



ACN: 164611652 Ground Floor, 161 Scott Street Newcastle NSW 2300 Ph: (02) 4032 7979 admin@secasolution.com.au

18 March 2021 P1884 EJE Raven Street Kooragang TIA

Port of Newcastle C/- EJE Architectecture King Street NEWCASTLE NSW 2300

Attn: Grant Shultz

Dear Grant,

Proposed Warehouse Facility, Raven Street, Kooragang, NSW.

Further to your email and following our site visit and a review of the documentation provided for the proposed construction of a warehouse facility in Kooragang, we provide the following traffic impact statement.

This assessment has been prepared in accordance with the Austroads Guidelines and Section 2.3 of the RTA Guide to Traffic Generating Developments 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 report has also taken into consideration the Newcastle Development Control Plan 2012 (NDCP) and AS2890 Parking Facilities.

The proposed development is located on Raven Street off Cormorant Road as shown in Figure 1.





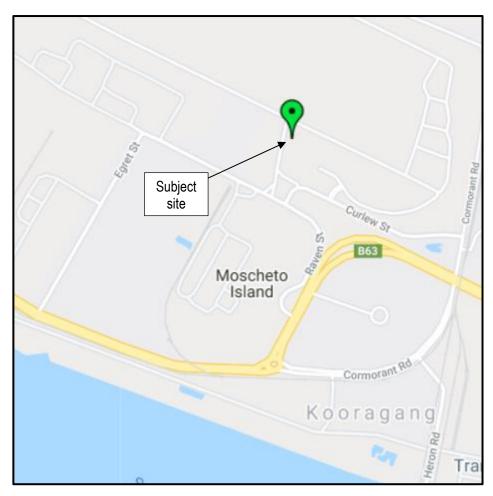


Figure 1 - Project site within the context of the local road network

Traffic Impact Assessment:

Item	Comment					
Existing Situation						
2.1.1 Site Location and Access	The subject site is located within Kooragang Island, part of the Port of Newcastle which includes port facilitates, loading and rail infrastructure and heavy industry. It has a driveway pan-handle which connects to Raven Street to the south which also provides access via a Right of Carriageway to the lot to the rear.					
2.2.1 Road Hierarchy	The main road through the locality is Cormorant Road/Teal Street which is a state road (MR108). In the vicinity of the site at its connection with Raven Street, Teal Street provides a dual carriageway being the main thoroughfare between Newcastle and the region north of the Hunter River, including Stockton and Port Stephens. It is also the primary access road between Newcastle airport, the RAAF base at Williamtown and Newcastle inner city. As a state road, it carries a mixture of both local traffic and regional through traffic movements including freight traffic associated with the port. The posted speed limit is 80 km/hr in the vicinity of the subject site. Teal Street connects with Cormorant Road at a dual lane three leg roundabout with Cormorant Road (west) and Teal Street being the main through route. To the east Cormorant Road continues as an industrial road providing access to various port and industry site.					



Item	Comment					
	Teal Street forms a T-intersection with Raven Street with Teal Street being the priority road. Access to Raven Street is left in/left out only due to a raised median separating the carriageways.					
	Raven Street is a private port/industrial road providing access to the subject site as well as various other industrial uses. It provides a sealed surface with a single lane of travel in both directions and a width of approximately 14 metres.					
	To the west Raven Street connects with Egret Street via a T-intersection. Raven Street provides a single lane of travel in both directions and provides an alternative traffic route from Cormorant Road. Turning lanes off Cormorant Road provide access for both eastbound and westbound traffic however no right turns are permitted from Egret Street which connects with Cormorant Road via a left turn out only.					
	Curlew Street is an industrial road which connects with Raven Street at a T-intersection with Raven Street having priority. Curlew Street has a north/south orientation and connects with Cormorant Road to the north providing local connection for traffic requiring access to/from the southbound carriageway.					
	The relevant road authority for Cormorant Road is Newcastle City Council. Raven Street is a private road managed by the Port of Newcastle.					
2.2.2 Roadworks, Traffic Management and Cycleways	Upgrades have been completed along Cormorant Road to cater for forecast increases in traffic flows as a result of expansion of Newcastle airport and growth of industrial development on Kooragang Island. This included the widening of Cormorant Road to provide a 2.5 metre wide shoulder to both sides to cater for on-road cyclists.					
2.2.4 Pedestrian Facilities	No pedestrian facilities are provided along Teal Street, Cormorant Road or Raven Street.					
2.3 Traffic Flows	A traffic survey was undertaken by Seca Solution at the intersection of Raven Street and Curlew Street between 6.45-9.15AM and 3.50-5.45PM. The peak hour was determined as being 6.45-7.45AM and 3.50-4.50PM. Two way flows west of Curlew Street in the AM peak was 92 vehicles per hour (vph) with 74 vehicles east bound and of these 67 turned left to travel along Curlew Street. In the PM peak flows were 55vph, 42 of these traveling east to turn left into Curlew Street. Flows from Curlew Street onto Raven Street were much lower (6-14 vph).					
	Seca Solution has also collected data at the intersection of Cormorant Road and Egret Street on Wednesday 21st June 2017. The peak hour was determined as being 7.30AM-8.30AM in the morning and 4.15PM-5.15PM in the afternoon. Two-way traffic flows west of Egret Street in this location are 2431 vph in the morning and 2739 vph in the afternoon with flows on Egret Street being much less with 201 vph in the AM and 116 vph in the PM.					
2.3.1 Daily Traffic Flows	Typically, peak hour flows represent between 8-12% of the daily flows. Therefore, daily flows would be in the order of: • Raven Street 750 per day					
	Curlew Street 675 per dayEgret Street 1600 per day					
	Cormorant Road (in the vicinity of Egret Street) 25,900 per day					







Item	Comment
	This is consistent with AADT data from the permanent count station 05962 on Nelson Bay Road east of Greenleaf Road which shows 2017 data 25,261 and 2018 of 25,735.
2.3.2 Daily Traffic Flow Distribution	A review of the traffic surveys shows that flows on Raven Street are dominant eastbound with traffic turning left into Curlew Street. This reflects the use of this route as a connection onto Cormorant Road for traffic with a destination to either the port or west towards Newcastle using the roundabout at Teal Street/Cormorant Road.
	On Cormorant Road, traffic flow in the morning have a dominant flow westbound representing commuters travelling to work towards Newcastle. In the afternoon, the flows are more balanced with a slight eastbound bias. This would represent workers within the surrounding area travelling home at the end of the day as well as commuters returning towards Nelson Bay.
2.3.3 Vehicle Speeds	No speed surveys were completed as part of the survey work. Due to the size of vehicles typically using the industrial roads vehicles generally travel within the speed limit. Outside of business hours some of the industrial roads in the vicinity have
2.3.4 Existing Site Flows	seen speeding by drivers given low levels of vehicle activity and wide roads. The project site forms part of the Port of Newcastle. It has previously been used for the general storage of materials however presently is vacant and generates no traffic.
2.3.5 Heavy Vehicle Flows	Due to the industrial nature of the surrounding lands, a significant proportion of traffic is heavy vehicles. Survey results show that heavy vehicles on Raven Street typically represent 12-15% of total flows. On Cormorant Road, in the morning peak, heavy vehicles make up 8% of flows whilst in the afternoon they are between 3-4%.
2.3.6 Current Road Network Operation	Observations on site show that the road network in the vicinity of the subject site operates well reflective of the very low traffic volumes and not providing for significant through movements.
	For Cormorant Road/Teal Street there are few delays or congestion for existing road users. The duplication of the Tourle Street bridge south of the site provided a significant improvement to the road network removing the bridge as a historic pinch point and increasing road capacity.
2.4 Traffic Safety and Accident History	The layout of the roads and intersections generally provide a safe road environment. A review of accident data provided by the Transport for NSW Centre for Road Safety indicates that there have been no accidents in the past five years in the vicinity of the site.
	There has been one accident at the intersection of Raven Street and Egret Street with a vehicle running off the road resulting in a serious injury.
2.5 Parking Supply and Demand	
2.5.1 On-street Parking Provision	On-street parking is currently available along Raven Street west of the site. In the vicinity of the site parking is controlled with No Stopping signs on both sides of the road.
2.5.2 Off-street Parking Provision	There are no public car parks within the area with the majority of vehicles able to park within the various development sites.
2.5.3 Parking Demand and Utilisation	Observations on site show that there is little parking demand for vehicles within the local streets.
2.5.4 Set down or pick up areas	There are no set down or pick up areas noted within the vicinity of the subject site



Item	Comment
2.6 Public Transport	
2.6.1 Rail Station Locations	The site is not serviced by a train station.
2.6.2 Bus Stops and Associated	There is no formal bus stop located in the vicinity of the subject site.
Facilities	There is an informal bus station located east of the subject site, approximately 450 metres on Teal Street near the Raven Street intersection. This bus stop is operated by Port Stephens Coaches and contains no covered waiting area or bus pull in, with the shoulder of the roadway used.
2.6.3 Transport Services	Two local bus services travel along Teal Street/Cormorant Road operated by Port Stephens Coaches (Route 130 and 131).
2.7 Pedestrians Network	There are no pedestrian footpaths in this location.
2.8 Other Proposed Developments	There are no other developments proposed within the vicinity of the subject site.
The Development	
3.1.1 Nature of Development	The proposed development is for a Warehouse Facility.
	Construction of a two unit industrial/warehouse building with ancillary offices: Unit One 1323sqm with a 200sqm office and 26 car parking
	spaces.Unit Two 1372sqm with a 100sqm office and 17 parking spaces.
	2. Driveways and manoeuvring areas suitable for up to B-Doubles.3. Landscaping and fencing.
3.1.2 Access and Circulation Requirements	All access is to be provided in accordance with Council DCP and AS2890.2. All vehicles will be required to enter and exit in a forward direction onto Raven Street.
3.2 Access	A 20-metre-wide right of carriageway (ROC) runs along the western boundary which burdens the site and benefits the land at the rear (Lot 1 DP775775 - Port Waratah Coal Services). The subdivision pattern in the immediate area is disjointed and as a result Lot 152 has a driveway handle which will result in the development being setback from the immediate street frontage. Access is also provided to the adjacent site (Lot 151). Vehicle access will be provided via this right of carriageway direct off Raven Street with a two-way driveway providing for all movements including B-double trucks. The various carparks as well as the loading docks associated with the two warehouses will connect with the area designated as the ROC. To the front of the site there is also an additional driveway which connects directly to Curlew Street for exiting vehicles only.
3.2.1 Driveway Location	The driveway on Raven Street is to be located as per the existing right of carriageway approximately 75 metres west of the intersection with Curlew Street. As per the existing situation all turn movements are to be accommodated.
3.2.2 Sight Distances	For the posted speed limit on Raven Street of 60km/hr, AS2890.2 indicates a minimum sight distance requirement of 65 metres out of the access driveway, with an 83 metre desirable 5 second gap. This is to ensure drivers exiting the subject site can see traffic along Raven Street and adjust their vehicle movements accordingly. Adequate visibility is available to the right (west) at the point of site access, with the road having a straight horizontal and vertical alignment. Visibility in this direction exceeds 200 metres allowing for safe entry and exit movements for both cars and trucks. To the





Item	Comment						
	left (east) Raven Street curves to the right however due to the flat horizontal						
	alignment visibility is available for more than 150 metres in this direction.						
3.2.3 Service Vehicle Access	The end users for the site are unknown at this stage however allowing for the warehousing proposed for the site the need for servicing is expected to be related to the delivery of product for storage and the potential for delivery vehicles to load and leave the site. Each warehouse provides a designated loading bay for service and delivery vehicles to or from the site which shall be able to reverse into the loading bays within the site with all vehicles to exit onto Raven Street in a forward direction.						
	These movements however are not expected to be significant with the width of the loading area for each warehouse shown only allowing for two trucks. There will be the need for refuse collection vehicles to also access the site however the majority of other vehicles are expected to be van size. Swept paths for the loading areas and access have been undertaken by						
3.2.4 Queuing at entrance to site	others to confirm the adequacy of the design. (Attachment A) No vehicles queues expected at the access driveway due to the generally low demand for traffic entering and exiting the site together with very low flows on Raven Street.						
	Some queuing may occur for vehicles exiting the site at the end of the working day, however, given the low flows on Raven Street these queues would be minimal and would be contained within the site with no external impact. Gates on the site shall be managed to allow for the free flow of vehicles						
	during the working day and secured with user only access at other times. These gates are set sufficiently into the site to allow for a heavy vehicle to stand within the driveway handle if necessary.						
3.2.5 Comparison with existing site access	Access to the site remains the same as the existing Right of Carriageway.						
3.2.6 Access to Public Transport	There is no formal pedestrian access to public transport facilities however pedestrians can walk along the existing nature strips if required.						
3.3 Circulation							
3.3.1 Pattern of circulation	All vehicles will enter and exit the site turning right into the site from the driveway and exiting by turning left from the site onto the driveway. All driveways and parking aisles within the site are two-way. Heavy vehicles will enter the loading bays using the driveway (ROC) to undertake a reversing manoeuvre. Light vehicles will turn into the carparks from the driveway. There will be no requirement for vehicles to reverse onto Raven Street from the driveway.						
3.3.2 Road width	The entry / exit driveway has been designed to allow for the movement of B-Double trucks into and out of the site. The site has been designed to provide for the ROC as well as the manoeuvring of large vehicles within the site.						
3.3.3 Internal Bus Movements	No requirement for buses to access the development.						
3.3.4 Service Area Layout	The site provides a designated loading area for each warehouse. The overall site provides for the movement of large trucks including B-Double on the basis of the ROC.						
3.4 Parking							
3.4.1 Proposed Supply	There are two carparks, one per warehouse with 19 and 12 parking spaces provided on the site. Motorbike parking is also provided.						
3.4.2 Authority Parking	Newcastle City Council DCP 2012 provides the following parking rates: Warehouse and Distribution Centres – 1 space per 200m ²						





Item	Comment						
	Business Premises/Office Premises – 1 space per 50m² GFA						
3.4.3 Parking Layout	The carpar	k layout and individual park	ing spaces shall be designe	ed in			
-		accordance	with AS2890.				
3.4.4 Parking Demand		Applying the NDCP rates the parking requirement would be a minimum of 20 spaces. The proposal to provide 31 spaces exceeds the DCP requirement allowing for the potential for shift cross overs and acknowledging the minimal level of public transport access available to this area. No further assessment of the parking is therefore required.					
Proposed Use	G	FA	Parking Rate	Parking Demand			
Warehouse 1		23m ²	1 space per 200m ²	6.6			
Office 1	20)0m ²	1 space per 50m ²	4			
Warehouse 2	13	72m²	1 space per 500m ²	6.9			
Office 2	10)0m ²	1 space per 50m ²	2			
				20 spaces			
3.4.5 Service Vehicle Parking 3.4.6 Pedestrian and Bicycle Face	Each warehouse allows for a loading area to accommodate at least two semi-trailers / B-Doubles. The provision of adequate parking on site will reduce the demand for on street parking. It is considered that there will be little demand therefore fo pedestrians or cyclists to access the site. Pedestrians to or from the site shall be able to walk along the driveways which shall operate as a shared zone.						
Traffic Assessment		- 0:=0-					
4.1 Traffic Generation		The GtTGD rates for business parks and industrial estates are detailed below. The total GFA for the site is 2995m2. Applying the regional rates of 0.70 in the AM, 0.78 in the PM and 7.83 trips per day the proposed development could generate: • 21 trips in the AM • 24 trips in the PM • 234 trips daily (117 inbound/117 outbound) These movements allow for a mix of inbound and outbound vehicles. For					
		this site these include trucks associated with outbound product deliveries daily throughout the region and inbound receipt of stock.					

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	Sydney	Regional	Regional	
	Average	Range	Average	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.



Item	Comment				
4.2 Traffic Distribution and Assignments	All traffic associated with the site shall approach using the regional road network (MR108). Traffic associated with the site would typically approach along either Egret Street/ Raven Street or Raven Street turning left off Teal Street having undertaken a U-turn at the Cormorant Road roundabout if approaching from the north. Outbound traffic would typically turn left out of the site and join Teal Street at Raven Street (north bound) or Curlew Street/Cormorant Road to travel west/south towards Newcastle.				
4.2.1 Origin / destinations assignment	 Light traffic associated with staff: 80% employees travelling from the south and west (Newcastle, Lake Macquarie, Maitland) 20% of employees coming from the north (Port Stephens, Stockton, Williamtown) Given that there is no certainty for end users of the site nor of the markets for the end products being stored outbound traffic (for deliveries) is assumed 75% would have an origin/destination west/south towards Greater Newcastle with 25% north. 70% of traffic is inbound in the AM and outbound in the PM. 				



Figure 2 - Inbound and Outbound Traffic (AM/PM) Heavy vehicles in bold



Item	Comment
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.
	All of the intersections in the general locality of the site allow for heavy vehicle movements and provide a safe and appropriate layout for all users.
	To enhance safety, any heavy movements from the north are recommended to approach the site from Raven Street westbound rather than turning right at Egret Street due to the high demands for eastbound traffic reducing opportunities for turn movements at this intersection.
4.4 Impact of Generated Traffic	
4.4.1 Impact on Daily Traffic Flows	The proposed development will generate an additional 234 trips per day (117 inbound/117 outbound). It can be seen that this will have a minimal impact upon the daily traffic flow in the locality of the subject site. Existing daily flows along Cormorant Road have been documented as 33,000 daily (RMS Cormorant Road upgrade). The additional flows therefore represent 0.7% of the existing flows.
4.4.2 Peak Hour Impacts on Intersections	Traffic associated with the development site shall be distributed across a number of intersections: Cormorant Road/Egret Street Teal Street/Raven Street Raven Street/Curlew Street/Cormorant Road
	Cormorant Road roundabout
	The impact on any single intersection is therefore reduced with the main demand for turn movements being left in at Egret Street and through movements on Cormorant Street roundabout. Sidra modelling previously undertaken by Seca Solution at Egret Street demonstrates that the left turn off Cormorant Road shall continue to operate at LoS A for the 10 year design horizon with the increased demands only creating very minor increases in average delays and queuing during the network peak hours.
	The roundabout at Cormorant Road/Teal Street is anticipated to operate with minimal change to its existing level of service given that the main demand associated with this development is for through movements westbound in the PM when flows are typically <900 vph (Traffic Volume Viewer www.rms.nsw.gov.au) across two lanes.
4.4.3 Impact of Construction Traffic	All construction work will be contained within the site with minimal impact on the local road network. There will be a requirement for construction vehicles to access the site and additional traffic movements associated with workers during construction. These movements can be catered for within the local road network. The site area is large and will be able to accommodate the parking needs of construction staff on site however if necessary, parking can also be accommodated on Raven Street adjacent to the site.
4.4.4 Other Developments	Whilst there no known developments within the general vicinity of the site the upgrade of Cormorant Road in this location has been designed to accommodate future traffic flows of 40,000 vpd which includes the ongoing development of vacant land within the Port of Newcastle.



Item	Comment
4.5 Public Transport	
4.5.1 Options for improving services	None required. The subject site is not considered to be a major generator of public transport use.
4.5.2 Pedestrian Access to Bus Stops	None required.
4.6 Recommended Works	
4.6.1 Improvements to Access and Circulation	None required
4.6.2 Improvements to External Road Network	Improvements have already been undertaken to adequately cater for future traffic flow.
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	Nil.
Public Transport Services	
4.6.6 Provision of LATM Measures	None Required.
4.6.7 Funding	No external work required.

Conclusion:

From the site work undertaken and the review of the development proposal and associated plans against the requirements of the RTA Guide to Traffic Generating Developments and Austroads Guide to Traffic Management, it is considered that the proposed development will have minimal impact upon the surrounding road network.

Parking proposed for the development exceeds the DCP requirement which ensures there will be no impact on the external road network. The parking, primarily catering for the needs of staff, has been designed to provide separation between the carparks and the loading docks. An on-site management plan shall provide for the control of movements whilst the delivery bays are operational.

Access and circulation for the site is appropriate for the development, providing for the swept paths of heavy vehicles including B-Doubles.

Yours sincerely

Sean Morgan

Director



Site Photos:



Photo 1 – Subject site frontage onto Raven Street



Photo 2 – Typical cross section looking west along Raven Street





Photo 3 – Typical cross section looking east along Raven Street (site to left of photo)



Photo 4 – Subject site looking north along Right of Carriageway.





Photo 5 – Sight lines out of existing site access looking east along Raven Street towards Curlew Street intersection

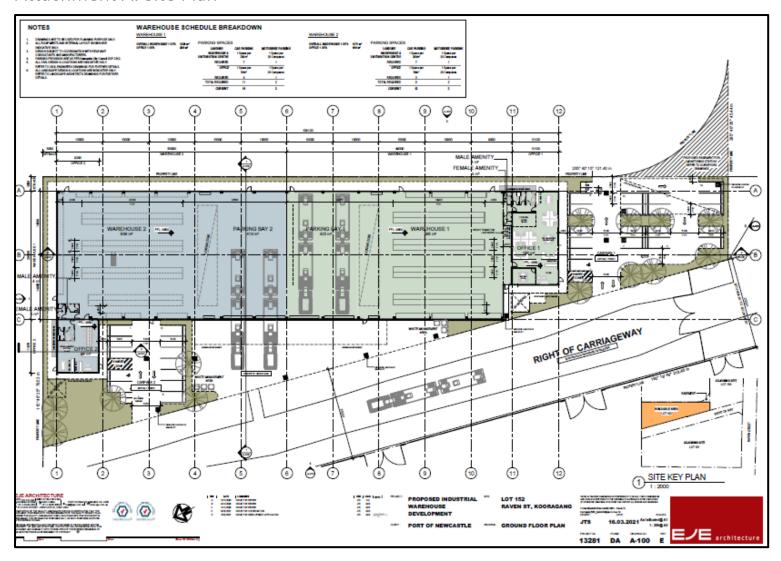


Photo 6 – Sight lines out of existing site access looking west along Raven Street

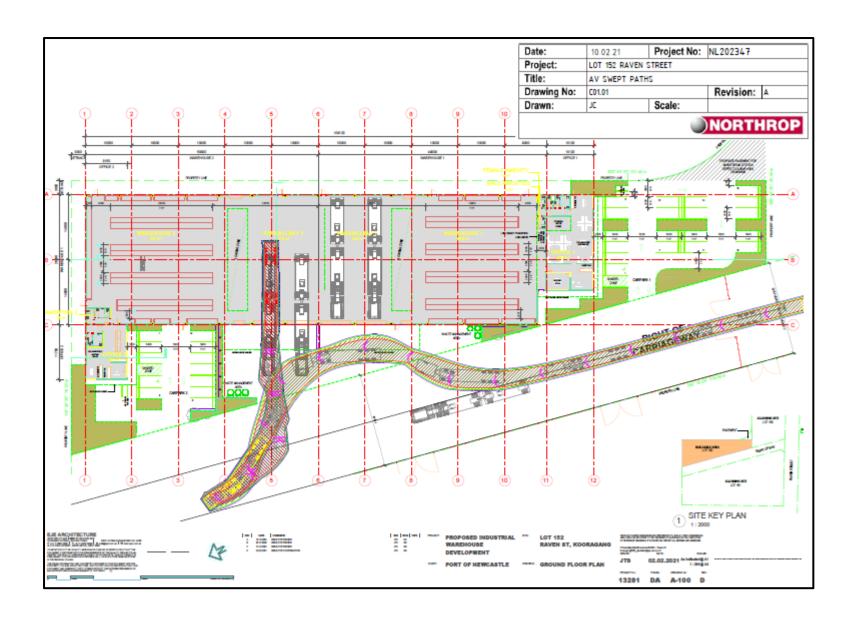




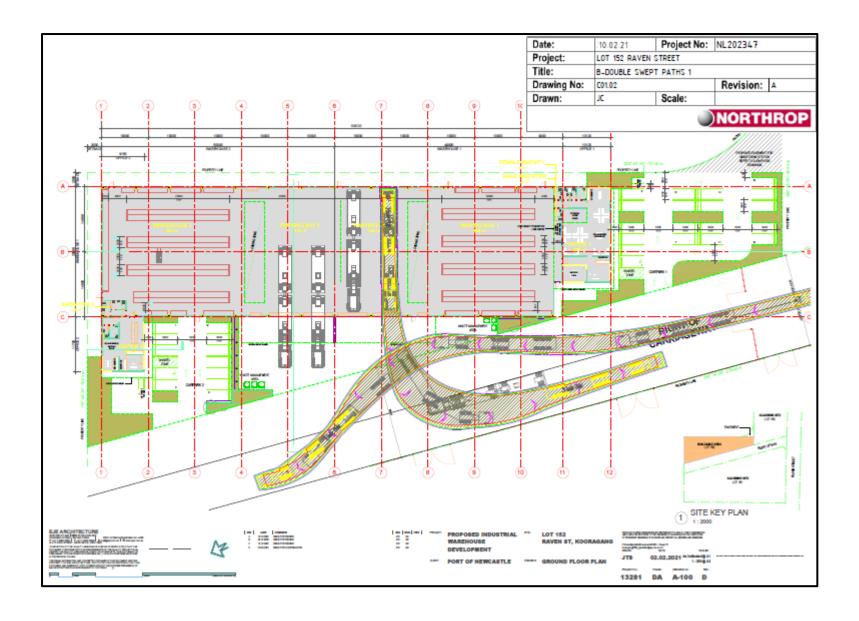
Attachment A: Site Plan



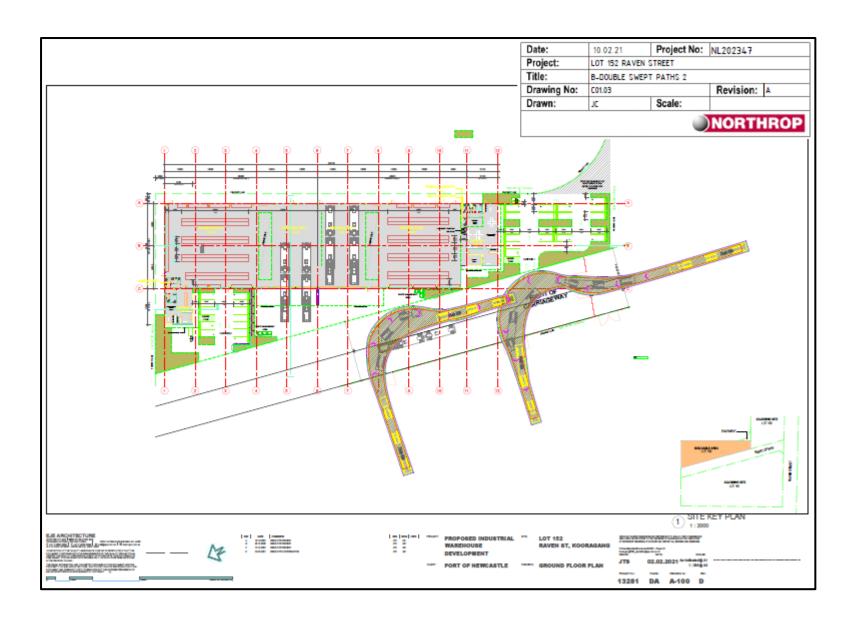
SECA solution >>>>



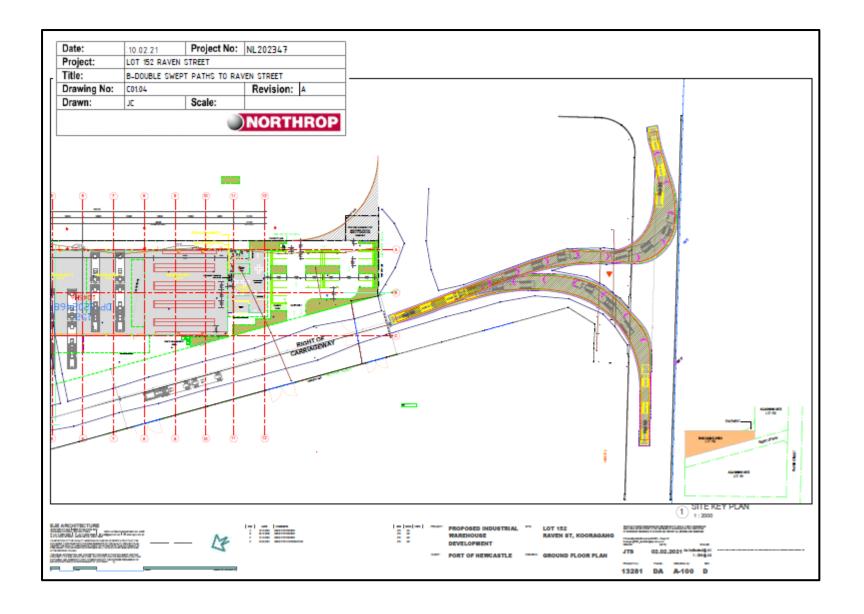




SECA solution >>>>









Attachment B: Accident Data





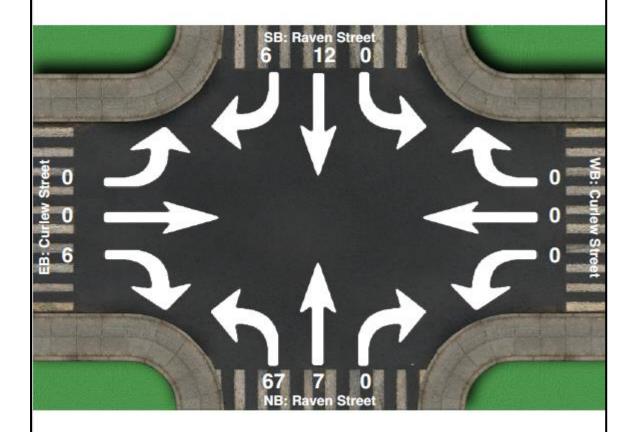
Attachment C: Traffic Data

Intersection Peak Hour

Location: Raven Street at Curlew Street, Kooragang

GPS Coordinates: Lat=-32.881476, Lon=151.769274

Date: 2020-11-04
Day of week: Wednesday
Weather: Sunny
Analyst: GrahameM



Intersection Peak Hour

06:45 - 07:45

	SouthBound		Westbound		Northbound			Eastbound			Total		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Vehicle Total	0	12	6	0	0	0	67	7	0	0	0	6	98
Factor	0.00	0.60	0.75	0.00	0.00	0.00	0.62	0.58	0.00	0.00	0.00	0.50	0.72
Approach Factor	0.75		0.00		0.64		0.50						

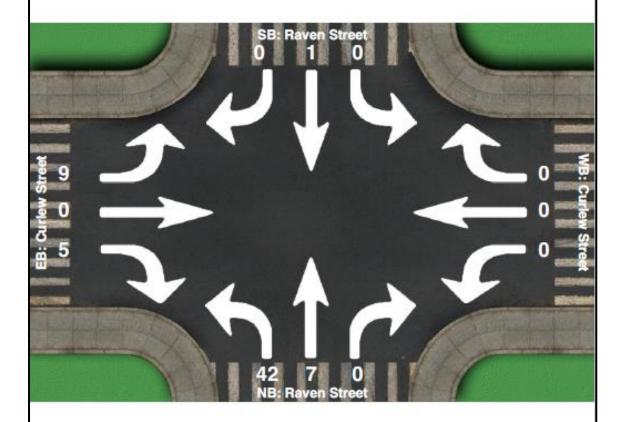


Intersection Peak Hour

Location: Raven Street at Curlew Street, Kooragang

GPS Coordinates: Lat=-32.881369, Lon=151.772571

Date: 2020-11-03
Day of week: Tuesday
Weather: Sunny
Analyst: GrahameM



Intersection Peak Hour

15:45 - 16:45

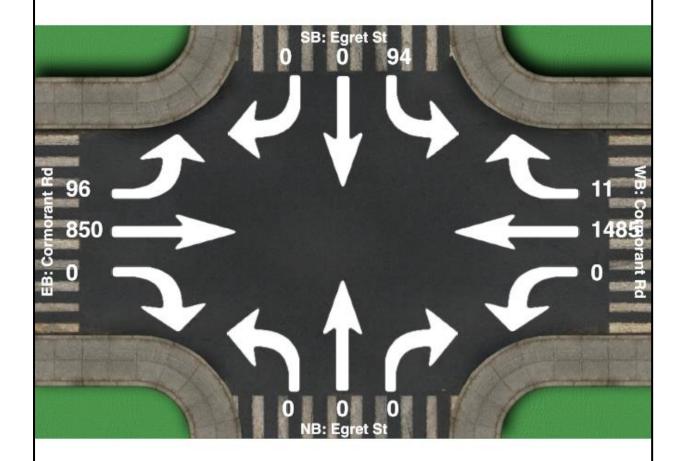
2	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Vehicle Total	0	1	0	0	0	0	42	7	0	9	0	5	64
Factor	0.00	0.25	0.00	0.00	0.00	0.00	0.75	0.58	0.00	0.45	0.00	0.62	0.84
Approach Factor	0.25			0.00			0.77			0.58			



Intersection Peak Hour

Location: Egret St at Cormorant Rd, Newcastle GPS Coordinates: Lat=-32.957915, Lon=151.657840

Date: 2017-06-21
Day of week: Wednesday
Weather: Clear
Analyst: TN



Intersection Peak Hour

07:30 - 08:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Vehicle Total	94	0	0	0	1485	11	0	0	0	96	850	0	2536
Factor	0.73	0.00	0.00	0.00	0.96	0.46	0.00	0.00	0.00	0.71	0.87	0.00	0.96
Approach Factor	0.73			0.96			0.00				00		

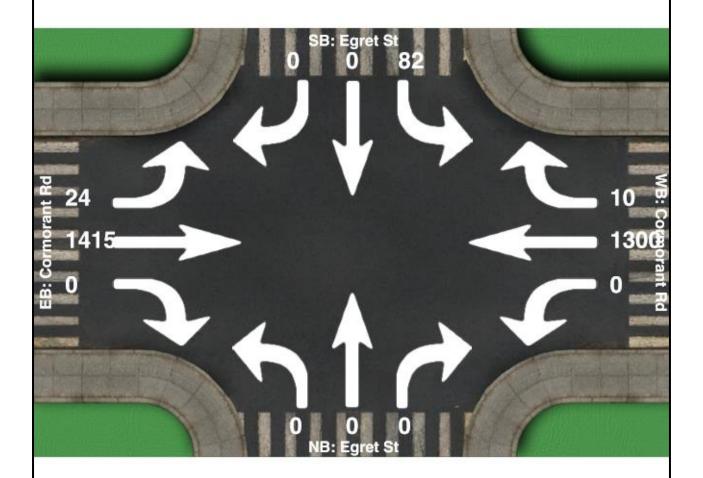


Intersection Peak Hour

Location: Egret St at Cormorant Rd, Newcastle GPS Coordinates: Lat=-32.884078, Lon=151.762225

Date: 2017-06-21
Day of week: Wednesday
Weather: Clear

Weather: Clea Analyst: TN



Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Vehicle Total	82	0	0	0	1300	10	0	0	0	24	1415	0	2831
Factor	0.68	0.00	0.00	0.00	0.98	0.62	0.00	0.00	0.00	0.86	0.98	0.00	0.99
Approach Factor	0.68			0.97			0.00			0.99			