Abstract
The identification of an Aboriginal burial cave during a Landsborough-Maleny Road upgrade project required the identification and implementation of a range of cultural heritage management strategies. Through the combined use of cultural monitoring and vibration studies within and around the cave, the road project was able to progress within time and budget constraints without causing damage to the cave.

Introduction
The Department of Main Roads undertook a road widening project on the Landsborough-Maleny Road, Landsborough in 2006. As part of the project, a cultural heritage assessment was undertaken prior to ground disturbing activities. The cultural heritage assessment identified the existence of an Aboriginal burial cave (Figure 1) on an adjoining private property in the vicinity of the project area. The cave would not be directly impacted by the construction activities, however the effects of ground-induced vibrations on the cave’s structure were not known.

Background
Although the Aboriginal burial cave was located outside the road reserve on an adjoining private property, consultation was undertaken with the relevant Aboriginal party for the area, the Jinibara People, to identify any concerns with the project. Skeletal remains are of particular importance to Aboriginal people and it is generally believed that, wherever possible, remains should be left undisturbed so the spirits of the old people can remain in peace. As a result of concerns raised by the Jinibara people during project discussions, a Cultural Heritage Management Agreement was jointly developed which detailed the management strategy to be implemented for the project. Although the road project was located some distance from the burial cave, a Jinibara elder identified that the proposed construction activities were of concern. It was agreed that a joint site inspection was required to establish the current condition of the cave and identify appropriate management strategies that would ensure protection of the cave during construction activities.
In February 2006, a Jinibara elder and representatives from Archaeo Cultural Heritage Services and Main Roads undertook a joint site inspection of the burial cave. The burial cave’s features were recorded in detail during this inspection as it had been some time since a Jinibara person has visited the cave. Particular attention was paid to the cave’s physical condition during recording. The cave was generally assessed as being in good condition, but there were some cracks appearing along the ceiling of the cave. Theories were proposed for the origin of the cracks including:

- Possibly being related to vibrations from the increased volume of traffic on the Landsborough-Maleny Road.
- Root penetration from a large gum tree growing directly above the cave.

A cultural heritage report was prepared by the Jinibara people and Archaeo Cultural Heritage Services following the site inspection, highlighting the significance of the burial cave to the Jinibara people. Recommendations were made for the management of the cave during road construction activities and these recommendations formed the basis of the project-specific Cultural Heritage Management Agreement (CHMA). The CHMA then formed part of the project’s contract documentation. The desired actions were subsequently carried out by the contractor for the project, RoadTek Asset Services (South).

Four management actions were identified and implemented for the project including:

- Access permission from the private property owner on whose land the burial cave was located;
- Presentation of a site-specific induction session for construction staff;
- Cultural monitoring during clearing and grubbing activities in specified areas;
- Vibration testing and monitoring of the burial cave.

The importance of the cave to the Jinibara people and its sensitivity was made known to RoadTek and highlighted during the site specific cultural heritage induction. RoadTek personnel showed respect throughout the project and especially while working in the vicinity of the cave. The cave’s location was disclosed only to those officers who were directly involved in the vibration

Figure 1. Burial cave

1Photo courtesy of Archaeo Cultural Heritage Services
monitoring and on a “need-to-know” basis out of respect and acknowledgement of the importance the cave to the Jinibara people. In accordance with the CHMA, a vibration monitoring and recording device was installed in the cave prior to the commencement of construction to determine if traffic movement on the Landsborough-Maleny Road was impacting the site. Vibrating roller trials were conducted to measure the effect that this equipment would have on the burial cave. A qualified quality officer (Contractors Quality Representative) reviewed the data generated during the trial runs.

During times of heavy road traffic, vibration readings were taken in the cave before and after construction. Vibration levels did not exceed 0.03mm/s. These readings are very low and are well below the levels that could cause any long-term instability of the cave. The readings were considered to be normal background noise caused by the earth’s natural movement.

Main Roads Standard Specification – Environmental Management MRS11.51 sets the vibration limit at a peak particle velocity of 2mm/s. During compaction trials with a smooth drum 13 tonne roller at full vibration, the measured vibration levels did not exceed 0.09mm/s, with no adverse effects detected. A Jinibara elder was on-site to witness the vibration tests. The Jinibara people also participated in the clearing and grubbing activities, however no cultural heritage material was identified.

As the burial cave is not located within the state-controlled road reserve, Main Roads has no legal obligation to further manage the burial cave site. The Jinibara people requested that Main Roads assist them to liaise with the private property owner to ensure the long-term protection and future management of the burial cave. Any agreement or ongoing management would need to be negotiated directly between the Jinibara people and the property owner. Main Roads, in the capacity of assisting the Jinibara people, subsequently contacted the private property owner who expressed interest and delight at the prospect of discussing the long-term protection of the cave and requested that the Jinibara people contact him directly to determine future actions.

**Conclusion**

The vibration testing confirmed that the cave was not damaged by road construction activities and the long-term future of the burial cave will not be adversely affected by traffic use of the Landsborough-Maleny Road. The vibration testing results before and after construction verified that the level of vibrations measured in the burial cave was the result of the earth’s natural movement. Personnel for the project enjoyed the part they played in preserving the future of the burial cave as part of the Jinibara people’s cultural heritage.

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**References**


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