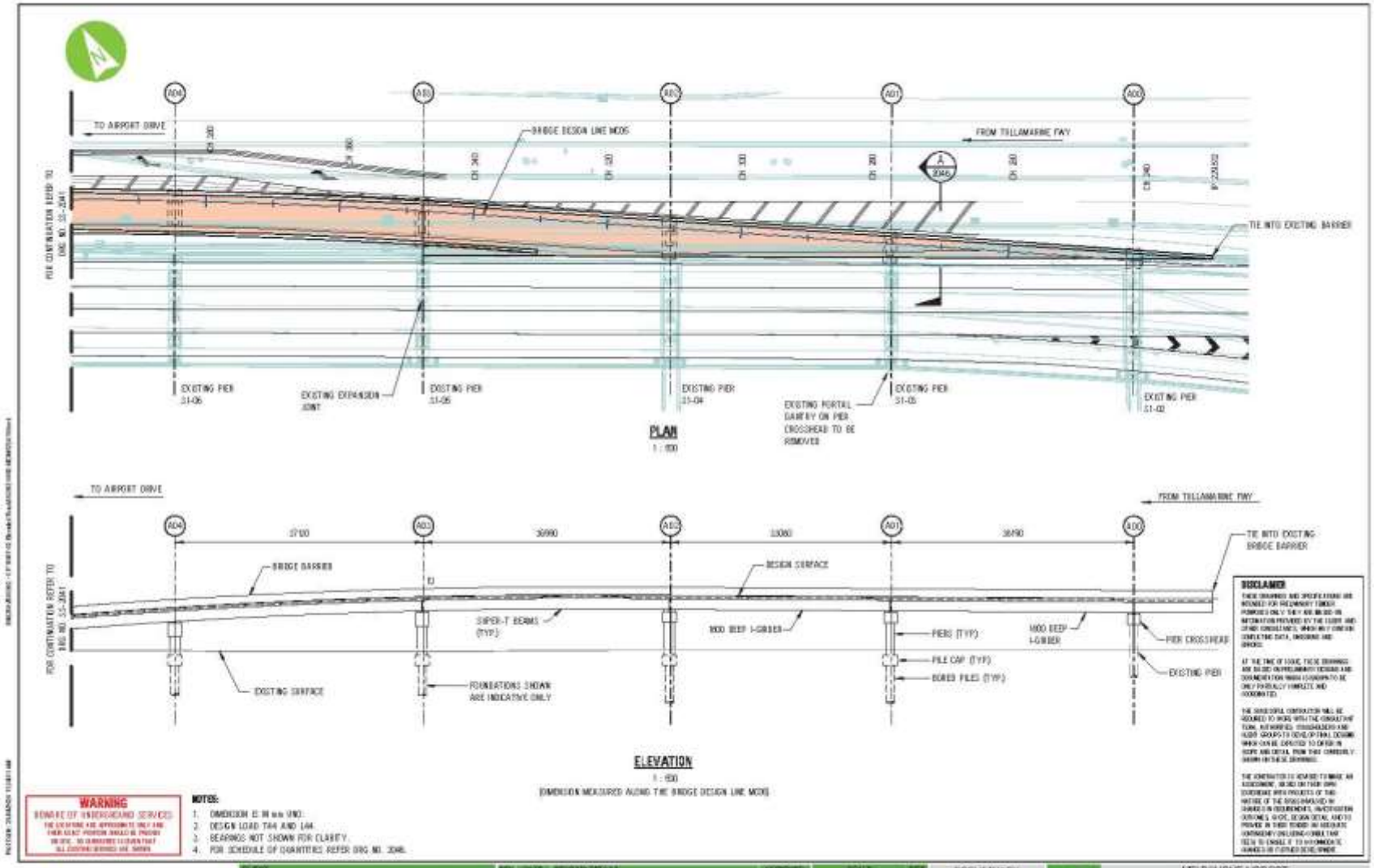
A. TSEN
N. BARGH
C. NG
MELBOURNE AIRPORT
CP1600702 ELEVATED ROAD AND FORECOURT
ELEVATED ROADWAY STRUCTURES
MLS OFF-RAMP TO AIRPORT DRIVE
SITE PLAN AND ELEVATION - SHEET 2
503992 - 0002 - DRG - SE - 2041 - C


TO AIRPORT DRIVE
FROM TULLAMARINE FWY
BRIDGE DESIGN LINE MODS
TIE INTO EXISTING BARRIER
EXISTING PIER S1-06
EXISTING EXPANSION JOINT
EXISTING PIER S1-05
EXISTING PIER S1-04
EXISTING PORTAL GANTRY ON PIER CROSSHEAD TO BE REMOVED
EXISTING PIER S1-03
EXISTING PIER S1-02
PLAN
1 : 500
TO AIRPORT DRIVE
FROM TULLAMARINE FWY
BRIDGE BARRIER
DESIGN SURFACE
SUPER-T BEAMS (TYP.)
1800 DEEP I-GIRDER
PIERS (TYP.)
1800 DEEP I-GIRDER
PIER CROSSHEAD
TIE INTO EXISTING BRIDGE BARRIER
PILE CAP (TYP.)
BORED PILES (TYP.)
EXISTING PIER
EXISTING SURFACE
FOUNDATIONS SHOWN ARE INDICATIVE ONLY
ELEVATION
1 : 500
(DIMENSION MEASURED ALONG THE BRIDGE DESIGN LINE MODS)
DISCLAIMER
WARNING
BEWARE OF UNDERGROUND SERVICES
NOTES:
1. DIMENSION IS IN mm UNO.
2. DESIGN LOAD T44 AND L44.
3. BEARINGS NOT SHOWN FOR CLARITY.
4. FOR SCHEDULE OF QUANTITIES REFER DRG NO. 3046.
PRELIMINARY
NOT FOR CONSTRUCTION
MELBOURNE AIRPORT
CP1600702 ELEVATED ROAD AND FORECOURT
ELEVATED ROADWAY STRUCTURES
MLS OFF-RAMP TO AIRPORT DRIVE
SITE PLAN AND ELEVATION SHEET 1
503992 - 0002 - DRG - SS - 3042 - C
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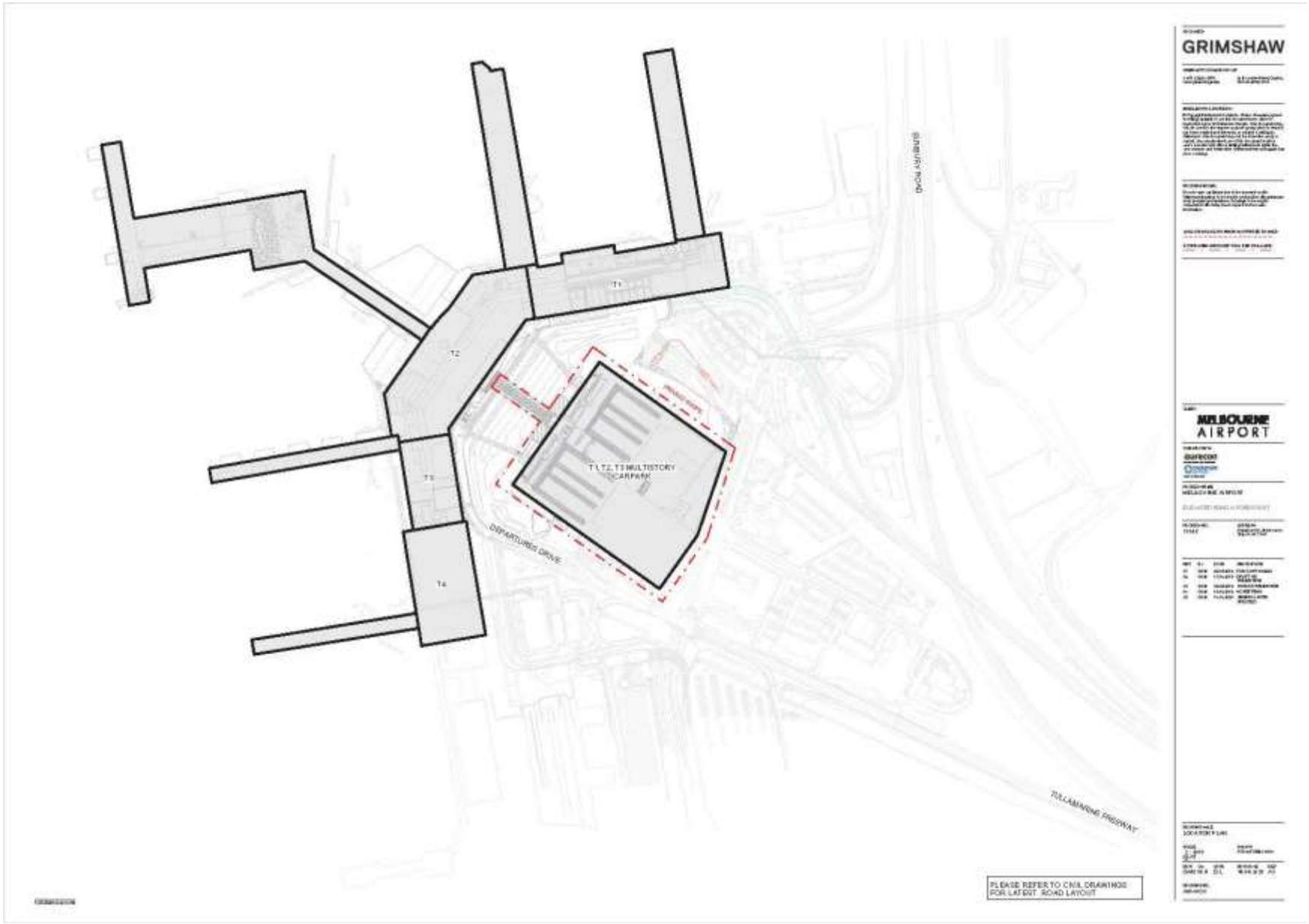
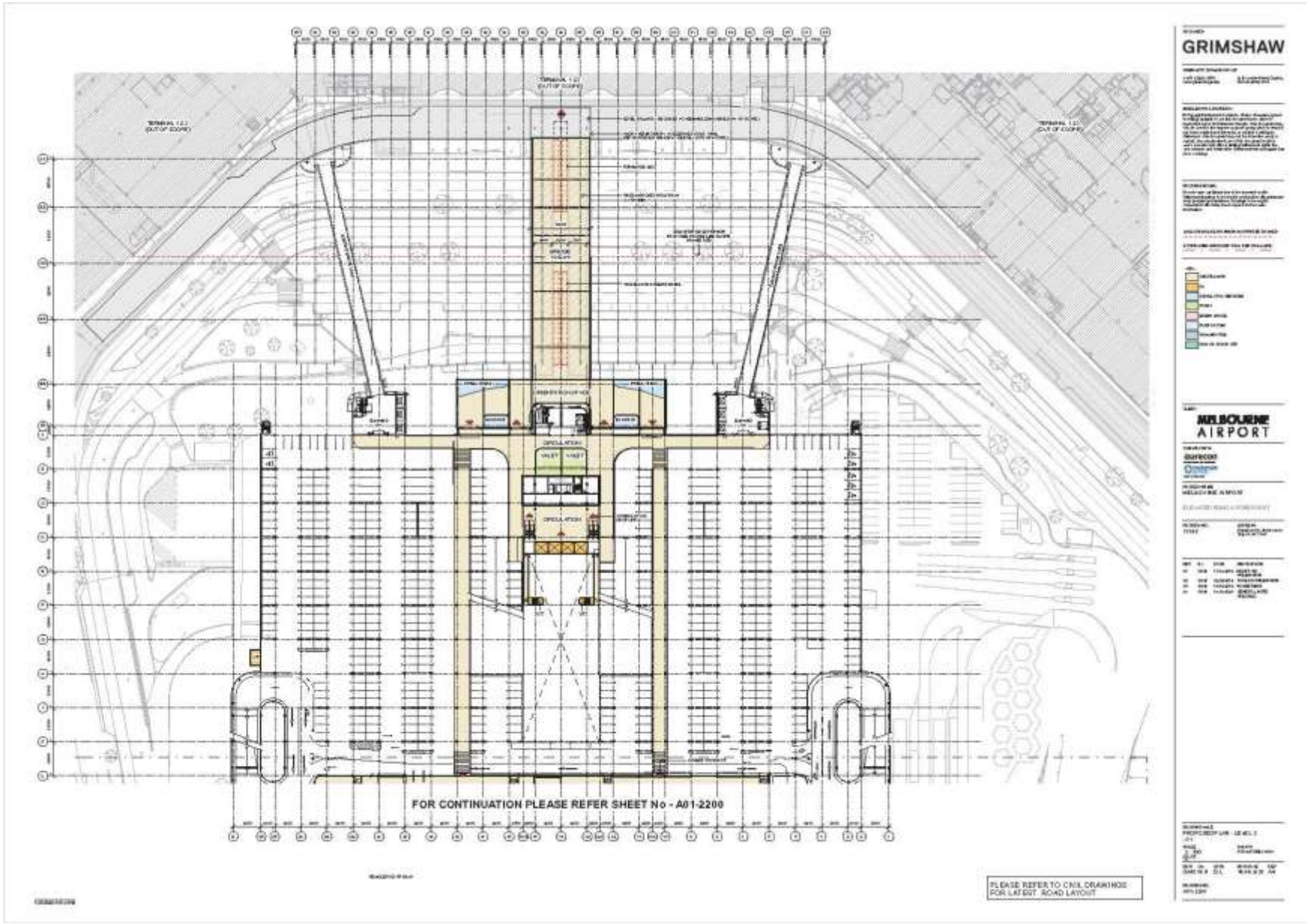
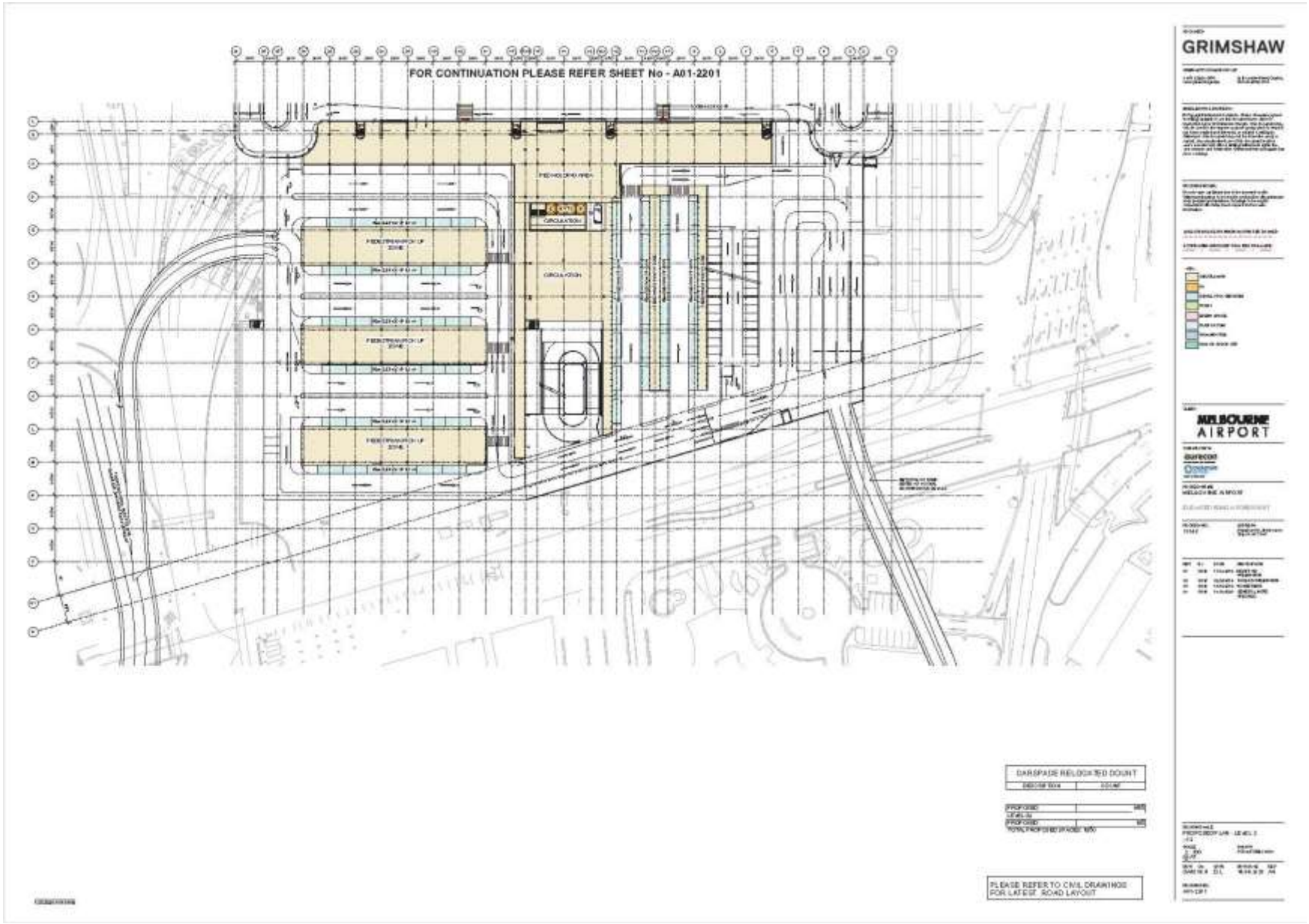
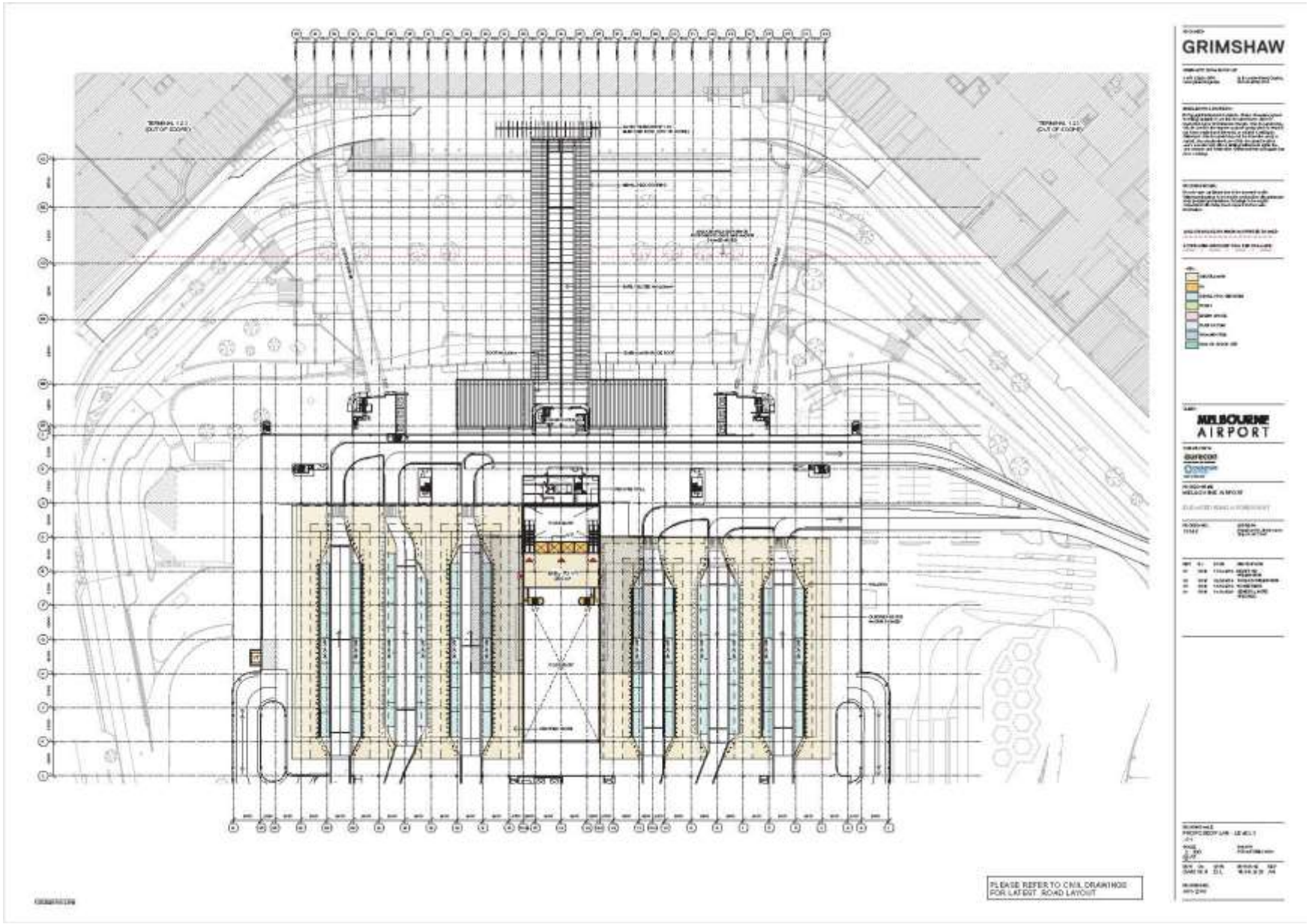
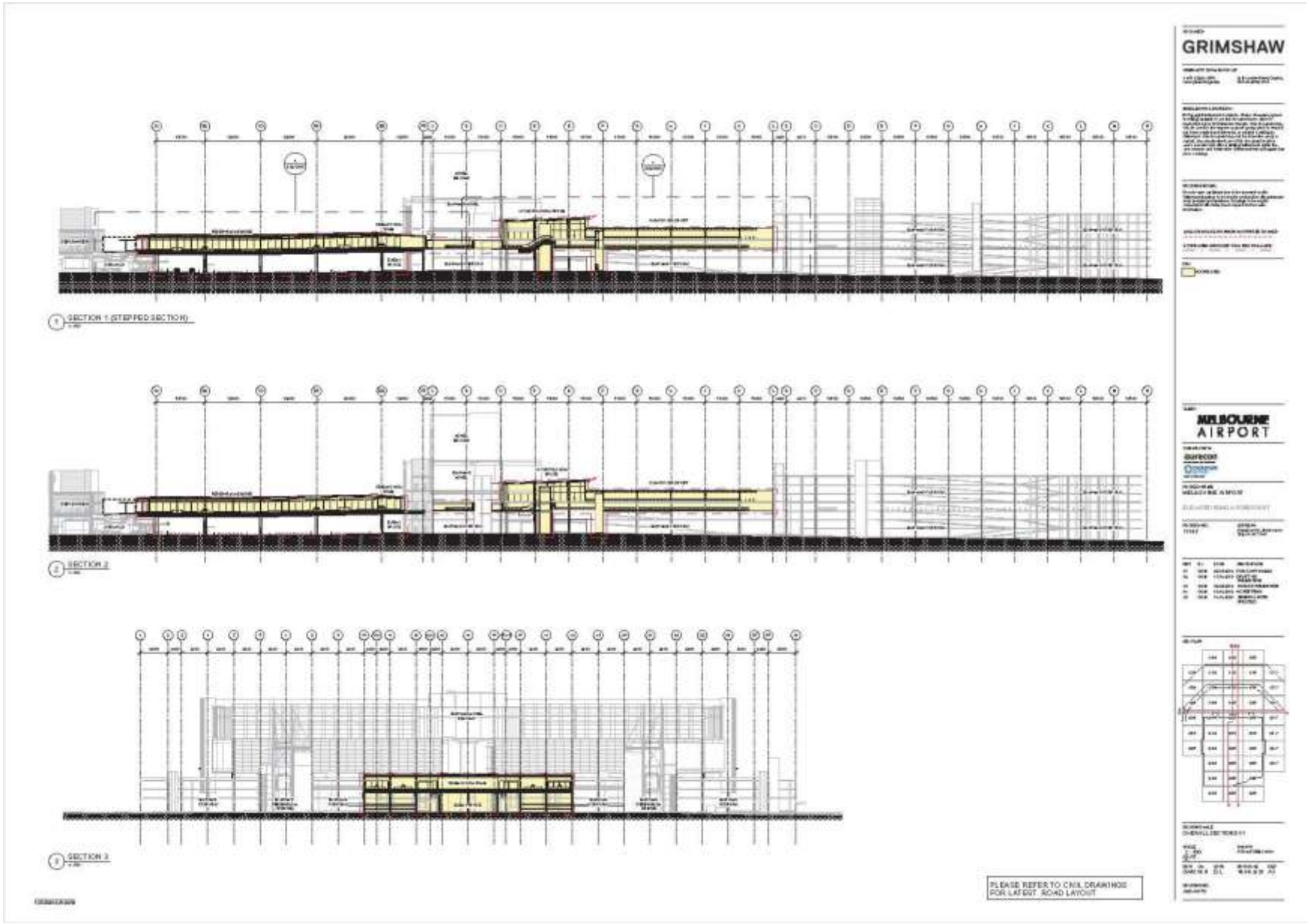
MELBOURNE AIRPORT

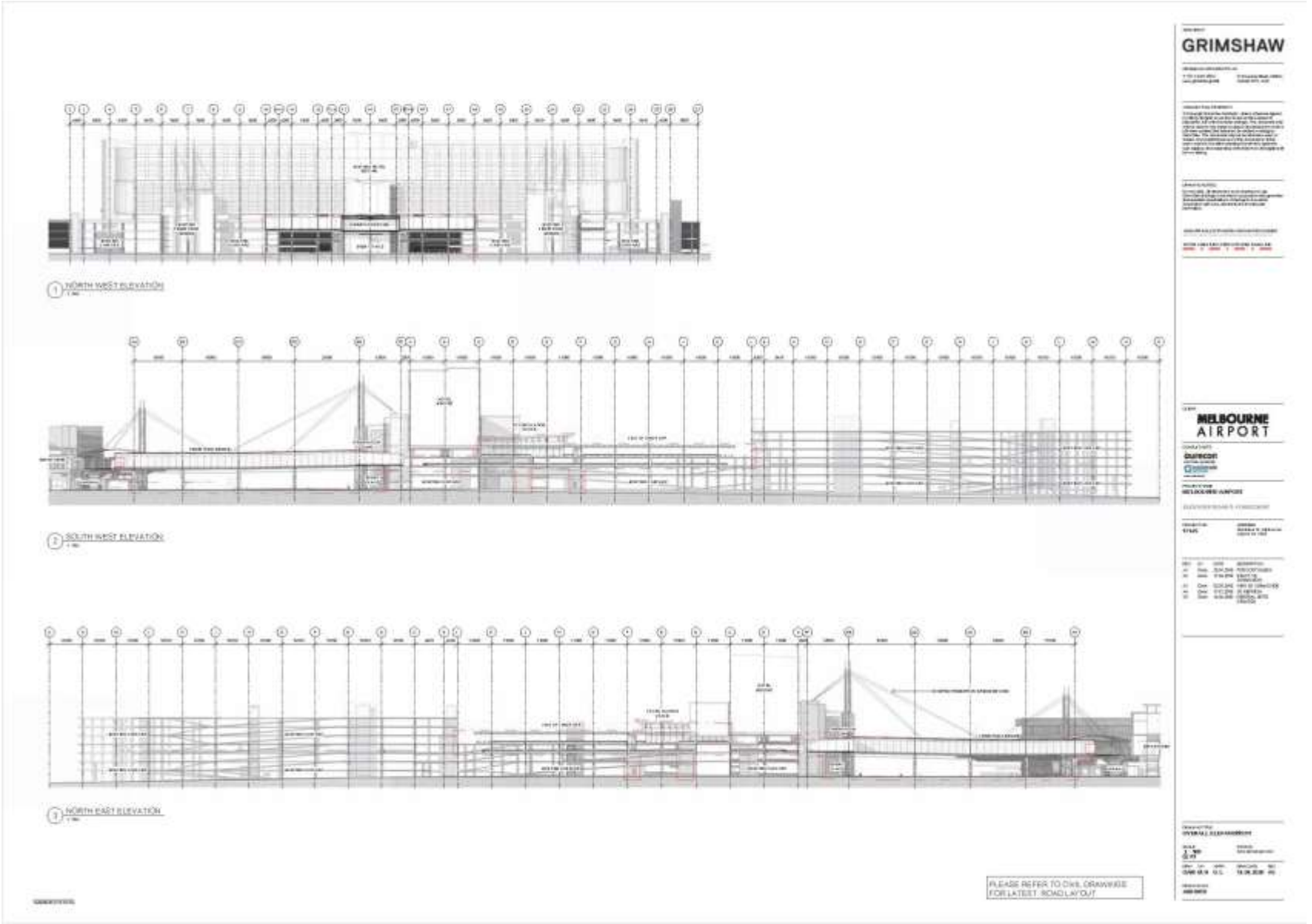

T1
T2
T3
T4
T1,T2,T3 MULTISTOREY CARPARK
DEPARTURES DRIVE
TULLAMARINE FREEWAY
PLEASE REFER TO CIVIL DRAWINGS FOR LATEST ROAD LAYOUT
GRIMSHAW
MELBOURNE AIRPORT


GRIMSHAW
FOR CONTINUATION PLEASE REFER SHEET No - A01-2200
PLEASE REFER TO CIVIL DRAWINGS FOR LATEST ROAD LAYOUT


FOR CONTINUATION PLEASE REFER SHEET No - A01-2201
GRIMSHAW
MELBOURNE AIRPORT
PLEASE REFER TO CIVIL DRAWINGS FOR LATEST ROAD LAYOUT


GRIMSHAW
PLEASE REFER TO CIVIL DRAWINGS FOR LATEST ROAD LAYOUT


GRIMSHAW
MELBOURNE AIRPORT
SECTION 1 (STEPPED SECTION)
SECTION 2
SECTION 3
PLEASE REFER TO CIVIL DRAWINGS FOR LATEST ROAD LAYOUT


GRIMSHAW
MELBOURNE AIRPORT
1 NORTH WEST ELEVATION
2 SOUTH WEST ELEVATION
3 NORTH EAST ELEVATION
PLEASE REFER TO CIVIL DRAWINGS FOR LATEST ROAD LAYOUT