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16 August 2024

P2430 EJE Astro Aerolab Precinct Proposed Lots 200/212

EJE
412 King Street
Newcastle NSW 2300

Attn: Kathy Gresham

Dear Kathy

Proposed High Technology Industrial Development, Part of Proposed Lot 200 and 212 Newton Parade, Williamtown, 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 as part of the proposed Lot 200/212 Newton Parade, Williamtown we provide the following traffic impact statement. This assessment has been prepared taking into consideration the Austroads Guidelines Part 12 and Section 2.3 of the Guide to Traffic Generating Developments (GtTGD) published by TfNSW 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 significant matters are considered by the relevant road authority.

Background and Context

The development is for a high technology industry within the Astra Aerolab Precinct (the Precinct), adjacent to Newcastle Airport.

The site is located as part of the proposed Lots 200 and 212 in the subdivision of Lot 11, Deposited Plan 1036501 ('Lot 11'), and Lot 1, DP 1147810, being 38 Cabbage Tree Road, Williamtown. **(Figure 1)**

The site will front Newton Parade, to be constructed as part of the Stage 2A and 2C subdivision works in Development Consent 16-2009-324-3. The approved subdivision works include the clearing of existing vegetation, the filling of land to an RL of a minimum of 4m AHD, remediation, construction of Newton Parade and associated stormwater drainage, installation of utilities, pedestrian pathways, street lighting and public domain areas and landscaping.

The proposed development is for a high technology industry comprising of office and workshop areas, and associated development. This includes a car park providing 183 car parking spaces, driveway, manoeuvring area for B-double trucks, ring road, fire services, hardstand areas and landscaping. The facility will have perimeter fencing, and separate accesses for light and heavy vehicles. The development will be connected to potable water, sewer, stormwater drainage, electrical services, and communications services.

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 overall masterplan approval for the Precinct, first approved in January 2011 and modified in March 2022, and accordingly has not been replicated for this assessment.

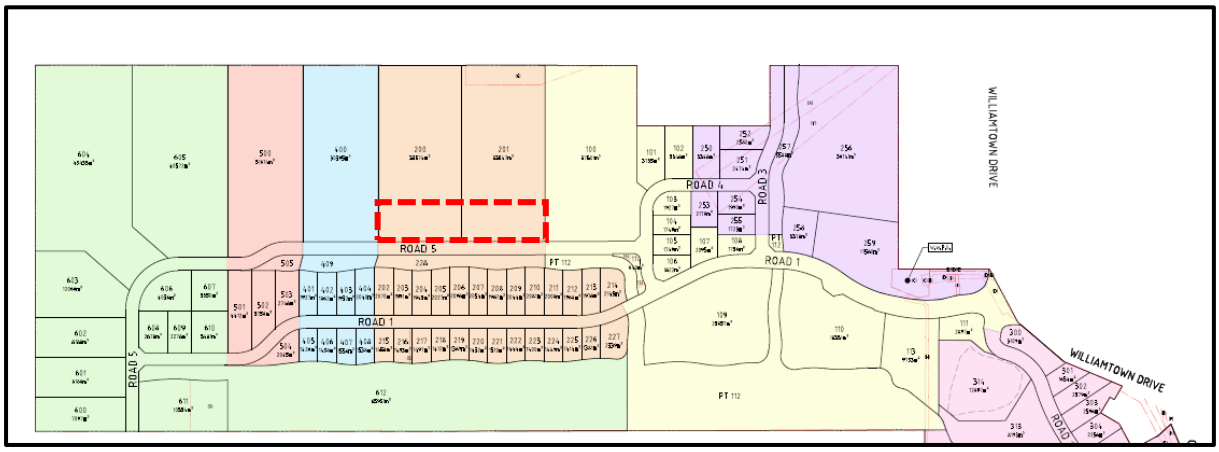


Figure 1 – Indicative subject site within context of precinct staging plan

Figure 2 - Project area within the context of the local road network

Traffic Impact Assessment:

Item	Comment
Existing Situation	
2.1.1 Site Location and Access	The subject site is located as part of the proposed Lots 200 and 212 Newton Parade within the Astra Aerolab Precinct. The site is newly developed and so is vacant with no formal access point to the yet to be developed 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. At the western end Aerospace Avenue connects with Jeffries Circuit and in turn Newton Parade. Newton Parade is proposed to be extended along the site terminating with a turn head.
2.2.2 Roadworks	At the time of the site work roadworks were being undertaken in the vicinity of the site at the intersection of Nelson Bay Road and Medowie Road. These works involve the duplication of Williamtown Drive between Nelson Bay Road and the roundabout at the entry to the Technology Centre / Aerospace centre. As part of the duplication, this signal-controlled intersection will be upgraded to allow for 2 travel lanes to turn right onto Nelson Bay Road and also allow for the left turn traffic into Williamtown Drive to be a continuous lane with no merge. As part of the works, a shared path will be provided along the southern side of Williamtown Drive to connects with the existing paths provided to the west of the roundabout on Williamtown Drive. Plans for the duplication of the road between Cabbage Tree Road and Bobs Farm have been announced with a preferred fully off-line 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

Item	Comment
	for additional turn lanes at the Williamtown Drive/ Nelson Bay Road intersection (Stage 4) and the provision of a roundabout to connect to Cabbage Tree Road (Stage 5).
2.2.4 Pedestrian and Cycling Facilities	Footpath and cycling facilities have been provided within the overall precinct. There is minimal demand for pedestrians along Nelson Bay Road and no paths nor cycling facilities are provided in this location.
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.
2.3.2 AADT	The most recent AADT at the count station ID 05191 on Nelson Bay Road (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 four accidents in the past 5 years to 2022. 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 the other being a U-turn. 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 Newton Parade.
2.5.2 Off-street Parking Provision	Throughout the precinct off-street parking is to be incorporated into individual lots. There is 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 and east of the Precinct.
2.5.4 Set down or pick up areas	No current areas. A passenger drop off zone is to be located within the kerb on Newton Street at the front 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

Item	Comment
	(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.
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.
2.8 Other Proposed Developments	There is on-going development within the Precinct as well as in the industrial areas surrounding the airport and RAAF Base and south towards Tomago.
The Development	
3.1.1 Nature of Development	The proposal allows for the development of a high technology industrial development, a secure site with a single industrial building to be built to provide a workshop (1,885 m2 GFA) and office space (4,090m2 GFA).
3.1.2 Access and Circulation Requirements	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. The site is secure however gates shall be open during the day to allow free flow of vehicles into the site.
3.2 Access	
3.2.1 Driveway Location	The site has been designed to provide two driveways towards the eastern end to allow for the swept path of service vehicles including a B-Double being the largest design vehicle. Midway along the frontage a separate driveway will provide for the movement of light vehicles into and out of the site.
3.2.2 Sight Distances	The site accesses are located on a straight length of new road. Given the topography it is expected this road will be level with no hinderance to visibility. Newton Parade will operate under the posted speed limit of 50km/h with no parking 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. A review of the subdivision plan indicates that this visibility can be achieved in both directions to meet this requirement.
3.2.3 Service Vehicle Access	Servicing requirements for the site are primarily associated with the pick up and delivery of materials associated with the operation of the high technology industry on site. Within the site the access driveway allows include gates which shall be open to allow for free flow into the site. The design vehicles are a Heavy rigid vehicle including waste collection, 19m semi-trailer for daily pick up or delivery and occasional B-Doubles. There would be the occasional need for equipment maintenance (van sized vehicle), office deliveries and waste collection. Swept path assessment for the project has been completed by others to confirm access is appropriate (refer **Attachment B**)
3.2.4 Queuing at entrance to site	No vehicle queues expected at the access driveway due to the generally low demand for traffic entering and exiting the site spread across start and finish times together with low flows predicted on the frontage road. The security gates on site shall be open during the day to allow for free flow into the site. .

Item	Comment
	Inbound shall approach from the east and turn right into the site. Some queuing may occur for vehicles exiting the site at the end of the working day, however, given the low flows anticipated on the frontage road with vehicles typically turning left out, these queues would be minimal and would be contained within the site with no external impact.
3.2.5 Comparison with existing site access	New subdivision
3.2.6 Access to Public Transport	There will be no need for public transport to access the site.
3.3 Circulation	
3.3.1 Pattern of circulation	All vehicles will enter and exit the site in a forward direction. Light vehicles will use a shared driveway central to the site. The site has been designed to enable heavy vehicles, including B-Doubles and some specialised vehicles 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 site has been designed to provide for the separation of light and heavy vehicles.
3.3.2 Road width	A review of the concept plan for the proposed development shows that the entry / exit onto the frontage road can be provided in accordance with AS2890 and allow for the swept path of a B-Double. Internal roads/driveways shall provide access to the at grade carpark as well as to the accessible parking at the front of the building. A one way aisle (4.5m wide) allows for the circulation of vehicles in a clockwise direction around the building although this is anticipated to be an occasional movement only.
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 the industrial use with loading able to occur both within the workshop and external using the hardstand on the eastern side of the building. No demand for the layover of service vehicles is anticipated.
3.4 Parking	
3.4.1 Proposed Supply	There are 183 parking spaces to be provided on site including 7 accessible spaces in the vicinity of the building entry and 8 EV charging spaces. Due to the secure nature of the site these parking spaces will be for the exclusive use of staff and authorised visitors only.
3.4.2 Authority Parking	Port Stephens Council DCP 2014 provides the following parking rates: **Heavy/general industry:** 1 car space per 100m^2 floor area or 4 space per work bay 1 bike space per 20 employees 1 accessible car space per 30 car spaces **Office premises/business premises:** 1 car space per 40m^2 floor area 1 bike space per 200m^2 floor area 1 accessible car space per 30 car spaces

<table>
<tr><th>Item</th><th>Comment</th></tr>
<tr><td>3.4.3 Parking Layout</td><td>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 a minimum of 2400mm x 5400mm</td></tr>
<tr><td>3.4.4 Parking Demand</td><td>Allowing for General Industry on site and applying the rate of 1 space per 100m^2 for the workshop and 1 space per 40m^2 for the office sees the following parking demands:

<table>
<tr><th></th><th>Workshop GFA m^2</th><th>Parking</th><th>Office GFA m^2</th><th>Parking</th></tr>
<tr><td></td><td>1885</td><td>19 spaces</td><td>4090</td><td>103 spaces</td></tr>
<tr><td>Total</td><td></td><td></td><td></td><td>122 spaces</td></tr>
</table>

Allowing for the proposed use the development would require parking for 122 vehicles (19 + 103) under the DCP.

Allowing for the future staff numbers and the secure nature of the site, sufficient parking has been provided to enable all staff to park within the site including the potential for future shift changes. It is recognised that office staff may benefit from hybrid working arrangements which can see office staff working off site 20-40% of the week. This could see office attendance at any one time reduce by 33-66 staff.

The provision of 183 parking spaces including 8 EV charging spaces shall therefore ensure all parking can be contained on site. The provision of 7 accessible spaces also meets the DCP requirement.

Space for 30 bicycles shall be provided on site which meets the DCP requirement for space for 26 bikes.</td></tr>
<tr><td>3.4.5 Service Vehicle Parking</td><td>The site allows for the specific end user requirement for the loading and unloading of trucks within and in the vicinity of the workshop.
Waste collection shall be undertaken in the eastern/service side of the site.</td></tr>
<tr><td>3.4.6 Pedestrian and Bicycle Facilities</td><td>Pedestrian demands are catered for on pathways within the precinct. There is a footpath along the central part of the site frontage to direct pedestrians towards the pathway on the southern side of Newton Parade.
Space to park 30 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 once fully established is 5,975 m^2.
There is a large portion of the site given to the at grade carpark and the hardstand required to allow for the movement of large vehicles within the site. Whilst the office area allows for a large part of the site this reflects the high technology element of the project which is consistent with the proposed end uses for the Astro Aerolab Precinct. The proposal is therefore consistent with the end uses assessed and approved for this precinct.

Applying the regional rates of .70/100m^2 in the AM, 0.78/100m^2 in the PM and 7.83 trips/100m^2 per day the proposed development could generate:
• 42 trips in the AM
• 47 trips in the PM
• 468 trips daily (234 inbound/ 234 outbound)</td></tr>
</table>

Item	Comment
	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. Operationally the site will see one daily truck movement by a semi-trailer associated with pick-up and delivery during daylight hours. Other movements may include sight servicing e.g. waste collection, workshop material deliveries etc.

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.
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 within the precinct 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 in the infrastructure requirements for Stage 2A of 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. Upgrades to the Nelson Bay Road intersection allow for the staged development of the precinct with further external road upgrades identified for the later stages of the development. These initial stages of the development have therefore been determined as having an acceptable impact upon key intersections.

Item	Comment
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 anticipated that the cumulative impacts of the subject site and the development of other sites in the initial stage of the Astra Aerolab Precinct, would be consistent with the assessment undertaken for the site.
4.5 Public Transport	
4.5.1 Options for improving services	None required. Buses 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 being developed within the site.
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. Shared pathways have been included in the updated masterplan for the site.
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 west along Aerospace Avenue showing typical cross section

Photo 2 – Pedestrian paths throughout the precinct

Conclusion:

From the 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 extensively modelled and determined as being acceptable at this stage of the Precinct development.

Parking provided on site meets the requirements of the proposed end user and exceeds the DCP requirements for the site.

Access to the site in consistent with AS2890 with separation for light and heavy vehicles. Sight lines at the access driveways will achieve the appropriate sight distances. The access and egress for the service access have been designed to allow for the swept path of up to B-Doubles with the site being developed for the specific requirements of the proposed end user.

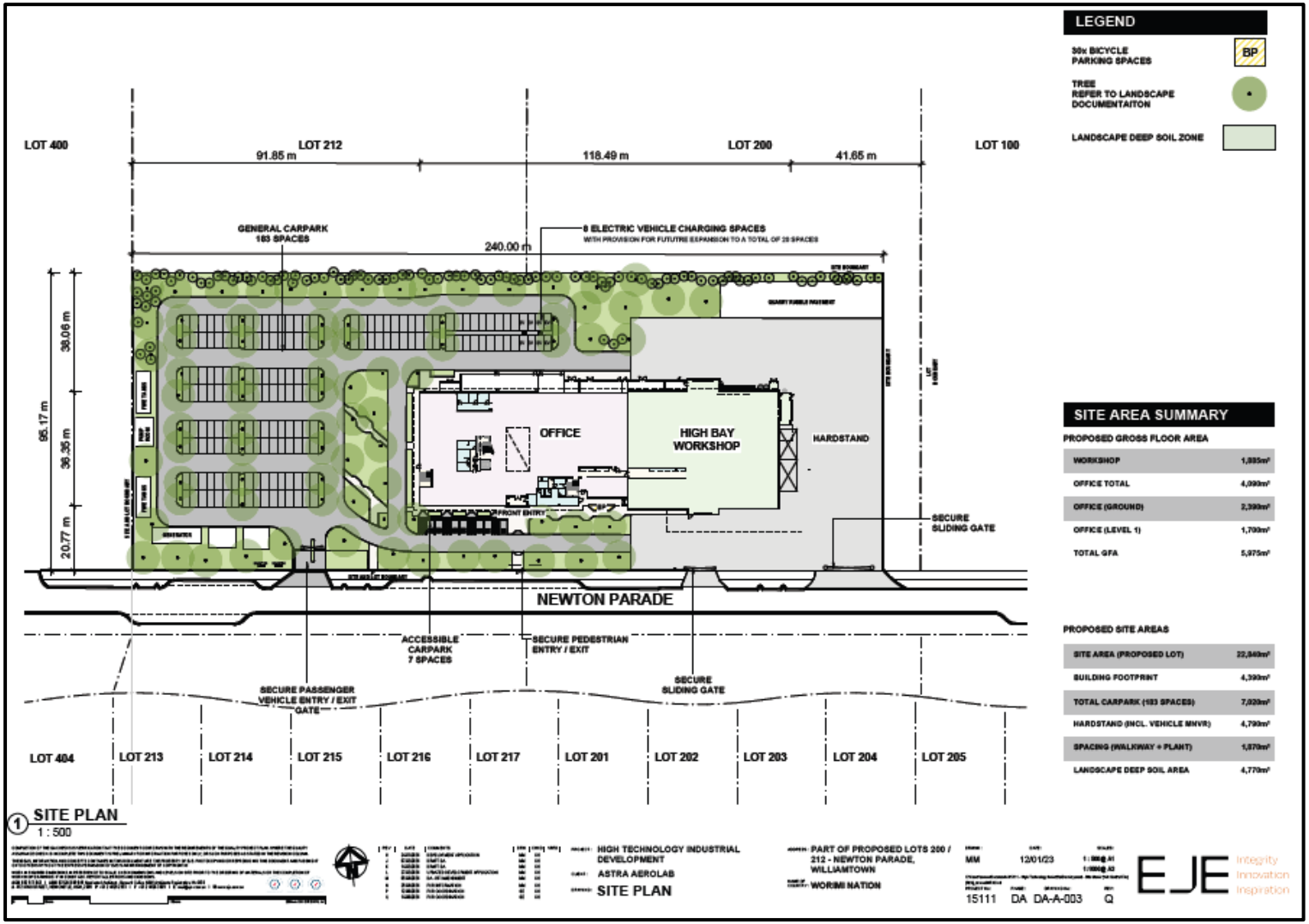
Please feel free to contact me on 4032 7979, should you have any queries.

Yours sincerely,

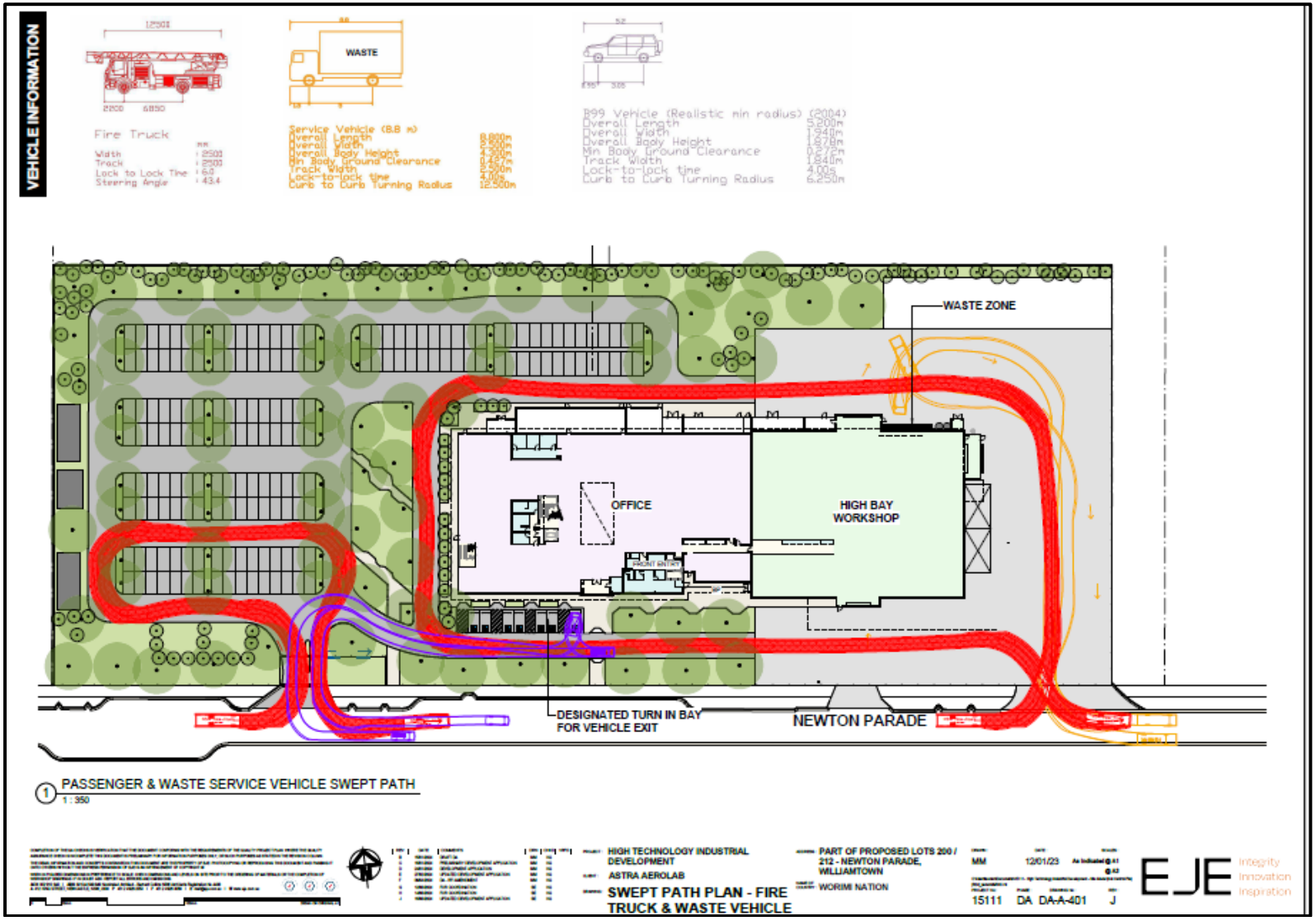
Cathy Thomas
Director

Version	Date	Description	Prepared by	Reviewed and Approved for Issue
Ver01		Draft	C. Thomas	S. Morgan
Ver02	19/12/2023	Final Draft	C.Thomas	S.Morgan
Ver03	16/01/2024	Final	C.Thomas	S.Morgan
Ver04	25/01/2024	Final with updated site plan	C.Thomas	S.Morgan
Ver05	26/2/2024	Amended plan	C.Thomas	S.Morgan
Ver06	14/8/24	Amended plan	C.Thomas	S.Morgan

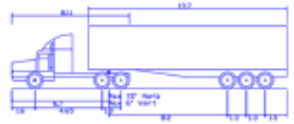
Attachment A - Site Plan



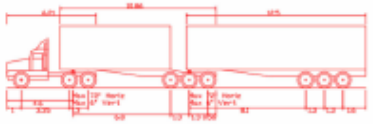
Attachment B – Swept Paths



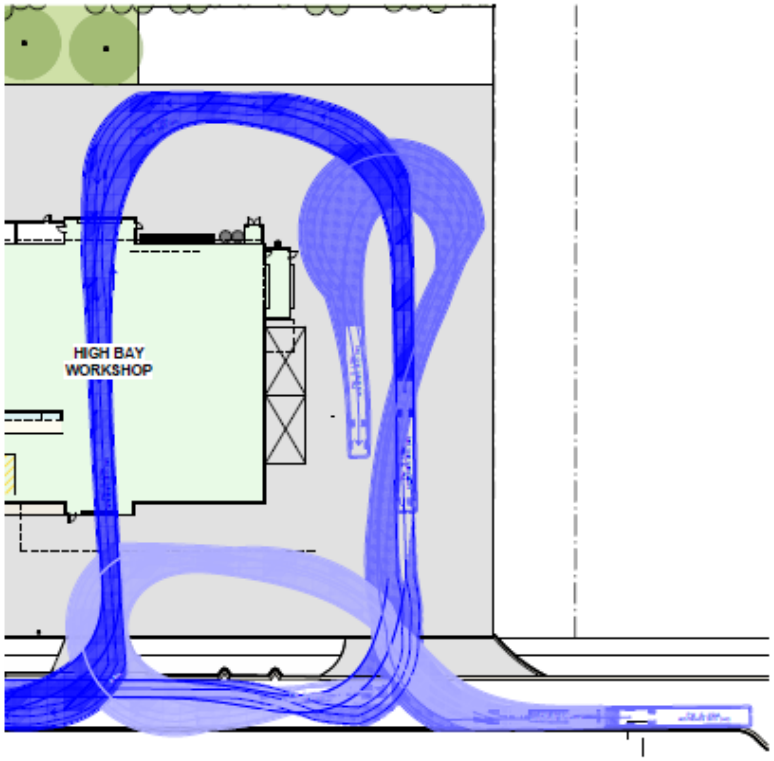
VEHICLE INFORMATION



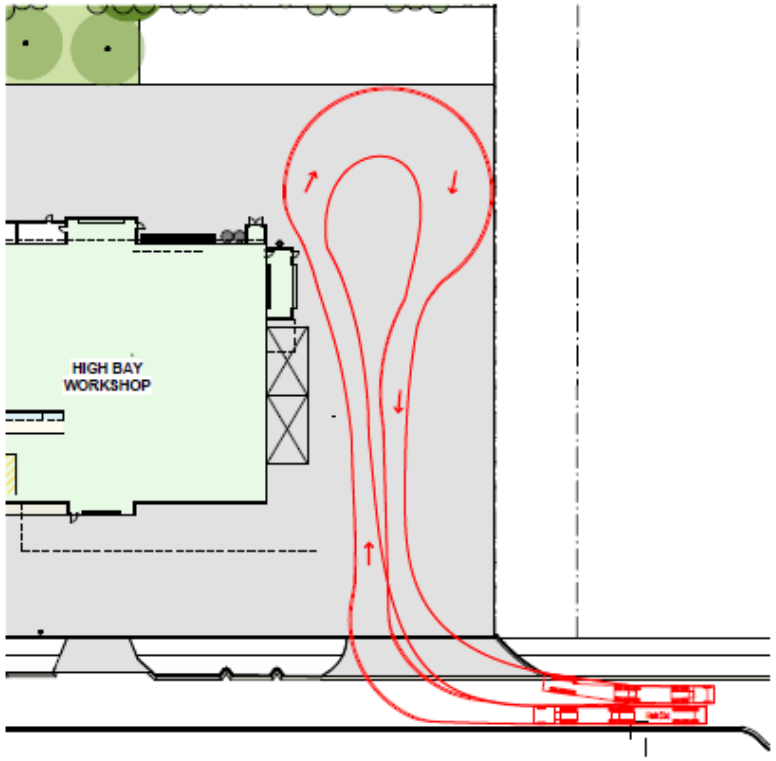
Prime mover and semi-trailer (19 m)
Overall Length 19.000m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.400m
Track Width 2.500m
Lock-to-lock time 20.0s
Kerb to Kerb Turning Radius 12.500m



B-Double (25.0m)
Overall Length 25.000m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.400m
Track Width 2.500m
Lock-to-lock time 20.0s
Kerb to Kerb Turning Radius 12.500m



② SEMI TRAILER TRUCK SWEPT PATH
1 : 300



① B-DOUBLE TRUCK SWEPT PATH
1 : 300

HIGH TECHNOLOGY INDUSTRIAL DEVELOPMENT
ASTRA AEROLAB
SWEPT PATH PLAN - SEMI TRAILER & B-DOUBLE
PART OF PROPOSED LOTS 200 / 212 - NEWTON PARADE, WILLIAMTOWN
WORIMI NATION

MM 12/01/23 As Indicated @ A1 @ A3
15111 DA DA-A-400 K

EJE Integrity Innovation Inspiration

Attachment C – Crash Data

LGA view - crashes map

Port Stephens

Reporting year
All

Degree of crash
All

Type of crash
All

Speed limit
All

RUM code group
All

Type of location group
All

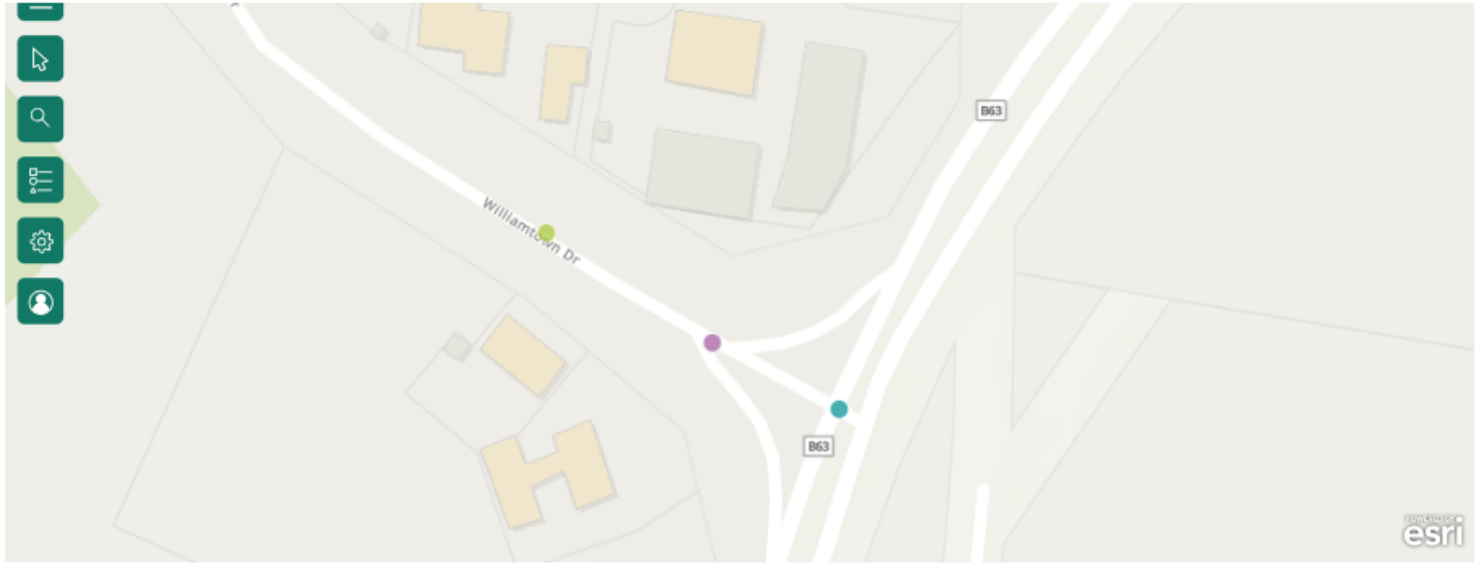
Speeding involved in crash
All

Fatigue involved in crash
All

Road classification
All

DATA AVAILABILITY

Finalised data is available for the 5 year period 2018 to 2022



Reporting year	Crash Id	Degree of crash	RUM - code	RUM - description	Type of location	Natural lighting	Longitude	Latitude	Number killed	Number injured
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