

Wonawinta Mine

“Manuka Station”

**Manuka-Yarranvale Road (SR14)
&**

Cobar-Bedooba Road (SR13)

Council Road Upgrade Report

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1.0 INTRODUCTION

TGM Group Pty Ltd have been engaged by Cobar Consolidated Resources (CCR) to undertake an assessment of the Council Road upgrade for the proposed transport route from the Barrier Highway (Kidman Way) to Manuka Station; the project site.

The specified route is south-west of the Barrier Highway (Kidman Way) on the Manuka-Yarranvale Road (SR14) and then south on the Cobar-Bedooba Road (SR13) to the 'Manuka Station gate'. A layout plan of the existing road network is provided in Figure 1.0.

This report is based on a series of visual inspections and assessments and a review of the AUS-SPEC requirements, which we understand are generally used as Development Design Specifications and Guidelines in New South Wales (NSW). The detailed assessment and subsequent work recommendations in each of the specific key areas are outlined further in this report.

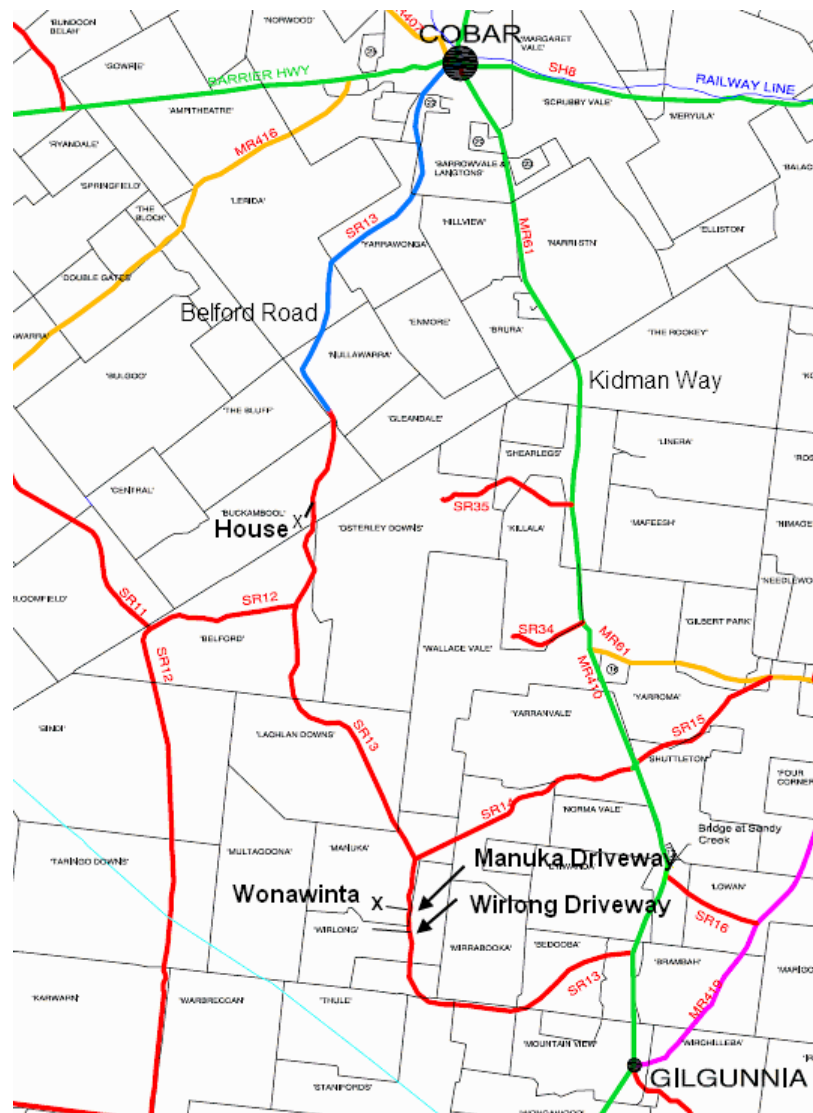


Figure 1.0 Existing Road Network

2.0 Existing Conditions

The total length of the transport route from Barrier Highway (Kidman Way) to the Manuka Station gate is approximately 30.0kms, which comprises; approximately 25.5kms of the Manuka-Yarranvale Road (SR14) and 4.5kms of the Cobar-Bedooba Road (SR13).

Each of the existing roads primarily provides access and egress to a small number of rural properties and they are considered to be classed as a Minor Road or a 'rural local access road' where the objective is to provide safe access to each of the abutting properties. The existing roads are comparable to other similar roads in the area in regards to the formation width, condition and layout.

In general each road has a 'central ridge' and there is evidence of minor superelevation on some of the major horizontal curves. Each of the existing roads has a formation width of 7.0m-8.0m, comprising a 5.0m-6.0m 'traffic surface' and 1.0m-1.5m shoulders. There are formed profiled table drains on either side of the trafficable pavement formation. Figure 2.0 indicates a typical formation profile of the existing roads.

From our visual inspections and assessments the existing pavement 'traffic surface' and shoulders are generally in good condition, however some sections of the current pavement are showing moderate signs of distress mainly relating to the floodway areas. The extent of the pavement that is showing signs of distress is estimated to be 5km. The pavement's current condition indicates the remainder of existing trafficable pavement formation profile is performing adequately under the existing local traffic conditions.



Figure 2.0 Existing pavement formation

3.0 Proposed Pavement Formation

In addition to the existing minor local traffic volumes, we understand from Section 2 of the Environmental Impact Statement that the critical project related traffic levels will be during construction. In accordance with Table 2.12 it is anticipated that during construction the Average Daily Traffic Movements will be sixty (60) light vehicles and six (6) heavy vehicles; whilst during operation the anticipated Average Annual Daily Traffic (AADT) movements are twenty (20) light vehicles and eight (8) heavy vehicles.

In accordance with Section D1.27 of AUS-SPEC rural road carriageway widths, the above AADT movements indicate that each of the roads would be classified as 'Minor Roads requiring a minimum of a 6.0m 'traffic surface' and 1.0m shoulders.

We have completed a review on a number of other local NSW Council's requirements which suggest rural roads with AADT movements less than 500 require a 6.0m-7.0m 'traffic surface' and a minimum of 0.50m shoulders.

Subsequently considering the expected AADT movements during the construction period, we suggest a pavement formation width of 8.0m consisting of a 6.0m 'traffic surface' and 1.0m shoulders is suitable.

Based on our review and assessment, we recommend that a 150mm compacted thickness layer of weathered sandstone (sourced from the project site) or similar be provided on the 6.0m wide 'traffic surface' to the existing pavement sections showing moderate signs of distress (approximately 5km of pavement). In addition to these works, grading to the existing pavement would be provided where minor signs of rutting or surface defects are showing. This grading and maintenance work would be also carried out at regular intervals over the life of the mine.

To improve traffic performance and safety we would suggest that consideration be given to improving both regulatory and warning signage and providing additional road furniture such as guide posts etc.

4.0 Sandy Creek, Floodway & Cattle Crossings

There are a number of cattle grid (Figure 3.0) and floodway crossings of both Manuka-Yarranvale Road (SR14) and Cobar-Bedooba Road (SR13), in addition Sandy Creek (Figure 4.0) traverses the Manuka-Yarranvale Road (SR14) approximately 11.5kms west of the Barrier Highway (Kidman Way).



Figure 3.0 Typical Cattle Grid Crossing

Typically the cattle grid crossings are 3.0m-4.0m wide and located on straight sections of the roads. We recommend that maintenance works be undertaken at each crossing including repair works to the existing structure/fencing where required, pit cleaning and grading/forming of the abutting pavement. In addition to the maintenance works it is also suggested that signage be erected to notify road users of the oncoming grid crossing. It is anticipated that road users pull over to allow single vehicle passing of the grids as per the current arrangement.



Figure 4.0 Sandy Creek Crossing

The existing floodways and Sandy Creek crossing are not currently considered to be suitable for 'all weather' use and potentially pose a risk of becoming impassable during period of heavy rainfall, particular in the invert or low flow regions. We suggest that the invert and general low flow path of each of the individual floodways and the Sandy Creek crossing be suitably formed with significant rock spalls/crushed rock with appropriate upstream and downstream beaching for erosion control. Each of the rock spall crossings should be constructed for the full width of the pavement formation i.e. 8.0m.

6.0 Estimated Construction Time

The estimated time to complete the work is 8-10 weeks. This is based on having crews working progressively away from the site to complete the road upgrade. The actual time would be dependent on the rate that the sandstone could be excavated, weather conditions and availability of personnel and equipment.

7.0 Summary

Given the current condition of the existing road pavements, intended use and widths of similar roads within the area, the upgraded roads as detailed in this report would be fit for purpose/intended use given the location and AADT as noted in section 3.0.

We believe that the Cobar Shire Council upgrade requirements including providing a full width pavement upgrade for the entire length of SR 14 and SR13 and concreting of the floodways is excessive when considering the current condition of the road pavement. In summary, our recommendation to provide suitable trafficable access roads for the expected mine and local traffic is to complete the following:

- A 'traffic surface' of 6.0m and 1.0m wide shoulder each side
- A 150mm compacted thickness of 'site-won' sandstone or similar for the full 6.0m width of the 'traffic surface' in areas of moderate distress (approximately 5km)
- Grading works of the existing pavement material in the areas showing minor signs of rutting or surface defects
- Maintenance works and additional signage of existing cattle grid crossings
- Construction of crushed rock/spall 'ford' at each floodway and Sandy Creek crossing
- Improved signage