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16 September 2022

P2430 EJE Astro Aerolab Lot 109

EJE
412 King Street
Newcastle NSW 2300

Attn: Kathy Gresham

Dear Kathy

Proposed Industrial Development, Proposed Lot 109 Aerospace Avenue, Willamtown, NSW.

Further to our meeting and your email and following our site visit and review of the documentation provided for the proposed new Industrial Building development at Lot 109 Aerospace Avenue, Williamtown we provide the following traffic impact statement. This assessment has been prepared taking into consideration the Austroads Guidelines and Section 2.3 of the Guide to Traffic Generating Developments (GtTGD) which provides the structure for the reporting of key issues to be addressed when determining the impacts of traffic associated with a development. This guide indicates that the use of this format and checklist ensures that the most significant matters are considered by the relevant road authority.

The subject site is located within the Astro Aerolab Precinct (the Precinct) as shown in **Figure 1**. It consists of a single vacant lot which forms part of the initial stage of the approved industrial estate in this location.

When preparing this report, the focus has been on the internal parking and access requirements for the project which is a Traffic Generating Development in accordance with Schedule 3 of the Transport and Infrastructure SEPP. Whilst the current operation of the road network has been considered, detailed assessments and modelling for the project has been undertaken as part of the masterplan approval for the Precinct, first approved in January 2011 and recently modified in March 2022, and so has not been replicated for this assessment.

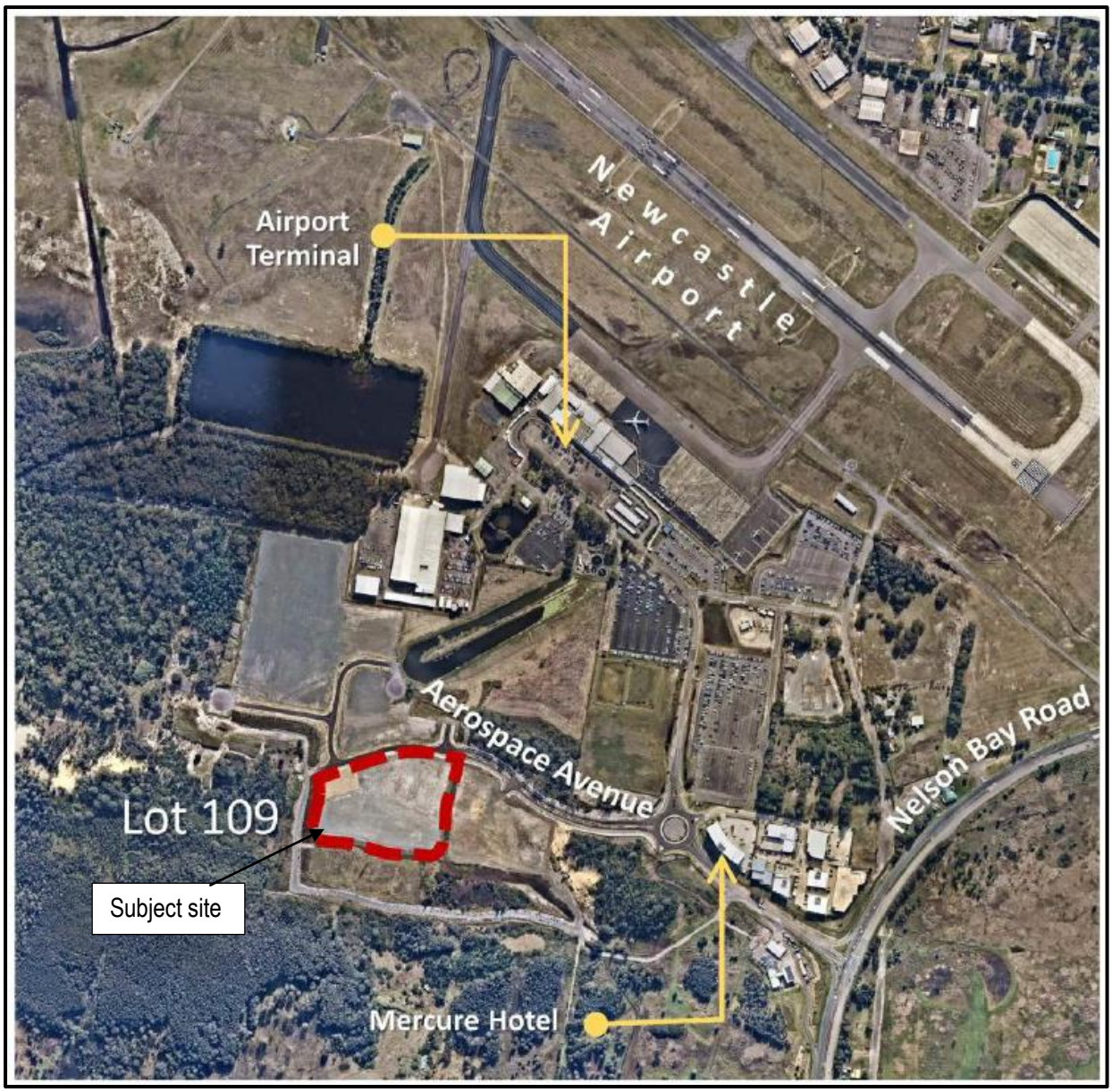


Figure 1 - Project area within the context of the local road network (Source: EJE)

Traffic Impact Assessment:

Item	Comment
Existing Situation	
2.1.1 Site Location and Access	The subject site is located at Proposed Lot 109 Aerospace Avenue in Lot 11, DP1036501 within the Astra Aerolab Precinct. The site is newly developed and so is vacant with no formal access points to the subdivision road.
2.2.1 Road Hierarchy	The major road through the locality is **Nelson Bay Road** which in the vicinity of the site provides a dual lane divided carriageway comprising two through lanes in each direction separated by a central median. Nelson Bay Road provides the major road between Newcastle and Nelson Bay via Williamtown. **Williamtown Drive** provides a single lane of travel in each direction with widening where appropriate to allow for turn movements at various intersections. It is the road accessing the Newcastle Airport terminal and provides access to the Astro Aerolab subdivision and other commercial/industrial elements within the airport precinct. Footpaths are intermittent along the roadway deviating into various carparks associated with the airport. Williamtown Drive connects with Nelson Bay Road at a three way signalised intersection with non-signalised left turn slip lanes to and from Nelson Bay Road. **Aerospace Avenue** provides the Astro Aerolab Precinct with its main access being a spine road with a generally east west orientation. It has been designed with a 26.2m road reserve with 3.0m median, 6.0m travel lanes, 1.5 - 2.5m footpath and 2.5m shared path. It provides a single lane of travel in both directions and does not allow for kerb side parking along its length. Aerospace Avenue connects to Williamtown Drive at a five leg roundabout providing a gateway to the precinct. Some legs of this have not yet been developed.
2.2.2 Roadworks	Roadworks have been undertaken in the vicinity of the site including at the intersection of Nelson Bay Road and Medowie Road (completed 2019). Plans for the duplication of the road between Cabbage Tree Road and Bobs Farm have been announced with a preferred route nominated. Early works in the vicinity of Salt Ash are being undertaken (2022). Within the Precinct the approved subdivision roads have been constructed for the early stage with these to be extended as required. The approval for the Astro Aerolab Precinct identified external road upgrades staged in association with the ongoing development of the site. These allowed for additional turn lanes at the Williamtown Drive/ Nelson Bay Road intersection and the provision of a roundabout to connect to Cabbage Tree Road.
2.2.4 Pedestrian and Cycling Facilities	Footpath and cycling facilities (2.5m shared pathway along the site frontage) have been provided within the site and adjacent road network.. There is minimal demand for pedestrians along Nelson Bay Road and no paths or cycling facilities are provided.
2.3 Traffic Flows	Traffic flows on Nelson Bay Road and Williamtown Drive have been documented and assessed as part of the approval for the Precinct.
2.3.1 Daily Traffic Flows	A review of the AADT data for Nelson Bay Road shows that mid-week daily flows peak on a Friday with Saturday and Sunday flows being much lower.

Item	Comment
2.3.2 AADT	AADT at the count station ID 05191 on Nelson Bay Road in 2016 showed two way flows of 24,933.
2.3.3 Daily Traffic Flow Distribution	The AADT data shows a slight bias in traffic northbound on Nelson Bay Road. Traffic flows on Williamtown Drive are expected to be evenly distributed across the day with peak flows coinciding with plane arrivals and departures and the start and finish of the working day in association with various businesses.
2.3.4 Vehicle Speeds	No speed surveys were completed as part of the study work. From on-site observations, it is considered that drivers typically drive within the posted speed limit due to the road alignment and various wayfinding associated with parking etc.
2.3.5 Existing Site Flows	The site is vacant and so does not generate traffic.
2.3.6 Heavy Vehicle Flows	Existing heavy vehicles movements are associated with deliveries to the airport and BAE.
2.3.7 Current Road Network Operation	The operation of the road network has been assessed as part of the Precinct approval. Observations on site indicate that the road network typically operates well with minimal delays. Peak demands typically occur in conjunction with plane arrivals.
2.4 Traffic Safety and Accident History	A review of crash data in the vicinity of the site and at the signalised intersection of Nelson Bay Road and Williamtown Drive (Attachment B) shows there have been six accidents in the past 5 years to 2020. Three have occurred at the t-intersection, 2 being rear end which are reflective of this road environment. The other two were on Williamtown Drive, one being at a driveway which resulted in a serious injury. Given the high volume of traffic at this location the crash data reflects generally low safety concerns with this intersection and roadway providing a high level of control.
2.5 Parking Supply and Demand	
2.5.1 On-street Parking Provision	No parking is permitted along Aerospace Avenue.
2.5.2 Off-street Parking Provision	Off-street parking is proposed to be incorporated into individual lots within the Precinct as well as in an at grade central carpark to allow for overflow parking, the subject of a separate DA.
2.5.3 Parking Demand and Utilisation	The Precinct is empty so doesn't generate parking demands. High parking demands associated with the airport are accommodated within a series of carparks to the north of the Precinct.
2.5.4 Set down or pick up areas	No set down or pick up areas noted in the locality of the site.
2.6 Public Transport	Bus services operate to the airport terminal which provides a terminus for various bus routes (Stop ID 2318152). Routes 130 (Airport to Newcastle,131 (Fingal Bay to Newcastle), 136 (Stockton to Raymond Terrace), 138 (Newcastle to Lemon Tree Passage) and 145 (Airport to Green Hills) all service this stop. Bus services also operate along Nelson Bay Road (Stop ID: 2318172 northbound and 2318150 southbound)
2.6.1 Rail Station Locations	The area is not serviced by trains with the nearest station at Hexham.
2.6.2 Bus Stops and Associated Facilities	Bus stops within the airport benefit from seating and are under cover. Stops on Nelson Bay Road are indented bays with no facilities.
2.6.3 Transport Services	In addition to bus services, taxis and ride sharing services are available within the airport. Car rental providers are also based within the vicinity.
2.7 Pedestrians Network	Pedestrian footpaths are provided within the business park.

<table>
<tr><th>Item</th><th>Comment</th></tr>
<tr><td>2.8 Other Proposed Developments</td><td>There is on-going development within the Precinct as well as in the industrial areas surrounding the airport and RAAF Base as well as south towards Tomago.</td></tr>
<tr><td colspan="2">The Development</td></tr>
<tr><td>3.1.1 Nature of Development</td><td>The proposal allows for four buildings to be built on Lot 109 allowing for a number of tenancies with workshop and office space. Lot109/4 is a data centre only without staffing except for occasional servicing.

<table>
<tr><th></th><th>Workshop/Office GFA</th><th>Total GFA inc foyer</th></tr>
<tr><td>Lot 109/1</td><td>2,985m^2</td><td>3,211m^2</td></tr>
<tr><td>Lot 109/2</td><td>3,552m^2</td><td>3,652m^2</td></tr>
<tr><td>Lot 109/3</td><td>4,263m^2</td><td>4,263m^2</td></tr>
<tr><td>Lot 109/4</td><td></td><td>1,068m^2</td></tr>
</table></td></tr>
<tr><td>3.1.2 Access and Circulation Requirements</td><td>All access is to be provided in accordance with Council DCP and AS2890.1 and AS2890.2 for access on a minor road.
All vehicles will be required to enter and exit in a forward direction.</td></tr>
<tr><td>3.2 Access</td><td></td></tr>
<tr><td>3.2.1 Driveway Location</td><td>The site has been designed to provide a driveway mid-way along the site frontage on Aerospace Avenue. This shared access will allow for both light and heavy vehicle movements and so shall be in accordance with AS2890.2 to provide for the swept paths of semi-trailers being the largest design vehicle.</td></tr>
<tr><td>3.2.2 Sight Distances</td><td>The site access is located on the inside of a slight bend in the frontage road. Given the cross section of the road and the provision of a wide shared pathway visibility is available for drivers entering and exiting the site. Aerospace Avenue operates under the posted speed limit of 50km/h with no parking permitted along either side. Based on AS2890.2 the sight distance requirements are a minimum of 69 metres with a 5 second gap, desirable in both directions. Visibility is available in both directions to meet this requirement.</td></tr>
<tr><td>3.2.3 Service Vehicle Access</td><td>Servicing requirements for the site are primarily associated with the delivery of the components for assembly or maintenance and then outgoing product.
Design vehicles: Rigid vehicle for sites 1,2 and 4 and 19m semi-trailer for site 3.
There would be the occasional need for equipment maintenance (van sized vehicle), office deliveries and waste collection.
All vehicles shall access the site from Aerospace Avenue using the central roadway to approach the rear of sites 1 and 2, and the western side of site 3 and north face of site 4. (Refer swept paths Attachment B)</td></tr>
<tr><td>3.2.4 Queuing at entrance to site</td><td>No vehicle queues expected at the access driveway due to the generally low demand for traffic entering and exiting the site together with low flows predicted on Aerospace Avenue.
All vehicles inbound shall be left turns into the site.
Some queuing may occur for vehicles exiting the site at the end of the working day, however, given the low flows on Aerospace Avenue these queues would be minimal and would be contained within the site with no external impact.</td></tr>
<tr><td>3.2.5 Comparison with existing site access</td><td>New subdivision</td></tr>
<tr><td>3.2.6 Access to Public Transport</td><td>There will be no need for public transport to access the site.</td></tr>
<tr><td>3.3 Circulation</td><td></td></tr>
</table>

Item	Comment
3.3.1 Pattern of circulation	All vehicles will enter and exit the site in a forward direction with a shared driveway central to the site. The site has been designed to enable heavy vehicles, including semi-trailers to enter the site and manoeuvre as required to exit the site in a forward direction. Swept paths have been prepared (Attachment B) to confirm these movements. The driveway on Aerospace Avenue has been designed to allow for the swept path of a semi-trailer to enter the site.
3.3.2 Road width	A review of the concept plan for the proposed development shows that the entry / exit onto Aerospace Avenue can be provided in accordance with AS2890. Internal roads shall allow for the swept paths of the design vehicles as well as access to three at grade carparks, one to the east, one mid and one to the west of the central driveway.
3.3.3 Internal Bus Movements	No requirement for buses to access the development.
3.3.4 Service Area Layout	The layout of the site has been designed to accommodate the specific requirements of industrial type uses with loading areas incorporated into each site. No demand for the layover of service vehicles is anticipated.
3.4 Parking	
3.4.1 Proposed Supply	There are 63 parking spaces including 2 accessible provided on the site across three carparks.
3.4.2 Authority Parking	Port Stephens Council DCP 2014 provides the following parking rates for **Heavy/general industry:** 1 car space per 100m2 floor area or 4 space per work bay 1 bike space per 20 employees 1 accessible car space per 30 car spaces **Light industry:** 1 car space per 100m2 floor area 1 car space per employee 1 bike space per 20 employees Accessible car space -No requirement **Office premises/business premises:** 1 car space per 40m2 floor area 1 bike space per 200m2 floor area 1 accessible car space per 30 car spaces
3.4.3 Parking Layout	The carpark layout and individual parking spaces shall be designed in accordance with AS2890.1, class 1/1A employee parking and AS2890.6 for disabled spaces. Spaces shall be 2400mm x 5400mm
3.4.4 Parking Demand	The site provides a mix of potential uses however no staffing is known at this stage of the development. Allowing for General Industry on site and applying the rate of 1 space per 100m^2 sees the following parking demands:

<table>
<tr><th>Item</th><th>Comment</th></tr>
<tr><td></td><td>
<table>
<tr><th></th><th>Workshop GFA m²</th><th>Parking</th><th>Office GFA m²</th><th>Parking</th></tr>
<tr><td>Lot 109/1</td><td>2,000</td><td>20 spaces</td><td>985</td><td>24.6 spaces</td></tr>
<tr><td>Lot 109/2</td><td>2,415</td><td>24 spaces</td><td>1137</td><td>28.4 spaces</td></tr>
<tr><td>Lot 109/3</td><td>4,008</td><td>40 spaces</td><td>255</td><td>6.4 spaces</td></tr>
<tr><td>Lot 109/4</td><td>1,068</td><td></td><td></td><td>Not required</td></tr>
<tr><td>Total</td><td></td><td>84 spaces</td><td></td><td>60 spaces</td></tr>
</table>

Lot 190/4 is a data centre and so does not have staff on site, instead it only requires parking as part of the occasional servicing or maintenance for the site.

Housing general industry the development would require parking for 109 vehicles.

Allowing for the office area to be assessed as a separate use would see a total parking demand for 144 spaces. This would be an upper level of parking which allowing for the proposed uses for the precinct as well as hybrid working arrangements is considered to be excessive for the site. Hybrid working can see staff working off site 40% of the week. This would see office parking demands of 36 spaces with total demand for 120 spaces.

63 of the parking spaces are provided on site including 2 accessible spaces. The balance is available in the centralised carpark provided for the Precinct (subject to a separate DA). The provision for the centralised parking allows for the reduced parking associated with hybrid working arrangements but can also accommodate the upper quantum of parking if required.</td></tr>
<tr><td>3.4.5 Service Vehicle Parking</td><td>Loading bays designed within each site to allow for loading and unloading of vehicles within the vicinity of the workshops.
Waste collection vehicles can stand within the internal roadway adjacent to each site while loading.</td></tr>
<tr><td>3.4.6 Pedestrian and Bicycle Facilities</td><td>Pedestrian demands are catered for on pathways within the site connecting the footpath network along the site frontage. This will provide connectivity to the centralised carpark.
Space for 14 bicycles shall be provided on site.</td></tr>
<tr><td colspan="2">Traffic Assessment</td></tr>
<tr><td>4.1 Traffic Generation</td><td>The GtTGD rates for business parks and industrial estates (TD13-04a) are detailed below.
The GFA for the site (not including Lot 109/4) is 10,800 m².
Applying the regional rates of .70/100m² in the AM, 0.78/100m² in the PM and 7.83 trips/100m² per day the proposed development could generate:
• 76 trips in the AM
• 84 trips in the PM
• 846 trips daily (423 inbound/ 424 outbound)

These movements allow for a mix of inbound and outbound vehicles.
Allowing for the staff and delivery movements this is appropriate for the proposed development.</td></tr>
</table>

Item	Comment

Business parks and industrial estates

In 2012 eleven of these two types of sites were surveyed, four within the Sydney urban area, four within the Lower Hunter, one in the Illawarra and one in Dubbo. Summary vehicle trip generation rates were as follows:

Weekday Rates	Sydney Average	Sydney Range	Regional Average	Regional Range
AM peak (1 hour) vehicle trips per 100 m^2 of GFA.	0.52	0.15-1.31	0.70	0.32-1.20
PM peak (1 hour) vehicle trips per 100 m^2 of GFA.	0.56	0.16-1.50	0.78	0.39-1.30
Daily total vehicle trips	4.60	1.89-10.47	7.83	3.78-11.99

4.1.1 Daily and Seasonal Factors	Minimal daily and seasonal variation in traffic movements associated with the development, other than normal variation between weekdays (working days) and weekends. Outbound deliveries may be subject to market/contractual demands.
4.1.2 Pedestrian Movements	Given the location of the site it is considered that there will be minimal pedestrian demands created by the users of the site external to the precinct. Internal pedestrian demands between the subject site and the centralised carpark or to bus stops within the airport terminal are accommodated on existing pathways and connections through the site.
4.2 Traffic Distribution and Assignments	All traffic will access the site from Nelson Bay Road using Williamtown Drive and Aerospace Avenue.
4.2.1 Origin / destinations assignment	Traffic associated with the masterplan approval has been distributed to the broader road network and assessed as part of the modelling. There has been no significant change to the broader road network to see any difference in that previously assessed.
4.3 Impact on Road Safety	It is considered that the development will have a minimum impact upon road safety. The layout of the local roads provides a high level of safety as reflected in the crash data. The intersections in the general locality of the site allow for heavy vehicle movements and provide a safe and appropriate layout for all users.
4.4 Impact of Generated Traffic	
4.4.1 Impact on Daily Traffic Flows	The approval for the Astro Aerolab Precinct has assessed the impact of traffic associated with the development as part of the approval for the overall business park. The type of development proposed on the subject site is consistent with the type of development assessed and as such the impacts have been taken into account for the approval for the Precinct.
4.4.2 Peak Hour Impacts on Intersections	The development of the Astro Aerolab Precinct has assessed the impact of traffic associated with the Precinct on the intersection of Nelson Bay Road and Williamtown Drive as part of the approval for the overall business park. The initial stages of the development were determined as having an acceptable impact with external road upgrades identified for the later stages of the development.
4.4.3 Impact of Construction Traffic	Per other sites being developed within the Precinct the impact of construction traffic is less than that allowed for in the operation of the Precinct and as such the traffic movements associated with the construction shall have an acceptable impact on the road network.
4.4.4 Other Developments	Development is commencing within the Precinct which has been allowed for in the masterplan approvals for the site. It is understood that a DA for the centralised carpark and for Lot 106 are to be shortly submitted.

Item	Comment
	It is anticipated that the cumulative impacts of the subject site and the development of other sites in Stage 1 of the Astra Aerolab Precinct, including the proposed commercial development of Lot 106 would be consistent with the Stage 1 assessment undertaken for the site.
4.5 Public Transport	
4.5.1 Options for improving services	None required. Bus access the adjacent airport site.
4.5.2 Pedestrian Access to Bus Stops	Bus stops at the terminal can be accessed using the existing footpath network and connections.
4.6 Recommended Works	
4.6.1 Improvements to Access and Circulation	No changes required.
4.6.2 Improvements to External Road Network	No external changes required.
4.6.3 Improvements to Pedestrian Facilities	None required.
4.6.4 Effect of Recommended Works on Adjacent Developments	No works proposed that will impact on adjacent developments.
4.6.5 Effect of Recommended Works on Public Transport Services	None.
4.6.6 Provision of LATM Measures	None Required
4.6.7 Funding	None required

Site Photos:

Photo 1 – View showing cross section of Astrospace Avenue. Subject site to right of photo

Photo 2 –View left from proposed driveway onto Aerospace Avenue

Photo 3 – View to right from proposed driveway onto Aerospace Avenue

Conclusion:

From the site work undertaken and the review of the development proposal and associated plans against the requirements of the Guide to Traffic Generating Developments and Austroads Guide to Traffic Management, it is considered that the proposed development application should be approved on traffic and access grounds. The traffic movements generated by the development have been previously modelled and assessed as part of the approval for the masterplan for the Precinct and determined as being able to be accommodated within the local road network. Similarly, the impact on the operation of intersections was determined as being acceptable at this stage of the Precinct development.

Parking provided on site meets the general demands for the site with additional parking provided within the centralised carpark to meet the requirements of the DCP.

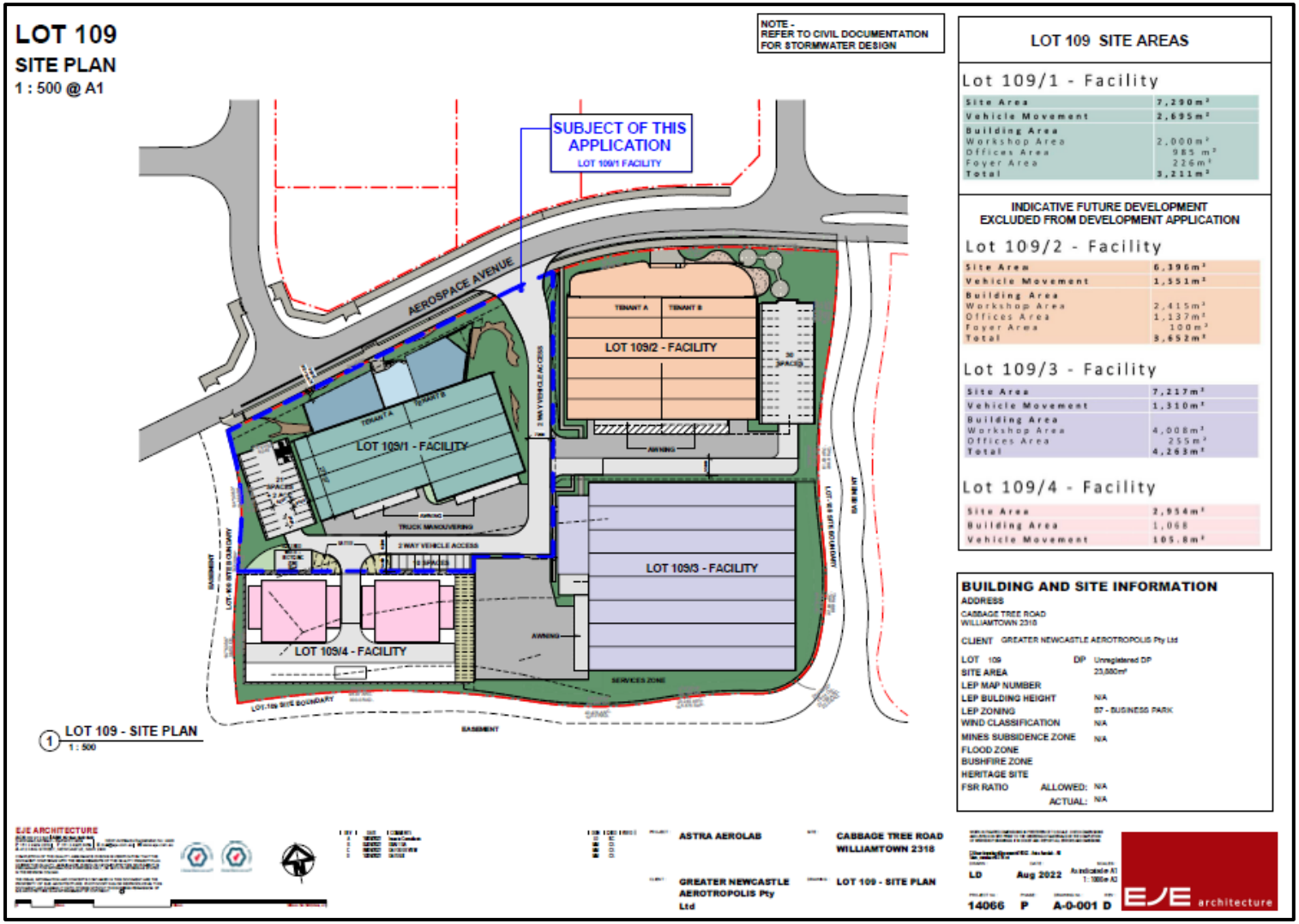
Access to the site in consistent with AS2890. Sight lines at the access driveways will achieve the appropriate sight distances. The combined access and egress has been designed to allow for the swept path of semi-trailers with the site being developed for the specific requirements of the typical end user.

Please feel free to contact me on 4032 7979, should you have any queries.

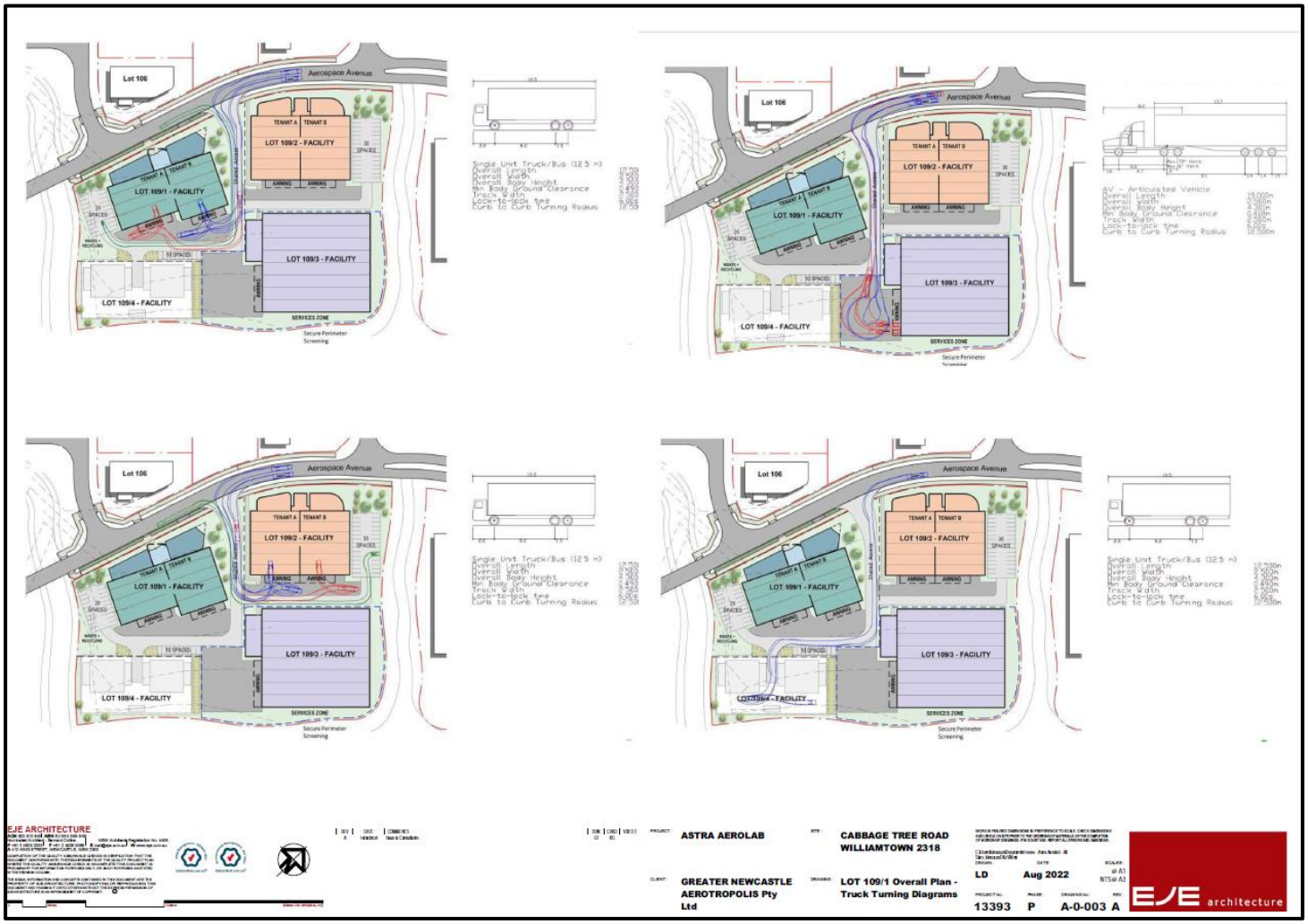
Yours sincerely,

Sean Morgan
Director

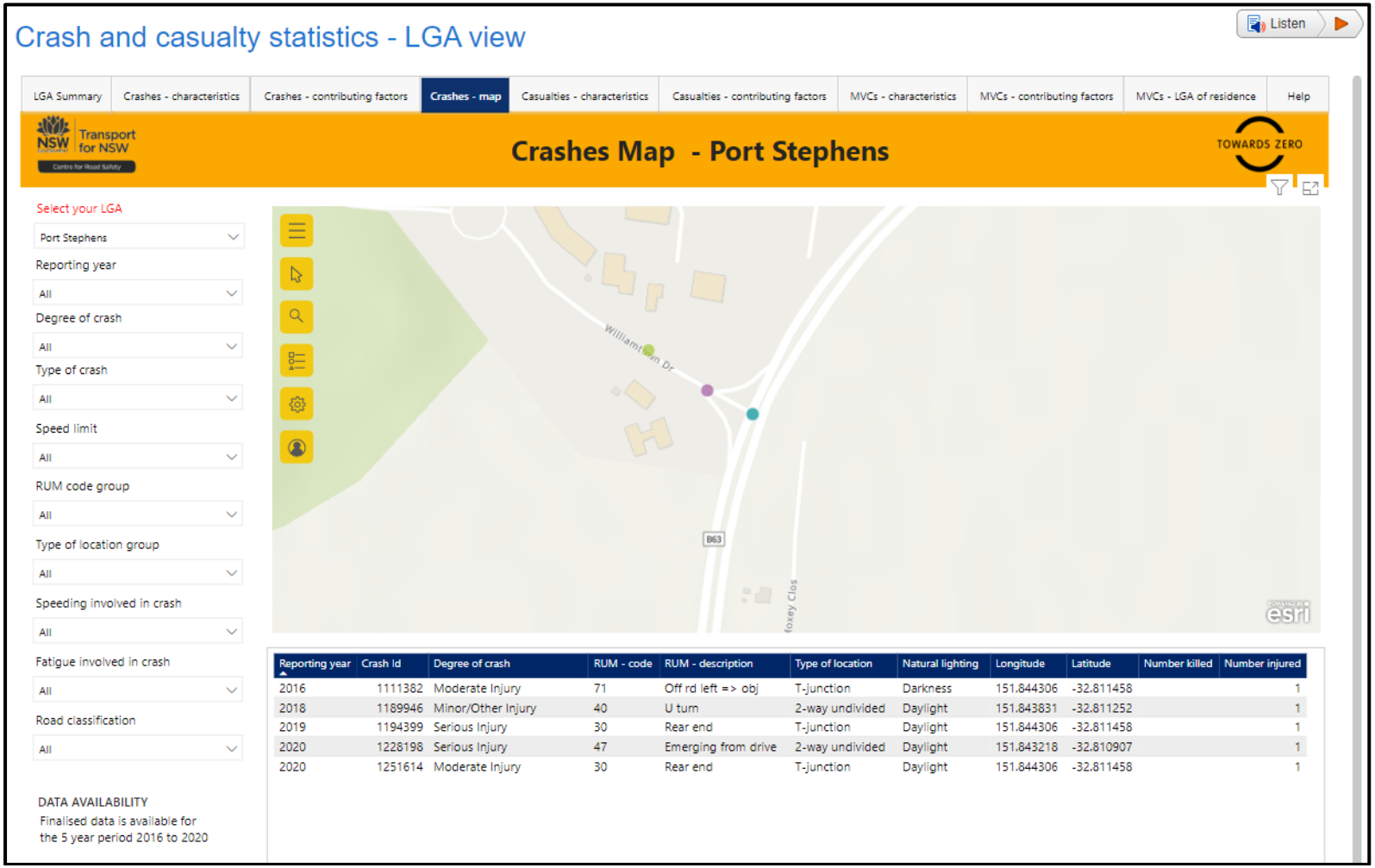
Attachment A: Site Plan



Attachment B: Swept Paths



Attachment C: Crash Data



Reporting year	Crash Id	Degree of crash	RUM - code	RUM - description	Type of location	Natural lighting	Longitude	Latitude	Number killed	Number injured
2016	1111382	Moderate Injury	71	Off rd left => obj	T-junction	Darkness	151.844306	-32.811458		1
2018	1189946	Minor/Other Injury	40	U turn	2-way undivided	Daylight	151.843831	-32.811252		1
2019	1194399	Serious Injury	30	Rear end	T-junction	Daylight	151.844306	-32.811458		1
2020	1228198	Serious Injury	47	Emerging from drive	2-way undivided	Daylight	151.843218	-32.810907		1
2020	1251614	Moderate Injury	30	Rear end	T-junction	Daylight	151.844306	-32.811458		1