DATE 31 July, 2014
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ProposedPaltryFam- 136 TopFanestry Poad Ribenood


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### 1.0 INTRODUCTION

Lambert \& Rehbein has been commissioned to undertake an assessment of the traffic movement aspects of the proposed poultry farm located at 136 Top Forestry Road, Ridgewood, formally known as Lot 21 on SP226606. The subject development has been subject to previous traffic reports however we understand that the Council remained concerned about the proposal and has identified some uncertainties regarding the level of traffic activity associated with the proposal.

Further we understand that the Council currently is not supportive of the current proposal and has identified their primary concern revolving around safety of the Top Forestry Road.

It is understood that the site is currently operating a commercial avocado farm. In the past the site has also included a commercial mango farm and additional avocado trees.

The proposed poultry farm includes 8 poultry growing sheds with an overall area of $13,695 \mathrm{~m} 2$ with an ultimate capacity in the order of 230,000 birds. The sheds are proposed to be 100 to 130 metres long by 16.0 to 16.5 metres wide aligned along the ridgelines through the site. The internal configuration of the site has not been addressed as part of this assessment as this has been subject to previous assessments.

We understand that the intent is to operate the poultry business in conjunction with the remaining avocado farm.

Further we are of the understanding that the proposed poultry farm will operate as a "grower" contracted to the major poultry distributor, Ingham. From our own enquiries, it is understood that the entire grow/batch cycle is limited to 63 days ( 9 weeks), whereby 5 to 6 cycles will occur each year.

It is proposed to construct poultry growing sheds on the subject site as a two stage development. Stage 1 of the development will comprise five sheds (Shed 1 to Shed 5), with the further three sheds (Shed 6 to Shed 8) to be constructed as Stage 2 of the development.

This assessment has addressed the impact of the full development (i.e. Stage 1 and Stage 2).

### 2.0 CONTEXT OF THE PROPOSED DEVELOPMENT

### 2.1 SITE DESCRIPTION

The subject site is located at 136 Top Forestry Road in Ridgewood, with a real property description of Lot 21 on SP226606.

The site is approximately 7.5 km south-west of Cooroy and as previously noted, is currently operating as a commercial avocado farm.

The subject site location relative to the surrounding road network is demonstrated in Figure 2-1.


Base map extracted from Noosa Council's online mapping system.
Figure 2-1 Site Location

Surrounding land uses generally include rural properties, with State Forest located adjacent to the western boundary of the site.

### 2.2 SURROUNDING ROAD NETWORK

The site access is located on Top Forestry Road, which as shown in Figure 2-1, feeds into Old Ceylon Road. Old Ceylon Road terminates at Cooroy Belli Creek Road, approximately 800m north of the Top Forestry Road / Old Ceylon Road intersection. All roads have a posted speed limit of $60 \mathrm{~km} / \mathrm{h}$.

### 2.2.1 TOP FORESTRY ROAD

Top Forestry Road is a two-way, unsealed rural road, which provides access to rural properties, and the subject site. Top Forestry Road is not included as part of Noosa Council's Road Network Trunk Infrastructure Plan, and is therefore considered to have the general function of a local access road.

As part of our assessment, site investigations were undertaken in April and July 2014 to record the general form of Top Forestry Road. We became aware that Council undertook road grading works along Top Forestry Road between the April site investigation and the July investigation which necessitated a further assessment of the form and function of Top Forestry Road. These works resulted in intermittent carriageway widening along the length of Top Forestry Road.

It is noted that the existing gravel pavement form along Top Forestry Road at the time of our site visits was of a high standard. The road is well compacted with generally no signs of pavement distress, pot holing and/or rutting.

To assist in the description and assessment of the characteristics of Top Forestry Road this road has been divided into the following three sections. These sections are diagrammatically shown in Figure 2-2.

Please note, the chainage references start from 0.0 m at the Top Forestry Road / Old Ceylon Road intersection heading towards the site access:

- Section 1 (chainage Om to approx.. 330m) - Top Forestry Road / Old Ceylon Road intersection to the Top Forestry Road / King Parrot Lane intersection;
- Section 2 (chainage 330 m to $1,000 \mathrm{~m}$ ) - Top Forestry Road / King Parrot Lane intersection to chainage $1,000 \mathrm{~m}$
- $\quad$ Section 3 (chainage 1,000m to approx.1,400m) - Chainage 1,000m to Development Access Road intersection.


Figure 2-2 Top Forestry Road Sections

## Section 1

Section 1 includes a short sealed section of approximately 45 m in length along the centreline, and a pavement width of 6.2 m at the "end of seal".

The remaining length of Section 1 has an unsealed pavement width ranging from 6.0 m to 6.2 m , with a general width of 6.4 m around curves.

## Section 2

Section 2 has a general unsealed pavement width of 5.2 m to 5.4 m , with some localised sections where the pavement narrows such as at chainage 500 m where the width is approximately 5.0 m .

## Section 3

Section 3 has a general unsealed pavement width ranging from 5.5 m to 5.8 m .

### 2.2.2 OLD CEYLON ROAD

Old Ceylon Road is a, two lane, two-way sealed rural road, which is designated as a rural collector under Noosa Council's Road Network Trunk Infrastructure Plan.

### 2.2.3 COOROY BELLI CREEK ROAD

Cooroy Belli Creek Road is a, two lane, two-way sealed rural road, which is designated as a sub arterial road under Noosa Council's Road Network Trunk Infrastructure Plan.

### 2.3 TRAFFIC VOLUMES

Traffic movement surveys were obtained for the Top Forestry Road / Old Ceylon Road, and the Top Forestry Road / King Parrot Lane intersections, as indicated in Figure 2-3.


Figure 2-3 Traffic Survey Locations
The intersection surveys were collected for 24 hours each day, for 7 days from Wednesday 12th March, 2014 to Tuesday $18^{\text {th }}$ March 2014. The raw data for each survey has been included in Appendix A, whilst the daily approach volumes for the Top Forestry Road / Old Ceylon Road and the Top Forestry Road / King Parrot Lane intersections have been summarised in Table 2-1 and The data in the table above shows that the roads in the immediate vicinity of the subject site are low volume roads which would appear typical of the rural nature of the surrounding land uses. Peak daily traffic volumes on Old Ceylon Road are less than 300 vehicles per day while on Top Forestry Road between Old Ceylon Road and King Parrot Lane the daily traffic movements are generally less than 150 vehicles per day.

Table 2-2, respectively.

Table 2-1 Top Forestry Rd / Old Ceylon Rd - Daily Surveyed Volumes

| Road | Approach | ID* | Total Daily Volume |  |  |  |  |  |  | Max | Ave |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Mon | Tues | Wed | Thurs | Fri | Sat | Sun |  |  |
| Old Ceylon | East | 1 | 130 | 128 | 144 | 124 | 135 | 129 | 98 | 144 | 127 |
| Rd |  | 2 | 126 | 120 | 136 | 122 | 128 | 126 | 102 | 136 | 123 |
| Top Forestry | North | 3 | 64 | 68 | 70 | 61 | 63 | 63 | 49 | 70 | 63 |
| Rd |  | 4 | 66 | 70 | 70 | 60 | 83 | 62 | 52 | 83 | 67 |
| Old Ceylon | South-West | 5 | 74 | 61 | 79 | 65 | 62 | 71 | 67 | 79 | 69 |
| Rd |  | 6 | 76 | 67 | 87 | 68 | 71 | 75 | 60 | 87 | 72 |

*ID number directly relates to the numbers allocated in Figure 2-3.
The data in the table above shows that the roads in the immediate vicinity of the subject site are low volume roads which would appear typical of the rural nature of the surrounding land uses. Peak daily traffic volumes on Old Ceylon Road are less than 300 vehicles per day while on Top Forestry Road between Old Ceylon Road and King Parrot Lane the daily traffic movements are generally less than 150 vehicles per day.

Table 2-2 Top Forestry Rd / King Parrot Ln - Daily Surveyed Volumes

| Road | Approach | ID* | Total Daily Volume |  |  |  |  |  |  | Max | Ave |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Mon | Tues | Wed | Thurs | Fri | Sat | Sun |  |  |
| Top Forestry | East | 1 | 63 | 66 | 66 | 58 | 76 | 60 | 53 | 76 | 64 |
| Rd |  | 2 | 56 | 63 | 65 | 60 | 73 | 61 | 49 | 73 | 61 |
| King Parrot | North | 3 | 12 | 14 | 20 | 13 | 15 | 15 | 10 | 20 | 15 |
| Ln |  | 4 | 13 | 15 | 20 | 13 | 16 | 16 | 10 | 20 | 15 |
| $\begin{gathered} \hline \text { Top Forestry } \\ R d \end{gathered}$ | South-West | 5 | 46 | 51 | 47 | 47 | 60 | 48 | 42 | 60 | 49 |
|  |  | 6 | 52 | 52 | 47 | 45 | 62 | 46 | 46 | 62 | 50 |

*ID number directly relates to the numbers allocated in Figure 2-3.

Applying the maximum daily approach volumes to the current transport route for the site, as shown in Figure 2-4, shows that Top Forestry Road experienced a maximum of 153 vehicles per day between Old Ceylon Road and King Parrot Lane, whilst Top Forestry Road west of King Parrot Lane experienced a maximum of 122 vehicles per day.


Figure 2-4 Daily Volumes along Existing Transport Route

### 3.0 EXISTING OPERATIONS

It is understood that the subject site currently operates as a commercial avocado farm, with approximately 6,500 trees currently in use.

Based on information provided by the operator, the harvesting window occurs between February and October, with the intention of only harvesting once a year. In 2014, the harvesting season occurred between April and July over approximately 73 days.

Vehicle movement numbers were recorded for the 2014 harvest, which includes a daily breakdown of the existing avocado farm activity. The recorded vehicle numbers and associated tasks have been tabulated and included in Appendix B.

Currently, during the harvest, daily vehicle numbers range from two (2) to 14 vehicle movements per day, where the peak vehicle movements generally occur on days when avocados are picked and packed, and then loaded onto a Large Rigid Vehicle (Austroads Class 4-14 pallet truck). Heavy vehicle movements were recorded on 18 days of the 73 -day season, equating to an average frequency of one (1) truck for every four (4) days of the picking season. No more than two (2) heavy vehicle movements were recorded on any day in the picking season.

In addition to the above it is noted that the existing cropping activities on the subject site includes the ability to provide on-site storage for a significant amount of fruit which is able to be pre-cooled for transport to various destinations nationally and internationally. It is understood that these facilities allow and the durability of the existing crops allows for the avocados to be picked and stored for up to 8 weeks prior to distribution from the site. This flexibility provides the ability to effectively manage the transport of any avocado crop such that the transport of this product via the external road network does not occur concurrently with the activity periods associated with the current poultry growing operation.

### 3.1 TRANSPORT ROUTE

For the existing avocado operation, most vehicles travel along Top Forestry Road, Old Ceylon Road, and Cooroy Belli Creek Road, as demonstrated in Figure 3-1. Given the nature of sales of avocados, it is expected that transport route could vary from Cooroy Belli Creek Road, however assuming that most sales are for major distributers, it is likely that the majority of vehicle movements associated with the general operation of the avocado farm originate from either Cooroy township (staff) or the Bruce Highway, North-east of the site.



Figure 3-1 Existing Transport Route

### 4.0 PROPOSED OPERATIONS

### 4.1 DETAILS OF THE PROPOSED DEVELOPMENT

The proposed poultry farm is intended to provide a growing operation under contract with one of the major suppliers of chicken, Ingham. The proposal is for the development of 8 poultry growing sheds with an overall Floor Area or approximately $13,695 \mathrm{~m}^{2}$. From our own discussions with key contract management personnel from Ingham, we understand that as a result of new guidelines negotiated with the RSPCA the bird densities are being further reduced from previously contemplated densities. The current proposal is for a stocking density of 16.7 birds per square metre which will result in an ultimate capacity in the order of 230,000 birds.

The sheds are proposed to be 100 to 130 metres long by 16.0 to 16.5 metres wide aligned along the ridgelines through the site.

While we have held numerous discussions with the development proponent, to gain a clear understanding of their intended operation we have also, through interviews with another experienced existing long term "grower" and with a senior member of the Ingham organisation who manages existing contracts with growers.

Through our investigations we have gained an understanding that the growth cycle and the management of same is well controlled and managed via Ingham, including supply of birds, feed and ultimately collection of the live birds for market. From our own discussions with Ingham representatives we understand that the growth cycle is very controlled down to the specifics of the collection process and the "age of the birds" at the time of collection. We understand that the entire batch cycle is limited to 63 days ( 9 weeks).

It is proposed to construct poultry growing sheds on the subject site as a two stage development. Stage 1 of the development will comprise five sheds (Shed 1 to Shed 5), with the further three sheds (Shed 6 to Shed 8 ) to be constructed as Stage 2 of the development.

### 4.2 POULTRY FARM OPERATIONS

The proposed development is for a commercial poultry farm, whereby the operators will grow chickens from one day old through to two target weights when collection takes place. The overall process takes place over a 63 days ( 9 weeks) cycle, which includes every aspect of the process, including cleaning and preparation of the facilities for the next cycle. As a result of these timeframes, 5.8 cycles or batches are expected to occur every year.

A summary of the general timeframes for the chick delivery, bird growth, bird collection, and cleaning and preparation stages is shown in Figure 4-1.


Figure 4-1 Proposed Nine Week Cycle

It is understood that due to the complex logistics required to manage chicken sizes that meet the requirements of the Ingham customer, there is little flexibility in the 63 day schedule particularly with respect to the collection of birds. As a result of this predictability, daily tasks have been forecasted for the proposed poultry farm, leading to what we believe are robust forecasts of vehicle movements over the 63 day cycle. The detailed forecasted vehicle movements for the proposed poultry farm have been included in Appendix C. These vehicle movement forecasts have been developed with the assistance of an experienced poultry grower for Ingham's, and through our discussions with both the development proponent and a key contracts manager from Ingham's. Importantly also these have been based on the advised stocking densities which are being applied to growers by Ingham.

The total vehicle movements for each day of the cycle are demonstrated in Figure 4-2, which identifies the following key aspects regarding activity of the proposed poultry farm over the 63 day cycle:

- For 30 days of the 63 day cycle ( $47 \%$ of the time), the poultry farm operation will generate no activity external to the site specifically related to the proposed poultry farm;
- Only 11 days (approximately $17 \%$ ) of the 63 day cycle will experience more than four vehicle movements external to the site per day, specifically related to the proposed poultry farm;
- During the initial growth stage of the cycle, there is a 30 day period where the maximum number of vehicles movements specifically associated with the poultry farm, does not exceed four (4) vehicles per day; and
- The maximum number of vehicle movements per day is forecasted to be $24-26$ vehicle movements, which occurs on two (2) days in Week 7 and on one (1) day in Week 8. These vehicle movements are associated with the collection of the larger sized bird.


Figure 4-2 Poultry Farm Cycle - Total Vehicle Movements per Day

- The peak shown in Week 1 involves the delivery of shavings to the site, and accounts for the entrylexits movements of only eight, large rigid vehicles (approx. 15T GVM) each day over two days. The vehicles are expected to arrive between $8 \mathrm{am}-4 \mathrm{pm}$, with a 30 minute layover between arrival and departure.
- The peak shown over Week $5 / 6$ involves the initial live bird pick-up. During this collection stage it is expected that approximately $40 \%$ of the live birds would be removed for market. It is expected that this would include 16 articulated vehicles (AVs) movements per day over two days (8 laden vehicles per day over two days); and
- $\quad$ The peaks shown in Weeks 7 and 8 are associated with the balance of the live bird pickup, and includes up to 11 articulated vehicles (AVs) per day over three days.
- As seen in the graph above and the detailed spreadsheet provided in Appendix C, peak activity associated with articulated vehicles occurs in conjunction with bird collection and this is limited to just 5 days throughout the 63 day cycle.
- Adding the delivery of shavings at the commencement of a grow cycle and removal of litter at the completion of a cycle results in just 9 days of the 63 days cycle having heavy vehicle traffic volumes exceeding 10 vehicles movements per day.

From our discussions we understand that the collection of the live birds generally occurs in the early hours of the morning commencing typically from 2:30am, when the birds are calm, reducing bird stress and facilitating an easier collection process. We also understand that a single articulated vehicle arrives on site at a time is loaded by the collection crew. We understand that this loading process takes in the order of 60 minutes per truck. Assuming each of the 10 to 11 trucks are loaded consecutively without delay between vehicles, the loading of birds is forecasted to occur over approximately 10 hours.

As such, this would equate to a maximum of two (2) articulated vehicles travelling along the transport route (either inbound or outbound) in the worst case one hour period. In addition to this it is estimated that during the collection process approximately 5 laden vehicles (10 vehicle movements) would leave the site in the period prior to 7am. Using the traffic survey data obtained in March 2014 (refer Appendix A), Top Forestry Road experienced a maximum of 1622 total vehicle movements on the Friday (worst case) AM peak.

We would not expect that the addition of two (2) articulated vehicles movements during this corresponding period would result in impacts sufficient to warrant refusal of the application.

We note that from a safety perspective the level of traffic volumes being discussed are so low that the likelihood of two vehicles interacting along Top Forestry Road would be very small. We do note however there are some sections of the existing pavement that are less than the desirable 5.5 m in width which would need to be addressed. This is discussed further in Section 4.3 below.

### 4.3 TRANSPORT ROUTE

It is our understanding that the chicken farm will utilise the existing transport route shown in Figure 3-1.

### 4.3.1 COOROY BELLI CREEK ROAD \& OLD CEYLON ROAD

As previously discussed in Section 2.2, Cooroy Belli Creek Road and Old Ceylon Road form part of the Noosa Council's trunk infrastructure road network. Both roads have a sealed pavement width raging from 7 m to 11 m , with a painted centreline along their lengths. Taking into account these aspects of the surrounding road network, the forms of both roads are considered to be adequate to accommodate the forecasted traffic of the proposed poultry farm.

### 4.3.2 TOP FORESTRY ROAD

It is our understanding that historically Top Forestry Road was a State Forestry Logging Route, and as a result Top Forestry Road has been constructed at a relatively high standard. Site investigations undertaken in April and July 2014 confirmed that Top Forestry Road features are what we consider to be a relatively high standard running surface, with no obvious evidence of potholes or rutting.

It is noted that there is not a substantial amount of guidance available for traffic engineers with respect to the appropriate standards for gravel roads, with the currently adopted design guides paying little attention to these standards of road. It is worth noting that throughout Queensland there is a significant network of gravel roads serving a range of purposes ranging from localised access provisions through to major arterial routes serving freight movement functions. A reasonable guide to consider in the assessment of the gravel roads is the Unsealed Roads

Manual, published by the Australian Roads Research Board (ARRB Group). Based on the information provided in Chapter 4 of this manual, Top Forestry Road can in our opinion reasonably be classified as a Class 4B Minor Road. According to the manual, a Class 4B Minor Road generally has the following characteristics:

- All weather two-lane road formed and gravelled or single-lane sealed road with gravel shoulders;
- $\quad$ Carries an average of 50-150 vehicles per day;
- Operating speed standard of $30-70 \mathrm{~km} / \mathrm{h}$ according to terrain; and
- Minimum carriageway width is 5.5 m .

Top Forestry Road generally meets the aforementioned parameters; however, as discussed in Section 1.2, Section 2 (chainage 330 m to $1,000 \mathrm{~m}$ ) of Top Forestry Road has a road width that ranges from 5.2 m to 5.4 m . Even though 5.2 m is considered theoretically an adequate road width to accommodate two passing vehicles, the following mitigation measures are proposed to meet the minimum ARRB width of 5.5 m for a Class 4B Minor Road, whilst also improving the level of comfort to local residents travelling along Top Forestry Road.

Adjacent to the subject site there are two of relatively tight horizontal curves. The horizontal curve closest to the subject site (approx. chainage 1,300.00) has significant width around this bend however the second bend situated at approximately chainage $1,100.00$ would require further works to adequately accommodate two vehicles (including an articulated vehicle) passing each other on these bends. We have identified two options available for the resolution of this horizontal curve.

Each recommendation has been identified in concept sketches included in Appendix D:

- Relocate the existing Give Way sign at the Top Forestry Road / Old Ceylon Road to increase warning distance for drivers approaching the intersection;
- From Chainages 450 m to 800 m , widen carriageway width to 5.5 m , and reinstate the table drains;
- $\quad$ Chainage $1,100 \mathrm{~m}$ - Trim foliage to improve sight distance across the horizontal curve; and
- From Chainages $1,050 \mathrm{~m}$ to $1,286 \mathrm{~m}$ - Improving drivability. There are two possible options:
- $\quad$ Option 1 - localised widening to ensure a minimum carriageway width of 5.5 m , and widening the carriageway width to 7.5 m around the curve at Ch.1,100m. The widening has conceptually matched the existing embankment with the widening being shown on the "uphill" side of the road to avoid widening on the downhill side
which is likely to involve significant slope and embankment stability works. The width of the curve widening has been based on the swept paths of an articulated vehicle and passenger vehicle being able to pass each other on this curve.
- $\quad$ Option 2 - localised widening to ensure a minimum carriageway width of 5.5 m , and installing a sign controlled one-way system, which would require the westbound approach to give way to vehicles travelling eastbound. In order to reinforce the one-way section compliance, the one-way section would need to narrowed to approximately 4.5 m which would be narrow enough to discourage people from trying to "squeeze" past a vehicle travelling in the opposing direction however would accommodate the design vehicle.

On the basis of the assessment we have undertaken as part of our investigations we are of the view that the proposal would have limited impacts on the local road network. The activity associated with the proposed use would be generally a very low impact and very low activity with almost half of the days throughout a 63 day growth cycle expected to generate no external traffic activity. It is on just 5 days throughout this growth cycle where heavy vehicle movements would be noticeable however it is also noted that the vast majority of these movements would not be concurrent with the peak road traffic activity.

Based on our understanding of the proposal and the intended operation, it is reasonable to conclude on this basis that the development traffic is likely to result in little or no vehicle interaction along Top Forestry Road.

Furthermore we have made a number of recommendations which are aimed at addressing what we believe are existing constraints in the road which are not necessarily a function of the increased development traffic. On this basis and our clients' willingness to undertake these works through an infrastructure agreement with the Council we do not believe that there would be any reasonable grounds for refusal of the application.

### 5.0 SUMMARY AND CONCLUSIONS

Lambert \& Rehbein has been commissioned to undertake an assessment of the traffic movement aspects of the proposed poultry farm located at 136 Top Forestry Road, Ridgewood, formally known as Lot 21 on SP226606. The subject development has been subject to previous traffic reports however we understand that the Council remained concerned about the proposal and has identified some uncertainties regarding the level of traffic activity associated with the proposal.

It is understood that the site is currently operating a commercial avocado farm. In the past the site has also included a commercial mango farm and additional avocado trees.

The proposed poultry farm includes 8 poultry growing sheds with an overall area of $13,695 \mathrm{~m} 2$ with an ultimate capacity in the order of 230,000 birds. The sheds are proposed to be 100 to 130 metres long by 16.0 to 16.5 metres wide aligned along the ridgelines through the site. The internal configuration of the site has not been addressed as part of this assessment as this has been subject to previous assessments.

As part of this assessment we have formulated detailed estimates of the potential for vehicle movements associated with the proposal. The use will be a relatively low intensity use with the growing cycle occurring over a 63 day cycle. The vast majority of this period would not see any specific vehicular activity over and above existing staff movements. The peak activity period for the proposed use would typically occur during the live bird collection periods which occur on 5 days throughout the grow cycle. It is important to note that even during these periods the vehicle movements are dispersed across extended periods minimising the impacts on other road users.

From our own site investigations it appears that Top Forestry Road has been constructed at a relatively high standard. Site investigations undertaken in April and July 2014 confirmed that Top Forestry Road features are what we consider to be a relatively high standard running surface, with no obvious evidence of potholes or rutting.

A reasonable guide to consider in the assessment of the gravel roads is the Unsealed Roads Manual, published by the Australian Roads Research Board (ARRB Group). Based on the information provided in Chapter 4 of this manual, Top Forestry Road can in our opinion reasonably be classified as a Class 4B Minor Road. According to the manual, a Class 4B Minor Road generally has the following characteristics:

- All weather two-lane road formed and gravelled or single-lane sealed road with gravel shoulders;
- Carries an average of 50-150 vehicles per day;
- Operating speed standard of $30-70 \mathrm{~km} / \mathrm{h}$ according to terrain; and
- Minimum carriageway width is 5.5 m .

Top Forestry Road generally meets the aforementioned parameters. There are sections of the subject road that do not meet these requirements and as such we have recommended some minor mitigation works for Top Forestry Road. Even though 5.2 m is considered theoretically an adequate road width to accommodate two passing vehicles, we have recommended minor widening of the carriageway in some sections to ensure that the road meets the minimum ARRB width of 5.5 m for a Class 4B Minor Road, which in turn also improving the level of comfort to local residents travelling along Top Forestry Road at all times.

We have also recommended two (2) options that will effectively manage traffic interaction at the relatively tight horizontal curves situated approximately $1,100 \mathrm{~m}$ from Old Ceylon Road. We are of the view that either of these options could be adopted effectively.

On the basis of the assessment we have undertaken as part of our investigations we are of the view that the proposal would have limited impacts on the local road network. The activity associated with the proposed use would be generally a very low impact and very low activity with almost half of the days throughout a 63 day growth cycle expected to generate no external traffic activity. Based on our understanding of the proposal and the intended operation, it is reasonable to conclude on this basis that the development traffic is unlikely to result in little or no vehicle interaction along Top Forestry Road.

Furthermore we have made a number of recommendations which are aimed at addressing what we believe are existing constraints in the road which are not necessarily a function of the increased development traffic. On this basis and our clients' willingness to undertake these works through an infrastructure agreement with the Council we do not believe that there would be any reasonable grounds for refusal of the application.

## APPENDIX A

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: Cooroy ATC
:1. King Parrot Lne / Top Forestry Rd
: Fri, 14th March 2014
: Fine
: 15 mins Data

| Class1 | Class2 | Class | Class |
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## APPENDIX B

Milligan Farms - Existing Avocado Operations

- Recorded Season Vehicle Numbers (73 days)

| Day | Date | Explanation | Number of vehicles |  |  |  |  | Number of vehicle movements (trips) |  |  |  |  | Total Vehicle Trips | Total Heavy Vehicle Trips |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 14 Pallet Rigid Body Truck | 12 Seater | Ute | $\begin{array}{\|c} \text { Passenger } \\ \text { vehicle } \end{array}$ | Motorbike | $\left\|\begin{array}{c} \text { 14 Pallet } \\ \text { Rigid Body } \\ \text { Truck } \end{array}\right\|$ | $\begin{aligned} & 12 \text { Seater } \\ & \text { Mini Bus } \end{aligned}$ | Ute | Passenger vehicle | Motorbike |  |  |
| w | 16/04/2014 | PICK \& PACK |  | 2 |  | 3 | 1 |  | 4 |  | 6 | 2 | 12 | 0 |
| T | 17/04/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| F | 1804/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| 5 | 19/04/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| 5 | 200412014 | PICK \& PACK |  | 2 |  | 2 | 1 |  | 4 |  | 4 | 2 | 10 | 0 |
| M | 2104/2014 | PERMANENT STAFF ONLY |  |  |  | 1 |  |  |  |  | 2 |  | 2 | 0 |
| T | 220412014 | PERMANENT STAFF ONLY |  |  |  | 2 | 1 |  |  |  | 4 | 2 | 6 | 0 |
| w | 23/04/2014 | PICK \& PACK |  | 2 |  | 3 | 1 |  | 4 |  | 6 | 2 | 12 | 0 |
| T | $24 / 0412014$ | PICK \& PACK | 1 | 2 |  | 3 | 1 | 2 | 4 |  | 6 | 2 | 14 | 2 |
| F | 25/04/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| 5 | 26/04/2014 | PICK \& PACK |  | 2 |  | 3 | 1 |  | 4 |  | 6 | 2 | 12 | 0 |
| s | 27/04/2014 | PICK \& PACK |  | 2 |  | 2 | 1 |  | 4 |  | 4 | 2 | 10 | 0 |
| M | 28/04/2014 | PICK \& PACK | 1 | 1 | 1 | 3 |  | 2 | 2 | 2 | 6 |  | 12 | 2 |
| T | 29/04/2014 | PERMANENT STAFF ONLY |  |  |  | 2 | 1 |  |  |  | 4 | 2 | 6 | 0 |
| w | 30/04/2014 | PICK \& PACK |  | 1 |  | 4 | 1 |  | 2 |  | 8 | 2 | 12 | 0 |
| T | 1/05/2014 | PICK \& PACK |  | 1 |  | 1 |  |  | 2 |  | 2 |  | 4 | 0 |
| F | 2/05/2014 | PICK \& PACK | 1 | 1 |  | 1 |  | 2 | 2 |  | 2 |  | 6 | 2 |
| 5 | 3/05/2014 | LOAD ONLY | 1 |  |  |  |  | 2 |  |  |  |  | 2 | 2 |
| 5 | 4/05/2014 | PICK \& PACK |  | 1 |  | 2 |  |  | 2 |  | 4 |  | 6 | 0 |
| M | 5/05/2014 | PICK \& PACK |  | 1 |  | 4 | 1 |  | 2 |  | 8 | 2 | 12 | 0 |
| T | 6/05/2014 | PICK \& PACK | 1 | 1 |  | 4 | 1 | 2 | 2 |  | 8 | 2 | 14 | 2 |
| w | 7/05/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| T | 8/05/2014 | LOADPPERMANENT STAFF ONLY | 1 |  |  | 2 |  | 2 |  |  | 4 |  | 6 | 2 |
| F | 9/05/2014 | LOADPPERMANENT STAFF ONLY | 1 |  |  | 1 |  | 2 |  |  | 2 |  | 4 | 2 |
| 5 | 1005/2014 | PERMANENT STAFF ONLY |  |  |  | 1 |  |  |  |  | 2 |  | 2 | 0 |
| 5 | 11/05/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| M | 1205/2014 | PERMANENT STAFF ONLY |  |  |  | 2 |  |  |  |  | 4 |  | 4 | 0 |
| T | 13/05/2014 | PERMANENT STAFF ONLY |  |  |  | 2 |  |  |  |  | 4 |  | 4 | 0 |
| w | 14/05/2014 | PERMANENT STAFF ONLY |  |  |  | 2 |  |  |  |  | 4 |  | 4 | 0 |
| T | 15/05/2014 | PERMANENT STAFF ONLY |  |  |  | 2 |  |  |  |  | 4 |  | 4 | 0 |
| F | 16/05/2014 | PERMANENT STAFF ONLY |  |  |  | 2 |  |  |  |  | 4 |  | 4 | 0 |
| 5 | 17/05/2014 | PERMANENT STAFF ONLY |  |  |  | 2 |  |  |  |  | 4 |  | 4 | 0 |
| 5 | 18/05/2014 | PERMANENT STAFF ONLY |  |  |  | 1 |  |  |  |  | 2 |  | 2 | 0 |
| M | 19/05/2014 | PICK \& PACK |  | 1 |  | 1 | 1 |  | 2 |  | 2 | 2 | 6 | 0 |
| T | 20/55/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| w | 21/05/2014 | PERMANENT STAFF ONLY |  |  |  | 2 | 1 |  |  |  | 4 | 2 | 6 | 0 |
| T | 2205/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| F | 23/05/2014 | LOADPICK \& PACK | 1 | 1 |  | 2 |  | 2 | 2 |  | 4 |  | 8 | 2 |
| s | 24/05/2014 | PERMANENT STAFF ONLY |  |  |  | 2 | 1 |  |  |  | 4 | 2 | 6 | 0 |
| 5 | 25/05/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| M | 26/05/2014 | LOADPPERMANENT STAFF ONLY | 1 |  |  | 2 | 1 | 2 |  |  | 4 | 2 | 8 | 2 |
| T | 2705/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| w | 28/05/2014 | LOAD/PICK \& PACK | 1 | 1 |  | 2 | 1 | 2 | 2 |  | 4 | 2 | 10 | 2 |
| T | 29/05/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| F | 30/05/2014 | LOAD/PICK \& PACK | 1 | 1 |  | 2 |  | 2 | 2 |  | 4 |  | 8 | 2 |
| 5 | 31/05/2014 | PERMANENT STAFF ONLY |  |  |  | 1 |  |  |  |  | 2 |  | 2 | 0 |
| 5 | 1/06/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| M | 206/2014 | LOADPPERMANENT STAFF ONLY | 1 |  |  | 2 |  | 2 |  |  | 4 |  | 6 | 2 |
| T | 3/06/2014 | PERMANENT STAFF ONLY |  |  |  | 2 |  |  |  |  | 4 |  | 4 | 0 |
| w | 4/06/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 |  | 8 | 0 |
| T | 5/06/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| F | 6/06/2014 | PICK \& PACK |  | 1 |  | 3 |  |  | 2 |  | 6 |  | 8 | 0 |
| 5 | 7/06/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| 5 | 8/06/2014 | LOAD/PICK \& PACK | 1 | 2 |  | 2 | 1 | 2 | 4 |  | 4 | 2 | 12 | 2 |
| M | 9/06/2014 | PERMANENT STAFF ONLY |  |  |  | 1 |  |  |  |  | 2 |  | 2 | 0 |
| T | 10/06/2014 | PICK \& PACK |  | 1 |  | 2 |  |  | 2 |  | 4 |  | 6 | 0 |
| w | 11066/2014 | LOADPICK \& PACK | 1 | 1 |  | 2 | 1 | 2 | 2 |  | 4 | 2 | 10 | 2 |
| T | 1206/2014 | LOAD/PICK \& PACK | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 4 | 2 | 12 | 2 |
| F | 13/06/2014 | LOAD/PICK \& PACK | 1 | 1 |  | 3 | 1 | 2 | 2 |  | 6 | 2 | 12 | 2 |
| 5 | 14/06/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| 5 | 15/06/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| M | 16/06/2014 | PICK \& PACK |  | 1 |  | 2 |  |  | 2 |  | 4 |  | 6 | 0 |
| T | 17/06/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| w | 18/06/2014 | PICK \& PACK |  | 1 |  |  | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| T | 19/06/2014 | PICK \& PACK |  | 1 |  | 2 |  |  | 2 |  | 4 |  | 6 | 0 |
| F | 20066/2014 | LOAD/PICK \& PACK | 1 | 1 |  | 2 |  | 2 | 2 |  | 4 |  | 8 | 2 |
| 5 | 2106/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| 5 | 2206/2014 | STAFF DAY OFF |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| M | 23/06/2014 | PERMANENT STAFF ONLY |  |  |  | 1 |  |  |  |  | 2 |  | 2 | 0 |
| T | 24/06/2014 | PICK \& PACK |  | 1 |  | 2 | 1 |  | 2 |  | 4 | 2 | 8 | 0 |
| w | 25/06/2014 | PERMANENT STAFF ONLY |  |  |  | 2 |  |  |  |  | 4 |  | 4 | 0 |
| T | 26/06/2014 | PICK \& PACK |  | 1 |  | 2 |  |  | 2 |  | 4 |  | 6 | 0 |
| F | 2706/2014 | LOAD/PICK \& PACK | 1 | 1 |  | 2 |  | 2 | 2 |  | 4 |  | 8 | 2 |
|  |  | Total | 18 | 48 | 2 | 129 | ${ }^{33}$ | ${ }^{36}$ | ${ }^{96}$ | 4 | 258 | ${ }^{66}$ | 460 | ${ }^{36}$ |

## APPENDIX C

## APPENDIX D

PROPOSED MITIGATION MEASURES




