

REF: 19270 - ROAD WIDTH ASSESSMENT_1.DOCX
YOUR REF:

5/05/2023

The General Manager
Byron Shire Council
PO Box 219
MULLUMBIMBY, NSW 2482

Re: Road Width Assessment — for Proposed Subdivision of 180 Flowers Road, Binna Burra under DA 10.2022.270.1

Greg Alderson and Associates (GAA) have been engaged to assess the suitability of the roadway construction requirements stipulated in Condition 4 (a) of DA 10.2022.270.1, associated with the proposed subdivision of Lot 3, DP 1259194, into two lots.

Condition 4 (a) is as follows:

a) Full Width Road Construction

Flowers Road to be extended to the full frontage of the proposed Lot 1 & up to the driveway entrance to Lot 2 (i.e., at proposed ROW). Full width road and drainage construction for the following but not limited to:

- 6.0m wide gravel carriageway
- 300mm pavement minimum
- Table drains and
- Turn area treatment at the end of the road

The Condition 4(a) requirements for pavement depth, table drains and turn treatment are considered reasonable and in line with current Northern Rivers Local Government (NRLG) requirements. However, widening the existing access road to 6.0m is considered not necessary to cater for the predicted low traffic load. It is therefore proposed that the road width is reduced in order to reflect the proposed two lot subdivision and be designed in accordance with the Australian Road Research Board (ARRB). As such, an assessment of the required road width is provided in further detail below.

It is further noted that the provision of a turn treatment at the end of the road is not feasible based on topographical / geometrical site constraints. It is recommended that the exact location of the turn treatment is determined at detailed design phase based on site constraints and survey data. However, this turn treatment should be provided at a location that has clear line of sight to the road end.

1. Existing Access Road

Flowers Road is a rural gravel road that provides access up to the current boundary of Lot 3 DP1259194, the subject property. The width of Flowers Road in this vicinity is 3m to 4m. Council does not maintain the road past the boundary of the subject property, where it continues currently in the form of a private access driveway within the extents of the Flowers Road road reserve. This access road services the neighbouring Lot 10 DP1084921 and the subject property only beyond the boundary of the subject property.

Upon issue of the subdivision certificate, the access road would also provide access to the new proposed Lot 2 and a ROW to portions of Lot 1.

The existing access road has a current 3m to 4m unsealed gravel formation in good condition. Comfortable driving speed was found to be in the order of 20 to 30km/hr.



2. Extent of Works

It is understood that it is not the intent of council's condition to upgrade the roadway to the proposed ROW for Lot 2 but rather to the driveway of the neighbouring lot of Lot 10 DP 1084921. An excerpt of the approved subdivision plan is shown below, with the added overlay highlighted in yellow indicating the extent of the existing access road proposed to be upgraded in accordance with the requirements of Condition 4a). This would ensure that the access to neighbouring Lot 10 DP1084921 is not diminished as a result of the proposed development.

Beyond this point the roadway contains some constructability issues with regards to width and will only service the proposed development. By nature, this last section of access road should essentially be constructed / upgraded to the driveway standards outlined in AS2890, NRLG and Planning for Bushfire Protection.

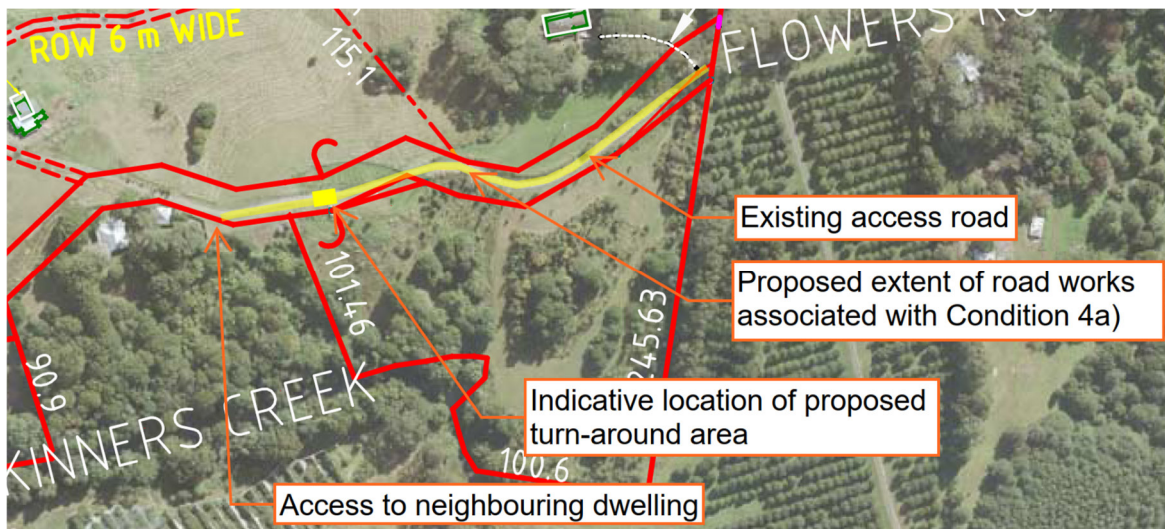


Figure 1 - Excerpt of approved subdivision plan with mark-ups in orange

3. Road Width Requirement

Whilst the specified gravel carriageway width of 6.0m is in line with the carriageway widths outlined in Table T 1.27 of D1 Geometric Road Design (Urban and Rural), widening the access road to 6.0m is not necessary to cater for the proposed development from an engineering perspective.

Roads with a 6.0m wide seal as per Table T 1.27 cater for up to 150 to 500 vehicles per day depending on the shoulder width. The access road would cater for significantly less traffic flows. Theoretically, the access road could service a maximum of 4 to 5 dwellings in the future, which results in a predicted 30 to 37 vehicles per day (as per RMS Guide to Traffic Generating Developments Technical Direction TDT 2012/04a - 7.4 daily vehicle trips per dwelling). It is noted that current planning regulation prohibits any future growth / residential development that could be serviced by the 'no-through' access road, and therefore the predicted vehicles per day would remain at up to 37 vpd.

Table 3.9 from the ARRB Unsealed Roads Best Practice Guide, Ed. 2, 2020, would classify the development access road as a Class 4C Access Road, which are characterised by 10 to 50 vehicles per day and operating speeds of 20 to 40 km/hr. These roads are described within the Guideline as providing access to low use areas or individual rural property sites and can have a minimum carriageway width of 4m. Based on safety, costs and environmental considerations, Table 3.10 of the Guideline provides the following geometric design standards for Class 4C unsealed Access Roads with operating speeds of 20 km/hr:

- Minimum traffic lane width of 3m
- 0.5m to shoulder width
- Minimum carriageway width of 4m

It is noted that the above cross-sectional design criteria are also in line with Appendix A from the ARRB Transport Research Report ARR 354 – Road classifications, geometric designs, and maintenance standards for low volume roads.

Based on the above, it is recommended that the existing access road is upgraded to provide a minimum **4m wide unsealed gravel pavement** (refer to the attached typical cross-section of upgrade works detail, dwg. 19270-DA-C01). Additionally, passing bays should be provided every 200m, as stipulated within the Planning for Bushfire Protection 2019 guideline.

In addition to the above, the following points are provided to further justify a reduction in the road width specified in Condition 4a):

- Widening the access road to 6m would provide a no-through extension past Councils current Flowers Road maintenance extents that would be wider than the majority of Flowers Road itself.
- Safety concerns around an increase in speed that would result from widening the road to 6m.
- Significant and onerous earth works would be required to extend the existing access road width to 6m.
- Greater environmental and economic impact that is considered unnecessary to cater for the predicted traffic load.
- An increase in maintenance issues.

4. Summary / Recommendations

It is recommended that Condition 4a) is amended to include the following road construction requirements:

- **4.0m** wide gravel carriageway **with passing bays spaced** no further than 200m apart as per Planning for Bushfire Requirements 2019;
- 300mm pavement minimum;
- Table drains and
- Turn area treatment (**within line of sight to the end of the road**)

We trust that this assessment will aid council in arriving at a suitable solution and detailed engineering plans will be provided once the s4.55 is approved as part of a s138 application.

If you have any questions, please contact this office.

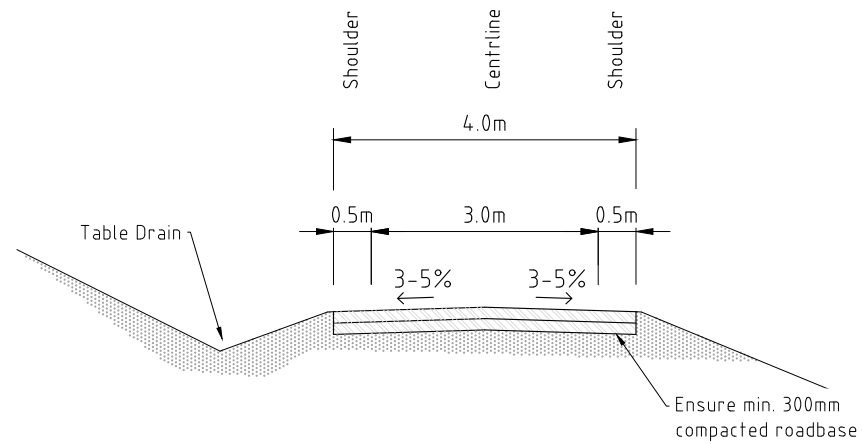
Kind Regards,
Greg Alderson and Associates.

Jacob Blucher
Civil & Environmental Engineer



Attachments:

- **Typical Section of Upgrade Works within Flowers Road Road Reserve, Dwg. 19270-DA-C01, 05/05/23**



Typical Section of Proposed Upgrade Works within Flowers Road Road Reserve
SCALE 1:100

Job Number: 19270	Drawing Number: 19270-DA-C01	Drawn: JB	Scale: As shown at A4
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Rev	Revision Description	BY	DATE	THIS DRAWING IS CONFIDENTIAL AND IS THE PROPERTY OF GREG ALDERSON AND ASSOCIATES. IT MUST NOT BE DISCLOSED TO A THIRD PARTY, REPRODUCED, COPIED, OR LENT WITHOUT THE WRITTEN CONSENT OF THE PROPRIETOR.
				DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
A	CONCEPT ACCESS DETAIL	JB	05/05/2023	REFER COVER SHEET FOR NOTES UNLESS NOTED OTHERWISE
Z:\JOBS\19\19270 - Michael Douglas\CIVIL\19270__Typical Access Road Cross Section.dwg				

 <p>Greg Alderson Associates</p> <p>ABN 58 594 160 789 43 Main Street, (PO BOX 12344) CLUNES NSW 2480 Ph: 02 6629 1552 E: office@aldersonassociates.com.au Web: aldersonassociates.com.au</p>	Client: J & M Douglas	Title: Upgrade Works Typical Cross-Section
	Site address: Lot 3 DP 1259194 180 Flowers Road, BINNA BURRA NSW 2479	Project: PROPOSED SUBDIVISION