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1 December 2020

Mr Stephen Sawtell  
Stephen Sawtell Consultants  
78 Fairview Road  
SAPPHIRE BEACH, NSW, 2450

Our ref: 20-206  
Your ref:

Dear Stephen,

## **Investigation of Traffic Related Matters Associated with Proposed Subdivision of 189 Gaudrons Road**

### **1 Background**

A proposed plan of subdivision has been submitted to Coffs Harbour City Council to subdivide Lot 2 DP 555362, 189 Gaudrons Road into 4 lots. The existing single dwelling on the property will be located on Lot 1.

It is anticipated that Lot 2 will have frontage to Gaudrons Road, to the south of Lot 1 and Lots 3 and 4 will have access over Lot 2 via a Right Of Carriageway. The zoning of the lane is E2, Environmental Conservation and RU2 Rural Landscape.

Coffs Harbour City Council has provided a list of road and access related issues to be addressed resulting from the TLC meeting notes of 17 June 2020. The matters include:

1. The first dot point notes that it is a requirement of subdivision that the access road from Solitary Islands Way comply with Section 3.6 of the Design Development Specification 0041. This will require 6 m road with 1 m shoulders.
2. The second dot point relates to provision of access to internal lots via a ROC. "ROC servicing 4 lots will not be accepted. Maximum of 3, affects RFS (Rural Fire Service) requirements – if its above 3 then this becomes a public road. Make sure each access has the correct sight distances. DCP (DCP 2015) notes no more than 3 resulting lots (DCP 2015 Clause 1.8 requirements)
3. The location of the ROC splits the lots – this is unacceptable. This can lead to issues between the property owners.
4. The fourth dot point relates to stormwater management which is a matter for others to address.
5. The fifth dot point states that the assessment of the available sight distance at the proposed new access for lots 2, 3 and 4 will have to comply with Austroads requirements for road intersections and not property driveways.
6. The final sixth dot point relates to construction details associated with the ROC. Passing bays and sealing may be required.

## 2 Site Inspection

Inspections of the site were carried out on 24 and 27 November 2020. The weather was fine.



Figure 1 - The northern part of the site fronting Gaudrons Road.

## 3 Subdivision

It is proposed to subdivide the existing lot 2, which has an area of 4.475 ha, into 4 lots of not less than 1.0 ha in area. Both lots will have more than 50 m of frontage to Gaudrons Road. Lot 1 with the existing dwelling is proposed to have a frontage of approximately 70 m to Gaudrons Road and Lot 2 will have a frontage of approximately 48 m.

An extract from an initial plan of subdivision by Ian G Evison & Partners, Consulting Surveyor dated 22/7/20 is included below.



Figure 2 – Proposed subdivision layout.

#### 4 Access Sight Distance Assessment

Point 5 of the TLC notes repeated on page 1 of this report refers to “C1.8 Infrastructure Requirements for Rural and Large Lot Residential Subdivision”

##### Requirements

*(3) Where access is provided to service three resulting lots via a right of carriageway, the access is to be constructed to a public road standard in accordance with Council's Development Specifications.*

The inclusion of such a draconian requirement in the DCP will stifle appropriate development and can not be reasonably supported by any proper analysis of requirements for property access or traffic safety.

The traffic generation from 3 lots will be approximately 22 trips per day. If it is assumed that all outgoing trips occur during one hour each morning and the same for incoming trips in the afternoon then the headway or time separation of vehicles entering and leaving the ROC is an average of 5.5 minutes.

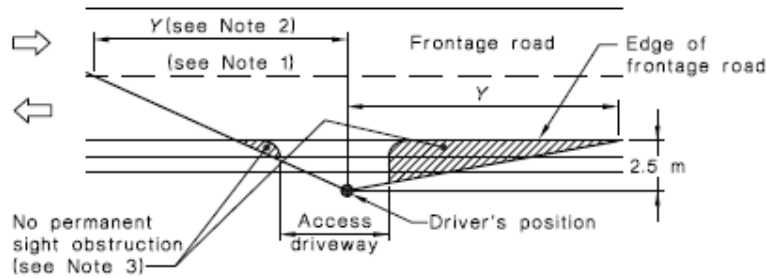
*AS/NZS 2890.1 Parking Facilities Part 1: Off-street car parking* classifies parking facilities for shopping centres etc. on the basis of the number of parking spaces and the frontage road type. For a parking facility of up to 100 parking spaces with access to a local road a combined entry and exit driveway, not less than 3.0 m wide is an acceptable solution. Such a carpark may have a turnover of 100 vehicles in say 1.5 hours which would result in a headway of less than 30 seconds. Compared to 5.5 minutes for the 3 lots it can be seen that Council's requirement is arbitrary and not beneficial.

A further disbenefit is that the private access would have the appearance of a public road and then be an attractor for sightseers which would not be beneficial to overall traffic safety as it would then increase the number of intersection turning movements with a consequential increase in exposure to risk of an intersection crash.

Accordingly, the proposed new access location has been assessed on the basis of the requirements of *AS/NZS 2890.1 Parking Facilities Part 1: Off-street car parking* which caters for access driveways. The existing access to the existing dwelling on proposed lot 1 has not been reviewed as it is existing.

#### **4.1 Sight Distance Requirements**

Sight distance requirements are documented in *AS/NZS 2890.1 Parking Facilities Part 1: Off-street car parking* as shown below.



Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		
	Access driveways other than domestic (Note 5)		Domestic property access (Note 6)
	Desirable 5 s gap	Minimum SSD	
40	55	35	30
50	69	45	40
60	83	65	55
70	97	85	70
80	111	105	95
90	125	130	Use values from 2 <sup>nd</sup> and 3 <sup>rd</sup> columns
100	139	160	
110	153	190	

**Figure 3 – AS 2890.1 Figure 3.2 Sight Distance Requirements at Access Driveways**

The Minimum SSD in the figure above is Stopping Sight Distance as contained in Austroads Guide to Road Design – Part 3 Geometric Design, 2017. Stopping Sight Distance (SSD) is the distance to enable a normally alert driver, travelling at the design speed on wet pavement, to perceive, react and brake to a stop before reaching a hazard on the road ahead. The reaction time is taken as 2.0 seconds and the values above have been rounded to the nearest 5 m.

The driver's sight line is taken to be from eye height at 1.1 m to an approaching vehicle also at 1.1 m. It is noted that more recent Austroads sightline criteria adopt a vehicle height of 1.25 m which will result in greater sight line lengths when sighting over a crest.

$$SSD = \frac{R_T V}{3.6} + \frac{V^2}{254(d + 0.01a)}$$

where

- $R_T$  = reaction time (sec)
- $V$  = operating speed (km/h)
- $d$  = coefficient of deceleration (longitudinal friction factor)
- $a$  = longitudinal grade (% , + for upgrades and – for downgrades)

**Figure 4 – Austroads GTRD 03-16 Section 5.3.**

#### **4.2 Access to Lot 2**

A single point of access for Lot 2 and the ROC is proposed as indicated by an existing fence opening and internal graded access.

Available sight distances at the access are as follows:

- The available sight distance to eastbound traffic is 84 m
- The available sight distance to westbound traffic is 160 m
- The grade of Gaudrons Road at the access is 4.5%.



**Figure 5 - Intersection of proposed access with Gaudrons Road**



**Figure 6 – Sight line from access to westbound traffic.**



**Figure 7 – Sight line from access to eastbound traffic.**

For traffic travelling west uphill to the point of impact at the access a sight distance of 160 m equates to an approach speed of more than 100 km/h. It is expected that the approach speed would be less than 60 km/h due to the mountainous terrain and uphill grade. A horizontal curve located east of the access was assessed to have a radius of approximately 65 m which equates to a travel speed of 47 to 50 km/h.

For traffic travelling east downhill to the point of impact at the access a sight distance of 84 m equates to an approach speed of 70 km/h including allowance for the downgrade. It is expected that the approach speed would be less than 60 km/h due to the mountainous terrain and undulating grade. The posted speed limit is 60 km/h. The minimum required sight distance for 60 km/h is 67 m.

## 5 Traffic Generation

From the RMS Technical Direction TDT 2013/04a, Guide to Traffic Generating Developments – Updated Traffic Surveys the traffic generation from Low Density Residential Dwellings in regional areas is:

- 7.4 trips per day per dwelling
- Weekday average evening peak hour vehicle trips 0.78
- Weekday average morning peak hour vehicle trips 0.71

The existing lot contains one dwelling. There will be an increase in daily vehicle trips created by the subdivision resulting from the 3 additional lots.

The additional contribution to traffic on Gaudrons Road is then:

- 22 trips per day
- Weekday average evening peak hour vehicle trips 2
- Weekday average morning peak hour vehicle trips 2

## 6 Upgrading of Gaudrons Road

The advice of Coffs Harbour City Council per point 1 of the TLC advice is that upgrading of Gaudrons Road in accordance with the Coffs Harbour City Council Development Design Specification 0041 Geometric Road Layout Section 3.6 would be required. Section 3.6 contains the following table.

### 3.6 CARRIAGEWAYS

Carriageway widths for rural roads should comply with Table 3.2.

**Table 3.2 Carriageway widths**

Road type	Max traffic volume (vpd)	Max speed <sup>(1)</sup> (km/h)	Carriageway width (m) <sup>(2)</sup>	Shoulder <sup>(3) (4)</sup>	Reserve width
Local Minor	<200	60	6.0 (sealed)	1.0	20
Local Major	>200	80	6.0 (sealed)	1.0	20
Collector	>2000	80 <sup>(8)</sup>	7.0 (sealed)	1.0 (sealed)	20
Arterial Road	NA	100 <sup>(11)</sup>	7.0 (sealed)	1.0 (sealed)	30
Rural Residential	400	60	6 (sealed)	(kerb)	20

The table indicates that the requirements for rural local roads include a sealed pavement 6.0 m wide and 1.0 m shoulders. The provision of a table drain would be outside the 8 m wide formation. Normally a 1.5 m slope at 1 in 4 into the invert of the drain is the standard requirement.

The width of Gaudrons Road was measured at uniform intervals from the end of the concrete pavement at the Solitary Islands Way roundabout as shown in the table below.

It is apparent that the road is not constructed with a uniform minimum sealed width of 6.0 m, nor does it have clearly defined separate shoulders and table drains at many locations. It is

obvious that the road has been shaped into the steep mountainous terrain and given the apparent age of the road, standard 1.5 m wide table drains with a 1 in 4 lead in grade can not be achieved due to the constraints on the overall width of the road formation due to the terrain.

Due to the mountainous terrain, it is apparent that a “run off road” type crash would have a high probability of resulting in fatalities. The road has a posted speed limit of 60 km/h and many curves with a safe travel speed less than the speed limit. There are no curve warning signs, no painted centreline, delineation is sporadic, there are many trees in the clear zone and no safety barriers in high risk areas.

Widening of the shoulders in various locations would no doubt result in massive earthworks and potential environmental impacts. As there is no apparent damage to roadsides resulting from insufficient table drain capacity it must be assumed that stormwater drainage is currently adequately catered for. The width of Gaudrons Road was measured at the following locations.

**Table 1 – Gaudrons Road widths.**

Distance from Concrete Rbt pavement (km)	Left shoulder width (m)	Central seal width (m)	Right shoulder width (m)	Comment
0.2	1.5	6.0	3.0	In cutting
0.4	3.0	5.9	1.5	Cutting LHS
0.5	1.5	6.8	1.5	Cutting LHS
0.6	2.5	6.2	3.5	
0.81	1.3	5.6	1.2	Cutting RHS
1.0	1.5	6.0	1.1	Cutting RHS
1.1	2.0	5.5	2.5	Fill embankment
1.2	2.0	5.6	1.1	Cutting RHS
1.4	Driveway	6.5	Driveway	
1.6	1.0	6.1	3.0	
1.7	1.2	5.2	1.0	

From the table above it can be seen that the seal width varies from 5.5 to 6.8 m. The wider seal would include some widening of curves. The arithmetic mean of the seal width is 5.95 m.

Previous indications from Council have been that development along the length of Gaudrons Road would result in the need to widen the seal and shoulders in accordance with Council’s Development Specification for greenfield sites. An obvious benefit of the road in its current form is that drivers generally travel at lower speeds and with attention to the road alignment which would probably result in lower reaction times, probably 1.5 seconds would be the norm.

Widening of the road may result in higher operational traffic speeds which without upgrading horizontal curves and reducing grades could result in more traffic accidents on the road. Instead, it may be more appropriate to take a road safety approach in accordance with the “safe system” to carry out safety works which would reduce potential crash severity, serious injuries and possible deaths.

The proposed new access at 189 Gaudrons Road is located at 1.65 km in the table above.

It is apparent that a blanket application of Council’s rural road standard to the road would not be an efficient expenditure of limited funds as any incremental improvement would be at enormous cost. Also, it is understood that there are currently 67 dwellings which gain access via Gaudrons Road. Full development of the subdivision would result in three additional dwellings. The impact of the traffic increase would be only 4.5% and it would be difficult to attribute the need for any upgrading works to the resulting increase in traffic from the subdivision.

It is noted that Council does not have a Section 7.11 Infrastructure Contributions plan for Gaudrons Road. Therefore, Council is not legally entitled to require the developer to contribute to works at other locations along the length of the road.

## **7 Access Via ROC**

The second point of the TLC advice relates to the number of lots accessed via a Right of Carriageway. The advice indicates that access for 4 lots over a ROC is not permissible and that access for 3 lots has special RFS requirements.

The terms of access via the ROC will be defined in the Sect 88B instrument to be lodged with the plan of subdivision under the Conveyancing Act 1919. The plan of subdivision as shown above clearly indicates that Lot 2 will have frontage to Gaudrons Road and that Lots 3 and 4 will have access via the ROC to Gaudrons Road from the internal lots. Therefore, legal access via the ROC will be for 2 lots only, lots 3 and 4.

Point 3 of the TLC advice indicates that the location of the ROC is unacceptable as “the ROC splits the lots”. Whilst the interest of Council in minimising any future disputes between owners over maintenance is welcomed, that interest should not dictate the location of boundaries or the ROC. At the end of the day the maintenance of the ROC is the responsibility of the owners in accordance with the responsibilities to be defined in the 88B instrument. Council may include particular requirements for the 88B in the consent conditions which it will have the opportunity to ensure are complied with prior to the issue of a Subdivision Certificate but it should not dictate that the ROC should not “split” a lot which is expected to be detrimental to the access design and result in increased environmental risks.

Point 6 of the TLC advice relates to construction requirements which are expected to be part of conditions of consent for inclusion in the design of the ROC.

## **8 Conclusion**

This investigation has proven that the proposed point of access to Gaudrons Road for proposed Lots 2, 3 and 4 is suitable for access from the subdivision to Gaudrons Road.

Development of the 3 new lots will have a net increase in traffic on Gaudrons Road of less than 5% which is minor.

As there is no current EPA Act Section 7.11 Infrastructure Contributions plan for Gaudrons Road Council can not require the applicant to contribute toward upgrading of Gaudrons Road.

Consideration of the mountainous nature of the existing road environment indicates that general upgrading of Gaudrons Road in accordance with Specification 0041 may not produce desirable outcomes and a more targeted approach to safety improvements, funded through Council's normal channels, may be more suited to the locality.

If any of these issues need clarification please contact me on 0432 016 490.

Yours sincerely



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