# Bruxner Highway at Tabulam

Building of new bridge over the Clarence River and removal of existing timber truss bridge

## REF submissions report

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# Executive summary

## The proposal

Roads and Maritime Services proposes to replace the Tabulam bridge situated on the Bruxner Highway between Tenterfield and Casino in the Northern Rivers region of NSW (the proposal). Located on the Clarence River, its position in the northern catchment of one of Australia's largest rivers affords it geographical and environmental significance.

The proposal involves the construction of a new bridge over the Clarence River and the removal of the existing bridge. The removal of the existing heritage listed timber truss bridge is consistent with the Roads and Maritime Timber Truss Bridge Conservation Strategy, endorsed by the Heritage Council in 2012. The proposal would extend from the most western overflow structure, west of the Clarence River, before crossing the river approximately 50 metres at the widest point downstream and on a slight angle to the existing bridge, converging and re-joining the highway at the Clarence Street intersection. The proposal includes:

- Construction of a new concrete super-T girder bridge over the Clarence River approximately 288 metres long and 13 metres wide, incorporating a two metre wide shared path for pedestrians and cyclists
- Construction of an additional 45 metre long bridge to the south of the existing Clarence River Overflow Bridge No.1
- Alterations to the alignment of the road approaches to the east and west to link with the new bridge
- Creation of a new intersection with Clarence River Road adjacent to the Western approach
- Reconstruction of the highway intersections with Clarence Street and Tabulam Road to the east of the Clarence River.

Both existing overflow bridges would be retained on the western approach, one remaining in use on the Bruxner Highway and the second retained as it is outside of the proposal scope and it contains known micro-bat habitat.

## Purpose of this report

This report identifies the issues raised during exhibition of the Review of Environmental Factors (REF) and provides responses to those issues. It also provides clarification to various matters documented in the REF and revised environmental management measures for the project.

## REF public exhibition

Roads and Maritime displayed the project REF for community and stakeholder comment between 25 February and 27 March 2015. During this period, the REF was available on the Roads and Maritime website:

http://www.rms.nsw.gov.au/projects/northern-nsw/tabulam-bridge/index.html

Members of the public were also able to read the REF at selected Roads and Maritime offices and other locations in the Tenterfield and Kyogle local government areas, including:

- Roads and Maritime Services Regional Office, 76 Victoria Street, Grafton
- Roads and Maritime Motor Registries at Tenterfield and Casino
- Tabulam Post Office, 12-14 Court Street, Tabulam
- Tenterfield Shire Council, 247 Rouse Street, Tenterfield
- Kyogle Council, 1 Stratheden Street, Kyogle

## Key issues raised in submissions on the REF

A total of eight submissions were received in response to the REF during the exhibition period. Of these, two were from government authorities and six were from members of the public. The main issues raised in the submissions related to:

- Traffic and transport impacts, including pedestrian and cyclist safety and access
- Construction impacts
- Remembering the old bridge
- Flora and Fauna – with regards to a flying fox colony along Tabulam Rivulet
- Alignment of western approach
- Access to the river
- Objection to existing bridge being demolished
- Potential flood impacts.

The two government authority submissions were received from Department of Primary Industries (Fisheries) and the Heritage Council of NSW. Issues raised in these submissions related to:

- The removal of the existing bridge, including the delisting process and reuse of timber
- Works within the existing bridge's State Heritage Register curtilage prior to delisting
- Sediment and erosion control during construction
- Work in waterways, including managing impacts to water quality, riparian and aquatic vegetation and snags
- Managing impacts to habitat of threatened Eastern Freshwater Cod fish species.

## Revised environmental management measures

The REF identified a range of measures to avoid or reduce the environmental impacts of the project. After considering issues raised in the submissions, the environmental management measures for the proposal have been revised. The revised measures establish the appropriate environmental framework for the proposal to be undertaken, together with any conditions of approval that are required for the proposal.

No additional studies are considered necessary, however additional flood modelling will be undertaken during the detailed design to investigate any potential changes.

## Next steps

Roads and Maritime will assess the proposal and then make a determination.

Roads and Maritime will continue to consult with community members, government agencies and other stakeholders during the detailed design and construction phases of the project.

# Contents

# 1 Introduction and background

## 1.1 Purpose

This submissions report relates to the review of environmental factors (REF) prepared for the New Tabulam bridge project, and should be read in conjunction with that document.

The REF was placed on public display and submissions relating to the proposal and the REF were received by Roads and Maritime Services. This submissions report summarises the issues raised and provides responses to each issue (Chapter 2), and identifies new or revised environmental management measures (Chapter 3).

## 1.2 The proposal

Roads and Maritime proposes to replace the Tabulam bridge situated on the Bruxner Highway between Tenterfield and Casino in the Northern Rivers region of NSW (the proposal). Located on the Clarence River, its position in the northern catchment of one of Australia's largest rivers affords it geographical and environmental significance.

The proposal involves the construction of a new bridge over the Clarence River and the removal of the existing bridge. The proposal would extend from the most western overflow structure, west of the Clarence River, before crossing the river approximately 50 metres at the widest point downstream and on a slight angle to the existing bridge, converging and re-joining the highway at the Clarence Street intersection. The proposal includes:

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Both existing overflow bridges would be retained on the western approach, one remaining in use on the Bruxner Highway and the second retained as it is outside of the proposal scope and it contains known micro-bat habitat.

## 1.3 REF display

Roads and Maritime Services prepared a review of environmental factors to assess the environmental impacts of the proposed works. The review of environmental factors was displayed for community and stakeholder comment between 25 February and 27 March 2015 at six locations, as detailed in Table 1.1. The review of environmental factors was placed on the Roads and Maritime Services internet website and made available for download. The display locations and website link were advertised in the Richmond River Express and the Northern Star newspapers. The advertisements appeared during the weeks of 23 February and 2 March.

A staffed public display was held on Thursday 12 March from 3 to 7pm at the Tabulam Village Hall. Project team staff were available to speak with community members about the outcomes of the REF and capture feedback.

Emails were sent to the project database on the environmental assessment, providing details on how to comment as well as to NSW Fisheries on the aquatic assessment. Meetings were also held with the Heritage Office to discuss the existing State Heritage listed bridge and the process for delisting.

**Table 1.1: Display locations**

| Location | Address |
|---|---|
| Roads and Maritime Services Regional Office | 76 Victoria Street, Grafton |
| Roads and Maritime Motor Registry Tenterfield | 94 Molesworth Street, Tenterfield |
| Roads and Maritime Motor Registry Casino | 157-159 Barker Street, Casino |
| Tabulam Post Office | 12-14 Court Street, Tabulam |
| Tenterfield Shire Council | 247 Rouse Street, Tenterfield |
| Kyogle Council | 1 Stratheden Street, Kyogle |

# 2 Response to issues

Roads and Maritime Services received eight submissions, accepted up until the 13 April 2015. Table 2.1 lists the respondents and each respondent's allocated submission number. The table also indicates where the issues from each submission have been addressed in Chapter 3 of this report.

**Table 2.1: Respondents**

| Respondent | Submission No. | Section number where issues are addressed |
|---|---|---|
| Individual | 1 | 2.2.1, 2.2.2, 2.3, 2.4, 2.5.2, 2.6.1 |
| Individual | 2 | 2.2.4, 2.2.3, 2.6.1 |
| Individual | 3 | 2.2.5 |
| Individual | 4 | 2.6.1, 2.6.2, 2.5.2 |
| Individual | 5 | 2.2.4, 2.5.1, 2.5.2 |
| Individual | 6 | 2.6.2, 2.5.2 |
| Department of Primary Industries – Fisheries | 7 | 2.7.1 |
| Heritage Council | 8 | 2.7.2 |

## 2.1 Overview of issues raised

A total of eight submissions were received in response to the display of the environmental assessment - two submissions from government agencies and six from the community.

Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and Roads and Maritime Services response to these issues forms the basis of this chapter.

Of the six submissions from the community received, one objects to the proposal, with another supporting the construction of the new bridge but not the removal of the existing bridge. The other four submissions refer to detailed design matters with the proposal, including two submissions which raised concerns about the alignment of the western approach. Five submissions were received on feedback forms provided at the staffed drop in session, with the other submission received via email during the submissions period.

Of the two government submissions, the Heritage Office referred to the process for seeking to delist the state heritage bridge which is proposed to be removed as part of the REF. The NSW Fisheries submission referred to processes for undertaking activities in a waterway, as well as avoiding impacts to native flora and fauna both within and along the proposal footprint.

Additional matters have been raised through further investigations in the design of the new bridge resulting in the removal of the operational basin on the western side of the new bridge as this is no longer required. Further, due to the possibility of the reuse of the existing trusses in other bridges, or alternatively the existing trusses being in poor condition thus presenting difficulties in reuse, amendments have been made that would enable replicate trusses to be used on the new bridge.

## 2.2 Design of new bridge

About half of the submissions raised by community members were about the detailed design of the proposal. These issues, with responses, are provided below.

### Lighting on new bridge

**Submission number(s):**

1.

**Issue description**

Questions were raised regarding the lighting to be provided on the new bridge and whether this would have any impact on the surrounding residential area.

**Response**

Due to the length of the bridge and the location of the pedestrian and cycle path, lighting will be required. The provision of lighting will be consistent with Australian lighting standards and will be well placed and architecturally designed to ensure minimal impact, including minimising impact on adjacent residential areas from inappropriate light spill.

Details about how the lighting will be operated (eg solar, mains) will be addressed during the detailed design phase of the proposal. It is anticipated consultation will be undertaken on the detailed design in early 2016.

No changes to the REF environmental safeguards are proposed.

### Flooding

**Submission number(s):**

1.

**Issue description**

Questions were raised regarding whether the flooding will be changed as a result of the new bridge.

**Response**

The project objectives include the need to minimise impacts on the natural, social and built environment. This includes flooding.

Flood impact modelling undertaken during the preparation of the concept design and REF concluded that overall the proposal would have minimal impact on the flood level, flood velocities and minimal changes to the existing flood regime at Tabulam.

The proposal involves building a new bridge and removal of the existing bridge. It is anticipated the flood impacts from the new bridge, once the existing bridge is removed, will be fairly similar, with the deck of the new bridge proposed to be the same height as the existing. Additional flood modelling will be undertaken as part of the detailed design phase and, if required, the proposal will be modified to address any concerns including adjustments to the environmental impact assessment.

No changes to the REF environmental safeguards are proposed.

### Bridge furniture

**Submission number(s):**

2.

**Issue description**

Respondent requested that flagpoles be placed on the bridge with the Australian flag and the Aboriginal flag to recognise history of area.

**Response**

Roads and Maritime in undertaking the proposal acknowledges the history of the area. The project team has engaged with the Kyogle and District Historical Society on the history of the Tabulam area and will continue working with the local Aboriginal community.

Measures to recognise the heritage of the area are included in section 2.6.1. Additionally, it has been proposed in both the REF document and through discussions with the community to incorporate interpretive signage or plaques in the park area created on the eastern embankment. These are intended to provide some background to history of the area, such as the adjacent areas of importance to the local Aboriginal community on the eastern embankment, and the history associated with the existing Tabulam bridge. These mitigation measures are considered appropriate in recognising the heritage of the area.

An amendment has been made to the Environmental Safeguards to include an additional safeguard (number 33) to reflect this commitment.

## Western approach road

**Submission number(s):**

2, 5.

**Issue description**

Concern has been raised regarding the alignment of the western approach with some community members believing the approach road should have been connected to the south of Overflow Bridge No. 2. This would address the existing curves in the alignment, better address road safety with a straightened alignment and potentially reduce costs.

**Response**

The current alignment has a 60km/h design speed, which is consistent with the posted speed in the Tabulam Village.

An option of a different alignment on the western approach was investigated during the route selection phase. This option had a more skewed bridge across the Clarence River, and traversed land to the east of the preschool, rejoining the Bruxner Highway to the south of Overflow Bridge No. 2. This option was dismissed due to higher construction costs associated with reconstructing both overflow bridges.

Further to the above, refinements to the western alignment were made to minimise the construction impact to Overflow Bridge No. 2, which has threatened species roosting in the concrete bridge structure, and to avoid land currently the subject of a State Land Title claim.

No changes to the REF environmental safeguards are proposed as a result of this submission.

## Access to waterway

**Submission number(s):**

**3.**

**Issue description**

Respondent raised concerns about safe access to the Clarence River during times of flood. The proposed eastern embankment is located over the current access road which the local SES use during flood events.

**Response**

Access to the waterway would be maintained during construction to enable construction vehicles and workers to access the river when constructing the piers and bridge.

Following completion of the new bridge access to the river would be provided to enable maintenance of the bridge, and provide a suitable access for emergency personnel during floods. Roads and Maritime will work with the local SES and the Maritime Division during the detailed design and construction phase to identify a suitable location for an access ramp on the eastern embankment. The Environmental Safeguards measures have been amended to include additional safeguards (numbers 11 and 12) to reflect this commitment.

## 2.3 Construction impact

### Construction Noise

**Submission number(s):**

1.

**Issue description**

The respondent asked how the proposal would address noise from the construction of the new bridge and the removal of the existing bridge.

**Response**

The proposal would generate noise and vibration during construction due to the various equipment and machinery that would be used. Construction traffic would also generate noise. Operational noise would arise from use of the new bridge, however this is anticipated to be at the same levels, or less, than the current bridge.

As part of the investigations undertaken for the REF, it was identified that under general construction activities no receivers are predicted to exceed the highly noise affected construction noise management level of 75 decibels dB(A). There is however the potential for sleep disturbance if construction activities occur during the night-time period within close proximity of sensitive receivers. Piling activities have the potential to generate noise levels that exceed 75dB(A), however these are expected to be of a short term nature.

Environmental Safeguards developed as part of the REF include the following:

- Designing construction compounds to ensure the primary noise sources are at a maximum distance from residences with shielding provided from solid structures if practicable
- Locating noisy equipment such as compressors, generators, pumps etc as far away from residences as possible
- Preparation of a noise and vibration management plan as part of the overall Construction Environmental Management Plan. This would include an out of hours work procedure including a requirement that out of hours work should not affect residences on more than two consecutive nights, or on a total of more than six nights over a period of one calendar month
- Limiting general construction activities to the recommended construction hours where feasible and reasonable
- Consideration of a temporary barrier to shield the concrete batching plant from receivers on Tabulam Road.

No changes to the REF environmental safeguards are proposed as a result of the submissions.

### Dust and visual amenity impacts

**Submission number(s):**

1.

**Issue description**

The respondent raised concerns about dust and storage of machinery and how these would be managed during construction.

**Response**

The REF contains a number of environmental mitigation measures to address potential impacts during construction. In particular, the Construction Environmental Management Plan would include a procedure for effective dust control, including:

- monitoring and reporting procedures for addressing dust / air pollution
- watering or covering exposed areas
- covering loads when transporting dust generating material to and from the site
- not carrying out work where high levels of dust or air borne particulates are likely (including the spraying of paint and other materials) during strong winds or in weather conditions.
- Incorporating dust control measures into the design of the concrete batch plant

In reference to the storage of machinery, the REF assessed two construction compounds, one at the proposed concrete batching site, and the other on the existing Roads and Maritime maintenance depot on the eastern side of the existing bridge. Where feasible and reasonable, machinery will be kept within the construction compounds when not in use, with the work site to be tidied and all rubbish removed at the end of each day. An amendment has been made to Environmental Safeguard 121 to reflect this.

While it is acknowledged there will be some visual impact during construction, as part of the REF mitigation measures, work areas will be restored progressively and maintained until established.

## 2.4 Fauna impacts

### Potential flying fox colony

**Submission number(s):**

1.

**Issue description**

The respondent noted there is an existing flying fox colony upstream of the existing bridge. This was also raised at the staffed display, with the large gum trees along the Tabulam Rivulet appearing to provide a seasonal roosting spot for flying foxes from November through to March each year.

**Response**

Investigations for the REF noted the threatened Grey-headed Flying Fox was observed flying downstream of the proposal site, however no foraging or roosting habitat has been found on-site. Community feedback during the investigations noted remnant native riparian vegetation to the north east of the site is often used by Grey-headed Flying Foxes for feeding during the eucalypt flowering periods and temporary roosting.

It is noted the proposal is downstream of the existing bridge, with minimal clearing of riparian vegetation required. Furthermore, it is not intended to clear any vegetation upstream of the existing bridge, which is where the Grey-headed Flying Fox was observed.

Notwithstanding this, the following Environmental Safeguards have been identified as part of the REF which will minimise the impact on fauna and native vegetation:

- a pre-clearance procedure would be developed and implemented in accordance with the Roads and Maritime Biodiversity Guidelines
- Protocols for clearing of vegetation as well as fauna handling would be conducted in accordance with Roads and Maritime Biodiversity Guidelines.

No changes to the REF environmental safeguards are proposed as a result of the submissions.

## 2.5 Pedestrian movement

### Location of the pedestrian walkway

**Submission number(s):**

5.

**Issue description**

The respondent believes the pedestrian walkway on the bridge should be located on the other side of the bridge to connect to the Tabulam businesses and the school.

**Response**

One of the proposal objectives is to enhance road safety for all road users over the length of the proposal, including improving safety for pedestrians and cyclists. This takes into consideration the existing bridge does not have any dedicated pedestrian or cyclist facilities, forcing vulnerable road users to share the road with heavy vehicles.

In terms of movement networks, it is noted the entire Tabulam Village is located on the eastern bank of the Clarence River, with the exception of the preschool. The preschool has advised Roads and Maritime that it will be relocating into the town sometime in 2016, which provided an opportunity to refine the proposal footprint on the western alignment and pursue acquisition of the pre-school site.

Given this, the need to locate the pedestrian pathway on the same side of the bridge as local businesses and the school is somewhat diminished with pathways from origin to destination points within the town not requiring crossing the river. Additionally, the heritage interpretation and urban design strategy associated with removal of the existing bridge recommended locating the pathway to overlook the alignment of the existing bridge.

It is noted residents of the Jubullum Village located approximately 2km to the west of Tabulam may use the pedestrian pathway to access Tabulam Village. The location of the pathway on the northern or southern side is not considered to be an impediment to this journey.

Given this, the pedestrian pathway has been located on the upstream side of the new bridge for the following reasons:

- To provide a safe crossing of the Clarence River for pedestrians and cyclists, where previously there had been none
- To provide a viewing area from the new bridge to overlook the alignment of the existing bridge, noting that once the new bridge is constructed, the existing bridge will be removed.

Notwithstanding the above, a minor change is proposed to the REF environmental safeguards to include an additional safeguard (number 42) relating to overlooking the old bridge alignment in that the entire shared pathway will become an area of overlook the old alignment, removing the need for an extended viewing platform along the walkway.

### Safety for pedestrians in town

**Submission number(s):**

1, 4, 6.

**Issue description**

The respondents have raised concerns about the safety of pedestrians, particularly school children, crossing the Bruxner Highway. This was raised due to the new bridge design which removes some of the current restrictions associated with speeding into town, i.e. it is a straight two lane bridge of almost 300 metres.

**Response**

One of the project objectives is to enhance road safety for all road users over the length of the proposal, including improving safety for pedestrians and cyclists.

The speed limit through the Tabulam Village will remain the same. However in order to reduce any potential of higher speeds through town, traffic calming measures will be investigated during the detailed design phase. These measures may include the provision of a pedestrian refuge at the intersection of the Bruxner Highway and Tabulam Street, and landscaping within the Tabulam Village aimed at reducing vehicular speeds through the urban village.

## 2.6 Heritage

### Remembering the old bridge

**Submission number(s):**

1, 2, 4.

**Issue description**

The respondents support the decision to incorporate elements in the proposal to remember the old bridge. This included trees planted on both sides of the river along the alignment of the existing bridge, support for the viewing platform and reuse of trusses on the new bridge.

**Response**

The REF acknowledges the removal of the existing Tabulam bridge will have a detrimental impact on the heritage significance of the item itself. As part of the environmental assessment process and development of mitigation measures, Roads and Maritime has put in place a comprehensive set of management measures to offset or compensate for the adverse heritage impacts of replacement of the existing Tabulam bridge. These are summarised in Sections 6.4.4 and 6.11.3 of the REF, and include:

- Development of interpretation strategies to maintain a link between the bridge and the heritage values of Tabulam
- Retaining elements of existing bridge fabric (DeBurgh trusses) to use as gateway elements for the new bridge, including the possible use of replica trusses rather than use of the existing trusses
- Incorporate landscaping elements into the proposal, including small park on the eastern approach with retaining wall/terrace and marker trees on western approach providing landscape references
- Photographic archival recording (and measured drawings) prior to removal in line with NSW Heritage Branch guidelines *How to Prepare Archival Records of Heritage Items*
- Roads and Maritime to update s.170 Register to reflect changes to the bridge portfolio and to monitor heritage safeguards for other timber truss bridges
- A gateway treatment (plantings) for both bridge approaches would be considered in the landscape design.

An amendment has been made to clarify the heritage mitigation measures in REF environmental safeguard 41 taking into account the possibility that existing timber trusses may not be in a suitable condition for re-use in conjunction with the new bridge.

### Existing bridge to remain

**Submission number(s):**

4, 6.

**Issue description**

The respondents expressed a view to retain the existing bridge, one supporting the construction of a new bridge whilst retaining the existing bridge and the other respondent strongly opposed to the proposal due to the loss of the existing bridge given its heritage and aesthetic value.

**Response**

The Roads and Maritime *Timber Truss Bridge Conservation Strategy* identifies the bridge over the Clarence River at Tabulam for replacement. This is further supported by the NSW Government's Bridges for the Bush program, with funding allocated on the basis the existing bridge would be removed once a new bridge is constructed.

As stated in the REF, the existing bridge, built in 1903, is costly to maintain and is a major capacity constraint on the Bruxner Highway. The length and width of the bridge allows only a single lane of traffic and thus requires traffic to stop and give way to oncoming vehicles. Additionally the bridge does not have any dedicated pedestrian or cyclist facilities forcing vulnerable road users to share the road with heavy vehicles.

The annual average maintenance expenditure for the bridge over the last 10 years is about $700,000. Future maintenance costs would increase significantly as the existing critical timber elements, such as trestles, approach the end of their life.

The environmental assessment acknowledged the removal of the Tabulam timber truss bridge will detrimentally impact on heritage significance of the heritage item.

However the heritage impact assessment undertaken as part of the environmental assessment found that:

- Long term operability of the bridge for modern road infrastructure and regional development has been shown to be untenable
- The option for retention and re-use of the structure as a cycle-pedestrian bridge has been explored but a pedestrian-only bridge is likely to receive a lower share of the maintenance budget and could fall into disrepair and be unsafe to use
- Retention of a divested bridge without beneficial use, maintenance and conservation (ie postponing removal) is not a viable approach as the bridge will rapidly fall into disrepair

Additionally, Roads and Maritime has consulted with both Kyogle and Tenterfield councils who have both expressed an unwillingness, due to resourcing constraints, to take on any maintenance responsibilities for the existing bridge in the event it is handed over as a pedestrian bridge.

In the event the existing bridge cannot be removed, it is unlikely a new bridge will be constructed due to ongoing responsibilities and liabilities associated with maintaining an aging asset.

No changes are proposed to the REF Environmental Safeguards as a result of the submissions.

## 2.8 State Government Submissions

### Department of Primary Industries - Fisheries

**Submission number(s)**

7.

**Issue description**

The Department of Primary Industries, Fisheries raised the following matters:

- Procedures relating to works in waterways, including the requirement for a works notification prior to works commencing
- Placement of erosion and sediment mitigation devices consistent with Best Management Practice prior to earthworks being undertaken

- Works in waters are to be undertaken consistent with the REF document for the Tabulam bridge project
- Managing potential impacts to the habitat of Eastern Freshwater Cod
- Minimising impacts on aquatic habitats and the riparian zone
- Monitoring requirements to identify any potential incidents in the waterway.

**Response**

Requirements set by the Department of Primary Industries (Fisheries) are consistent with the Environmental Safeguards contained with the REF document. The letter from Fisheries will be included as an Appendix to documentation provided to the construction contractor. Further, an amendment has been made to Environmental Safeguard Measure number 105 to make reference to the use of sediment / silt curtains in the Clarence River, rather than in Sportsmans Creek as currently stated.

## Office of Environment and Heritage – Heritage Council

**Submission number(s)**

8.

**Issue description**

The Director of the Heritage Division (OEH) as delegate of the NSW Heritage Council, raised the following points about the project and Roads and Maritime's Timber Truss Conservation Strategy:

- Acknowledged the proposal is consistent with the *Timber Truss Conservation Strategy*
- The determination for the proposal to remove the Tabulam bridge is dependent on Roads and Maritime fulfilling other commitments under the *Timber Truss Conservation Strategy*
- The Strategy does not constitute an approval for removal of the existing bridge, however the Heritage Council agreed that an application under Section 38 of the *Heritage Act* (1977) for removal of the bridge would be assessed on its merits
- Acknowledged an application had been made by Roads and Maritime to remove the existing Tabulam bridge from the State Heritage Register in May 2014, however the statutory process had not commenced. The timeframe for delisting may take up to six months, with Roads and Maritime to note this possible timeframe in its commitment to the 2012 strategy to defer determination for the proposal until after a decision by the Minister regarding the existing bridge's status on the State Heritage Register
- If the bridge were to be removed, the preference is for it to be carefully dismantled and the timber reused in other timber bridges
- There was potentially a minor encroachment on the eastern abutment under the State Heritage Register boundary. If works were to commence prior to the bridge being delisted, an application under the Heritage Act would be required.

**Response**

Roads and Maritime has been working through actions under the *Timber Truss Bridge Conservation Strategy*. This includes the recent application to the Heritage Council seeking to list another DeBurgh timber truss bridge on the State Heritage Register being the Cobram Bridge across the Murray River. The Roads and Maritime Timber Truss Bridge Strategy Implementation Report has been submitted to the Heritage Council. This report provides a summary of how Roads and Maritime has been managing the bridges under the Timber Truss Conservation Strategy.

In regards to the comments about dismantling the existing bridge and reuse of timbers, Roads and Maritime has met with both Tenterfield and Kyogle Councils in relation to this matter. A list of bridge members in the existing bridge has been provided to both Councils, with both Councils indicating in formal correspondence their interest in reusing the timbers. It is noted Kyogle Council is responsible for approximately 200 timber bridges within their local government area alone.

In terms of the determination of the proposal, it is noted the current Review of Environmental Factors encompasses both the construction of a new bridge, and the removal of the existing state heritage listed bridge. As indicated in Section 1.3, the REF was placed on public display from 25 February to the 27 March 2015. In order to finalise this process, and provide the community with some direction in how Roads and Maritime is intending to move forward with this proposal, it is proposed to determine the REF conditional on no construction works commencing until after a decision by the Minister regarding the existing bridge's status on the State Heritage Register.

The conditional approval will address two aspects:

1. It recognises the existing bridge is protected under the State Heritage Register, and until this is resolved, there will be no actions taken either in constructing a new bridge, or harm to the existing bridge and abutments.
2. It will provide a clear direction for the government in terms of this proposal, in supporting the need for a new bridge at Tabulam as part of Bridges for the Bush and consistent with the Timber Truss Conservation Strategy.

The timing of the determination has been the subject of ongoing correspondence and interaction with the Office of Environment and Heritage. The conditional approval recognises the statutory process for delisting and potential work which may be harmful to the existing bridge whilst it remains on the state heritage register. To accommodate this, an amendment has been made to Table 3-2 Summary of licensing and approvals to ensure that an approval under Section 38 of the Heritage Act is obtained prior to the start of work.

# 3 Environmental management

The REF for the New Tabulam Bridge identified the framework for environmental management, including management and mitigation measures that would be adopted to avoid or reduce environmental impacts (section 7 of the review of environmental factors).

After consideration of the issues raised in the public submissions and changes to the proposal, the management and mitigation measures have been revised. These revisions have been minor in nature, and include some additional clarification around minimising dust and visual amenity impacts, eastern river bank access for the SES during flood events as well as correcting some previous mistakes made in the REF.

Should the proposal proceed, environmental management will be guided by the framework and measures outlined below.

## 3.1 Environmental management plans (or system)

A number of safeguards and management measures have been identified in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these management measures would be incorporated into the detailed design and applied during the construction and operation of the proposal.

A Contractors Environmental Management Plan (CEMP) will be prepared to describe safeguards and management measures identified. These plans will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation. The CEMP would include the following sub-plans:

- Traffic management plan
- Vegetation management plan
- Microbat management plan
- Temporary concrete batching plant management plan
- Noise and vibration management plan
- Soil and water management plan
- Pollution incident response management plan
- Waste management plan.

The plans will be prepared prior to construction of the proposal and must be reviewed and certified by environment staff, Northern Region, prior to the commencement of any on-site works. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the specifications set out in the QA Specification G36 – Environmental Protection (Management System), QA Specification G38 – Soil and Water Management (Soil and Water Plan) and the QA Specification G40 – Clearing and Grubbing.

## 3.2 Summary of safeguards and management measures

Environmental safeguards outlined in this document would be incorporated into the detailed design phase of the proposal and during construction and operation of the proposal, should it proceed. These safeguards would minimise any potential adverse impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in Table 3-1, with underlining on text representing amendments made since the display of the REF.

**Table 3-1 Summary of Environmental Safeguards**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 1 | General | All environmental safeguards must be incorporated within the following:<br>• Detailed design stage.<br>• Contract specifications for the proposal.<br>• CEMP. | Project manager | Pre-construction |
| 2 | General | A risk assessment must be carried out on the Proposal in accordance with the Roads and Maritime Project Pack and PMS risk assessment procedures to determine an audit and inspection program for the work. The recommendations of the risk assessment are to be implemented.<br>A review of the risk assessment must be undertaken after the initial audit or inspection to evaluate is the level of risk chosen for the proposal is appropriate.<br>Any works resulting from the proposal and as covered by the REF may be subject to environmental audit(s) and/or inspection(s) at any time during their duration. | Project manager and regional environmental staff | Pre-construction<br>After first audit |
| 3 | General | The environmental contract specification must be forwarded to the Roads and Maritime Senior Environmental Officer for review at least 10 working days prior to the tender stage.<br>A contractual hold point must be maintained until the CEMP is reviewed by the Roads and Maritime Services Senior Environmental Officer. | Project manager | Pre-construction |
| 4 | General | The Roads and Maritime Project Manager must notify the Roads and Maritime Environmental Officer [Northern Region] at least five days prior to work starting. | Project manager | Pre-construction |
| 5 | General | All businesses and residences likely to be affected by the proposed works must be notified at least five working days prior to the commencement of the proposed activities. | Project manager | Pre-construction |

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| 6 | General | Environmental awareness training must be provided, by the contractor, to all field personnel and subcontractors. | Contractor | Pre-construction and during construction as required. |
| 7 | General | If the scope of the works changes at any time, review under the Roads and Maritime Services Environmental assessment procedure for routine and minor works (EIA-PO5-1) to determine any new measures to take. | Contractor | Construction |
| 8 | General | Parking of vehicles and storage of plant/equipment is to occur on existing paved areas. Where this is not possible, vehicles and plant/equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees. | Contractor | Construction |
| 9 | Waterway access | The Roads and Maritime Project Manager must liaise with the Maritime Division prior to work staring and provide:<br>• A navigational aids plan<br>• A waterway traffic management plan.<br>Once approved, plans would be implemented during construction. | Project manager | Pre-construction and construction |
| 10 | Waterway access | Detailed design would incorporate appropriate navigational aids and requirements for waterway traffic in consultation with the Maritime Division. | Project manager | Detailed design |
| 11 | Waterway access | Roads and Maritime will consult with local SES to provide a safe permanent access point to the Clarence River for emergency vehicles in the event of a flood. | Project manager | Detailed design |
| 12 | Waterway access | Roads and Maritime, or its contractor, will consult with the local SES during construction to ensure appropriate access to the Clarence River is available for emergency vehicles in the event of a flood. Note current access is located to the south of the eastern abutment of the existing bridge. | Project manager / contractor | Pre-construction and construction |

| | | Terrestrial biodiversity safeguards and management measures | | |
|---|---|---|---|---|
| 13 | Potential for direct impacts on native fauna species | A microbat management plan (2014b) Appendix D has been developed and would be implemented during construction. The microbat management plan includes measures around:<br>• Timing of works<br>• Ecologist involvement<br>• Pre-removal survey<br>• Roost exclusion<br>• Work methods statements<br>• Daily inspections<br>• Removal of individuals<br>• Monitoring of bridge removal<br>• Protection of roost sites<br>• Creation of additional roost habitat<br>• Inductions<br>Fauna handling and care of injured or captured animals. | Construction contractor | Construction |
| 14 | Potential for direct impacts on native fauna species | A pre-clearance procedure would be developed and implemented in accordance with the Roads and Maritime Biodiversity Guidelines (Guide 1: Pre-clearing process) (RTA 2011a). | Construction contractor | Construction |

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| 15 | Potential for direct impacts on native fauna species | Fauna handling would be conducted in accordance with the Roads and Maritime Biodiversity Guidelines (Guide 9: Fauna handling) (RTA 2011g).<br>Any unexpected threatened species finds would be dealt with in accordance with the Biodiversity Guidelines (Guide 1: Unexpected threatened species finds procedure (RTA, 2011). | Construction contractor | Construction |
| 16 | Direct impacts to vegetation | A vegetation management plan would be prepared for the proposal and include:<br>Relevant measures from the Office of Water Guidelines for Riparian Corridors on Waterfront Lands and Guidelines for Vegetation Management Plans. | Construction contractor | Pre-construction |
| 17 | Direct impacts to vegetation | Exclusion zones to be identified and demarcated in accordance with the Roads and Maritime Biodiversity Guidelines (Guide 2: Exclusion zones) (RTA 2011b). | Construction contractor | Construction |
| 18 | Direct impacts to vegetation | Protocols for clearing of vegetation to be developed in accordance with the Roads and Maritime Biodiversity Guidelines (Guide 4: Clearing of vegetation and removal of bushrock) (RTA 2011d). | Construction contractor | Construction |
| 19 | Direct impacts to vegetation | Protocols for preventing the introduction and/or spread of disease causing agents such as bacteria and fungi to be developed in accordance with the Roads and Maritime Biodiversity Guidelines (Guide 7: Pathogen Management) (RTA 2011f). | Construction contractor | Construction |
| 20 | Direct impacts to vegetation | Protocols for preventing or minimising the spread of noxious and environmental weeds to be developed in accordance with the Roads and Maritime Biodiversity Guidelines (Guide 6: Weed Management) (RTA 2011e). | Construction contractor | Construction |
| 21 | Direct impacts to vegetation | Protocols for the re-establishment of native vegetation to be developed in accordance with the Roads and Maritime Biodiversity Guidelines (Guide 3: Re-establishment of native vegetation) (RTA 2011c). | Construction contractor | Post - construction |
| 22 | Potential for artificial lighting impacts on native fauna | Down-lights and motion sensor lighting would be used to reduce light spill and the associated secondary impact on nocturnal fauna species potentially utilising the adjoining vegetation, bridge and overflow structures. | Construction contractor | Construction |

| | | Aquatic biodiversity safeguards and management measures | | |
|---|---|---|---|---|
| 23 | Aquatic habitat removal or disturbance | The following are recommended to address issues associated with habitat disturbance and would be incorporated into the vegetation management plan:<br>• Disturbance of aquatic fauna, habitat and riparian zones would be minimised in accordance with Roads and Maritime Biodiversity Guidelines – Guide 10: Aquatic habitat and riparian zones (2011)<br>• Riparian vegetation disturbance/removal would be kept to a minimum and any riparian vegetation disturbance/removal as a result of the proposal would be rehabilitated to pre-construction (or better) condition by:<br>– Placement of matching soil types, contouring and stabilisation of banks subjected to earthworks<br>– Targeted planting of riparian natives such as Callistemon and Lomandra<br>– Exclusion of cattle from regeneration areas and / or protection of individual plantings.<br>In-stream work areas would be kept to a minimum<br>In-stream work pads would be fully contained by sufficient means prior to construction in order to minimise the work platform footprint, reduce sediment loads and limit turbid run-off<br>The design and construction of in-stream structures would comply with the *Policy and Guidelines for Fish Habitat Conservation and Management* (DPI 2013) Disturbance of large woody debris would be avoided where possible<br>Any large woody debris disturbed would be relocated in accordance with DPI (Fisheries) requirements and sufficiently secured in close proximity to provide comparative habitat value. | Construction contractor | Construction |

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| 24 | Disturbance of aquatic fauna | The following measures are recommended for issues associated with fauna disturbance and would be incorporated into the CEMP:<br>• Banks within the direct footprint of works would be inspected for platypus dens by a qualified ecologist immediately prior to and during breaking ground along the banks and any rock revetment work<br>• Fauna handling is to be conducted in accordance with the RTA Biodiversity Guidelines (Guide 9: Fauna handling) (RTA, 2011)<br>• The river bank works footprint would be minimised to reduce the potential for encountering platypus or turtles<br>• Initial excavation and fill of the affected banks would be gradual to allow resident fish and other fauna to move to safety. | Construction contractor | Construction |
| 25 | Potential barrier to movement of aquatic fauna | The proposal would be carried out that at least 20% of stream width remains as natural open channel at any one time. Whilst this width may be higher than in required for hydraulic connectivity (i.e. to ensure that flow velocities are not limiting), this width is considered necessary to ensure that behavioural affects due to avoidance of noise/vibration/habitat edge effects are also minimised. | Construction contractor | Construction |
| 26 | Potential alteration to stream flow | A minimum of 20% of the river channel (in accordance with the fauna passage criteria) is to remain unrestricted during construction to ensure that river flows through the site are maintained and not significantly affected. | Construction contractor | Construction |

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| 27 | Potential impacts to water quality | In addition to the measures provided, the following measures would be implemented.<br>• Screening or netting around and/or under work areas to contain debris, litter and other materials<br>• Use of grit blasting and painting enclosures<br>• Minimising volumes of fuels, lubricants and other fluids within the in-stream work site and ensuring all fluids are stored within containment bunds and that hydrocarbon booms are utilised as required to minimise risk of spills to the waterway<br>• Ensuring that all work platforms, access roads and bank clearing areas associated with the project would be subject to strict runoff and turbidity controls to reduce water quality risks to the downstream environment This will require a suite of standard environmental protection measures including erosion and sediment controls designed, installed and maintained in accordance the Blue Book requirements and RMS QA Specification G38 | Construction contractor | Construction |
| 28 | Potential introduction and/ or spread of aquatic weeds | • Ensure that imported fill materials (particularly from riverine sources) are weed free.<br>• Equipment brought to site would be inspected and if necessary washed before entering the site to ensure they are free of excess soil and material that may contain weed material or seeds.<br>Protocols for preventing or minimising the spread of noxious and environmental weeds are to be developed in accordance with the Roads and Maritime Biodiversity Guidelines (Guide 6: Weed Management) (RTA 2011e). | Construction contractor | Construction |

**Table 3-1 Summary of site specific safeguards – Aboriginal heritage safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 29 | Potential for direct impact on cultural objects and sites | A cultural heritage site induction for personnel undertaking initial ground disturbance would be undertaken by an appropriate person from the Jubullum Local Aboriginal Land Council. The induction would cover:<br>• Basic legislative requirements, including fines for the destruction of Aboriginal cultural heritage<br>• A discussion on traditional Aboriginal culture, and why the management of Aboriginal cultural heritage is important to Aboriginal peoples<br>• An introduction on how to identify Aboriginal objects<br>• A description of proposal areas considered likely to contain Aboriginal Objects and to be avoided<br>• A review of the management measures for the proposal. | Construction contractor | Construction |
| 30 | Potential for direct impact on cultural objects and sites | The CEMP would include an unexpected finds procedure in accordance with the Roads and Maritime Standard Management Procedure: Unexpected Archaeological Finds (2012b) that would incorporate:<br>• Work in the surrounding area is to stop immediately<br>• A temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site<br>• The Roads and Maritime Aboriginal Cultural Heritage Officer and Environment Manager, Northern Region would be contacted immediately.<br>• Work would not recommence until advised. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 31 | Potential for direct impact on cultural objects and sites | The CEMP would include a procedure for the discovery of human remains that would incorporate:<br>• All work must halt in the immediate area to prevent any further impacts to the remains<br>• The location where remains were found would be cordoned off and the remains themselves would be left untouched<br>• The Roads and Maritime Aboriginal Cultural Heritage Officer and Environment Manager, Northern Region would be contacted immediately.<br>Work would not resume until advised. | Construction contractor | Construction |
| 32 | Potential for direct impact on cultural objects and sites | If Aboriginal cultural materials are uncovered as a result of proposal activities, the site would be registered as a site in the AHIMS. Any management outcomes for the site would also be provided to the AHIMS. | Construction contractor | Construction |
| 33 | Potential impacts to cultural heritage due to changes in landscape | Investigate opportunities to acknowledge the Aboriginal Cultural history associated with the Tabulam Village and the bridge, which may include a plaque in the park on the eastern abutment | Project Manager | Detailed design then Post construction |

**Table 3-1 Summary of site specific safeguards – Non-Aboriginal heritage safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 34 | Potential impact to St Pius Catholic Church or Lasseter's monument | An exclusion zone would be established around the church during construction, if required, to avoid any accidental impact. The exclusion zone would be identified with temporary fencing or the like. | Construction contractor | Construction |
| 35 | Potential impact to St Pius Catholic Church or Lasseter's monument | The monument would be removed during construction and re-erected in the car park on completion of works. The location would be identified in consultation with council and the property owners. | Construction contractor | Construction |
| 36 | Potential impact to St Pius Catholic Church or Lasseter's monument | Site induction would include information on the heritage significance of the bridge, church and monument and workers' responsibilities during works. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 37 | Unexpected finds | The CEMP would include an unexpected finds procedure in accordance with the Roads and Maritime Standard Management Procedure: Unexpected Archaeological Finds (2012b) that would incorporate:<br>• Work in the surrounding area is to stop immediately<br>• A temporary fence would be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site<br>• The Roads and Maritime Project Manager and Environment Manager, Northern Region would be contacted immediately.<br>Work would not resume until advised | Construction contractor | Construction |
| 38 | Offset the heritage impacts | Photographic archival recording (and measured drawings) prior to demolition in line with NSW Heritage Branch guidelines How to Prepare Archival Records of Heritage Items, and this will further offset the loss of the item | Roads and Maritime | Pre-construction |
| 39 | | Interpretation strategies to maintain a link between the bridge and the heritage values of Tabulam are to be developed. | Roads and Maritime | Pre-construction |
| 40 | | Roads and Maritime to update s.170 Register to reflect changes to the bridge portfolio and to monitor heritage safeguards for other timber truss bridges | Roads and Maritime | Pre-construction |
| 41 | | Elements of existing bridge fabric (DeBurgh trusses) are to be ~~retained to use~~ designed as gateway elements for the new bridge, including the potential for replicate trusses if reuse of existing trusses is not feasible. | Roads and Maritime | Pre-construction |
| 42 | | The pedestrian pathway is located on the upstream side to provide a viewing area along the entire bridge overlooking the old bridge alignment. | Roads and Maritime | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 43 | Irreparable loss of the longest De Burgh truss bridge in Australia | Interpretation including Timber Truss Bridges book; travelling exhibition; interpretation signs and heritage markers in the proposed Rest Area on the eastern side of the bridge are to be implemented. | Roads and Maritime | On-going |
| 44 | Further loss of De Burgh bridges in NSW | Cobram (a De Burgh truss) Bridge to be upgraded to State Heritage Register | Roads and Maritime | On-going |
| 45 | Irreparable loss of constructional elements, additions and details | Investigate conserving fabric elements in local history museums of other regional towns | Roads and Maritime | On-going |
| 46 | Irreparable loss of the bridge as a landscape element | Landscaping elements are to be installed including small park on the eastern approach with retaining wall/terrace and marker trees on western approach providing landscape references | Construction contractor | Post construction |
| 47 | Irreparable loss of the bridge as a landscape element | Bi-annual reporting to the Heritage Council of NSW on the progress of the Strategy and its associated conservation actions | Roads and Maritime | On-going |

**Table 3-1 Summary of site specific safeguards – Noise and vibration safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 48 | Potential construction noise and vibration impacts | Project planning and design would consider:<br>• Construction compounds would be laid-out in such a way that the primary noise sources are at a maximum distance from residences, with solid structures (sheds, containers) placed between residences and noise sources (and as close to the noise sources as is practical).<br>• Compressors, generators, pumps and any other fixed plant would be located as far away from residences as possible and behind site structures.<br>Material dumps, loading and unloading areas would be located as far as practical from the nearest residences | Construction contactor | Pre-construction |
| 49 | Potential construction noise and vibration impacts | The final selection and design of noise management measures would consider best management and economically achievable practice. | Construction contactor | Pre-construction |
| 50 | Potential construction noise and vibration impacts | A noise and vibration management plan would be prepared as a sub-plan to the CEMP. It would include measures to avoid and mitigate noise and vibration impacts during construction in accordance with the Environmental Noise Management Manual (RTA 2011) and RTA's Environmental fact sheet No. 2- Noise management and Night Works. | Construction contactor | Pre-construction |
| 51 | Potential construction noise and vibration impacts | Site inductions would address the potential for noise and vibration impacts on local residents and inform workers of practical and reasonable measures to minimise the impact during the course of their activities. | Construction contactor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 52 | Potential construction noise and vibration impacts | All equipment would be selected to minimise noise emissions. Equipment would be fitted with appropriate silencers and be in good working order. Machines found to produce excessive noise compared to normal industry expectations would be removed from the site or stood down until repairs or modifications can be made. | Construction contactor | Construction |
| 53 | Potential construction noise and vibration impacts | To reduce the annoyance associated with reversing alarms, broadband reversing alarms (audible movement alarms) would be considered for all site equipment where health and safety is not compromised. | Construction contactor | Construction |
| 54 | Potential construction noise and vibration impacts | General construction activities would be limited to the recommended construction hours where feasible and reasonable. This includes truck movements before 7:00 am to or from the concrete batching plant on Tabulam Road. | Construction contactor | Construction |
| 55 | Potential construction noise and vibration impacts | A temporary barrier would be considered to shield the concrete batching plant from receivers on Tabulam Road. The barrier would be located as close as possible to the batch plant and would be of sufficient height to block the line-of-sight to residential receivers. A range of materials could be used to form an acoustic barrier, for example, a shipping container or other materials with sufficient density (at least 15 kg/m2). | Construction contactor | Construction |
| 56 | Potential construction noise and vibration impacts | The community would be informed if all noise and vibration works prior to works commencing. This is particularly the case for the church and receivers R1 and R12, R14 and R15 And residences within 100 metres of piling activities. Complaints received would be recorded and attended to promptly in accordance with the Roads and Maritime Community Involvement Practice Notes and Resource Manual. | Construction contactor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 57 | Potential construction noise and vibration impacts | Attended compliance noise monitoring would be undertaken upon receipt of a complaint. Monitoring would be undertaken and reported as soon as possible. In the case that exceedances are detected, the CEMP would be reviewed in order to identify means to minimise the impacts to residences. | Construction contactor | Construction |
| 58 | Potential sleep disturbance due to construction noise | An out of hours works procedure would be prepared as part of the noise and vibration management plan. The Environmental Noise Management Manual Practice Note (vii) requires that out of hours work should not affect residences on more than two consecutive nights, or on more than a total of six nights over a period of one calendar month. When night work is programmed in stages to comply with this requirement, the periods of work should be separated by not less than one week. | Construction contactor | Construction |
| 59 | Potential construction traffic noise impacts | Internal traffic noise levels within classrooms and the church would be confirmed through compliance noise monitoring. | Construction contactor | Construction |

**Table 3-1 Summary of site specific safeguards – Air quality safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 60 | General air quality impacts | The CEMP would include a procedure for effective dust control, including watering or covering exposed areas, dust monitoring and reporting procedures. | Construction contractor | Pre-construction |
| 61 | Dust emissions | Dust suppression measures would be implemented in accordance with the CEMP. | Construction contractor | Construction |
| 62 | Dust emissions | Stockpiled materials would be managed in accordance with the Stockpile Management Guideline (RTA, 2011k). | Construction contractor | Construction |
| 63 | Dust emissions | All trucks would be covered when transporting dust generating material to and from the site. | Construction contractor | Construction |
| 64 | Dust emissions | Works (including the spraying of paint and other materials) would not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely. | Construction contractor | Construction |
| 65 | Dust emissions | Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 66 | Concrete batching plant | Dust control measures would be incorporated into the design of the concrete batching plant. These could include the following:<br>• A partially enclosed load hopper (on three sides) when truck loading/delivery is in progress<br>• The three-sided storage hoppers would be at least 0.5 metres higher than the stockpiles with the sides extending beyond the limit of the material; or use other measures such as screening or roofing to minimise dust emissions.<br>• Continual wetting operations to reduce emissions during all materials handling<br>• Bulk cement and fly-ash would be stored in silos with overfill protection and filter components on the vents.<br>• Filling operations will not generate dust visible above the container<br>• A dry batch dust collector to extract dust during the transfer of the concrete product to the trucks and any emissions from the loading of the weigh hoppers (dust during the transfer of the concrete product to the trucks and any emissions from the loading of the weigh hoppers)<br>• A fully enclosed conveyor<br>• Surface wetting along all exposed surfaces and stockpiles during unfavourable meteorological conditions (i.e. windy and dry conditions)<br>• Use of water carts along haul roads and access points as required to minimise generation of dust. | Construction contractor | Construction |
| 67 | Exhaust and other emissions | Construction plant and equipment would be maintained in a good working condition in order to limit impacts on air quality. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 68 | Exhaust and other emissions | Plant and machinery would be turned off when not in use. | Construction contractor | Construction |
| 69 | Exhaust and other emissions | Vegetation or other materials would not be burnt on site. | Construction contractor | Construction |
| 70 | Impacts on sensitive receivers | Local residents would be advised of hours of operation and duration of work and supplied with a contact name and number for queries regarding air quality. | Construction contractor | Construction |
| 71 | Hazardous emissions to air during demolition | A full building inspection should be conducted of the house and structures to be demolished by a qualified building asbestos inspector to determine if any asbestos materials are present before demolition. | Construction contractor | Pre-construction |
| 72 | Hazardous emissions to air during demolition | Water sprays or alternative dust suppression methods would be employed during demolition in the event that significant dust is generated. | Contractor | Construction |

**Table 3-1 Summary of site specific safeguards – Traffic safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 73 | Potential traffic impacts | A traffic management plan would be prepared in accordance with in accordance with the RTA (2010) Traffic Control at Work sites Manual and Roads and Maritime Specification G10-Control of Traffic prior to works commencing. Consultation would be undertaken with council as required. Pedestrians and cyclists requirements are to be considered in the traffic management plan. Current traffic movements would be maintained wherever possible. | Construction contractor | Pre-construction |
| 74 | Potential traffic impacts | A suitable haulage route for oversized materials would be determined prior to construction starting. | Construction contractor | Pre-construction |
| 75 | Potential traffic impacts | Construction staging would allow two way access at intersections and private properties. | Construction contractor | Pre-construction |
| 76 | Potential traffic impacts | Project planning would allow continuous movement of vehicles along the Bruxner Highway and across the Clarence River. | Construction contractor | Pre-construction |
| 77 | Potential traffic impacts | Inductions would be carried out for all personnel and contractors, specifically to include adherence to all road rules. | Construction contractor | Construction |
| 78 | Potential traffic impacts | The condition of existing roads used for haulage would be regularly monitored for damage. | Construction contractor | Construction |
| 79 | Potential traffic impacts | Safe speed limits would be implemented on the approach to the site compound and concrete batching plant. | Construction contractor | Construction |
| 80 | Potential traffic impacts | Access to the site compound and the concrete batching plant would be restricted during construction hours and secured outside of construction hours. | Construction contractor | Construction |
| 81 | Potential property access impacts | Where possible, current property accesses would be maintained during the works. Any disturbance would be minimised. | Construction contractor | Construction |

**Table 3-1 Summary of site specific safeguards – Hydrology and flooding safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 82 | Drainage design | Consultation with Kyogle Council would be carried out during detailed design to ensure appropriate integration with council's stormwater network. | Roads and Maritime | Detailed design |
| 83 | Flooding | Further flood modelling would be undertaken to ensure that the proposal does not alter existing flood conditions at private properties in the vicinity of the proposal. | Roads and Maritime | Detailed design |
| 84 | Hydrological changes due to the bridge design and temporary instream accesses | Proposal design would consider the NSW DPI (Fisheries) guidelines Policy and guidelines for fish habitat conservation (2013) | Roads and Maritime | Detailed design |
| 85 | Hydrological changes due to the bridge design and temporary instream accesses | The Proposal design would ensure that the hydrological flows of the waterways are not altered causing scouring of banks or obstruction of flows | Roads and Maritime | Detailed design |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 86 | Flooding during construction | A Flood Management Plan should be prepared as part of the CEMP and implemented during construction. At minimum this plan should include:<br>• Project-specific emergency response and evacuation controls during flooding<br>• Measures to ensure that equipment, site-offices, ablution facilities, vehicles, materials, buoyant items and machinery are secured against flood or able to be removed off-site when a flood warning is issued<br>• Reporting requirements.<br>A regular weather monitoring regime | Construction Contractor | Construction |

**Table 3-1 Summary of site specific safeguards – Geology and soil safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 87 | Acid sulfate soils | Should detailed design indicate that excavations may encounter acid sulfate soils further assessment would be undertaken. This may include additional sampling and testing and if required, preparation of an acid sulfate soil contingency plan and/or acid sulfate soil management plan in accordance with the Acid Sulfate Soils Assessment Guidelines (ASSMAC, 1998).<br>Acid sulfate soils would be managed in accordance with the Guidance for the Management of Acid Sulphate Materials (RTA 2005). | Construction contractor | Pre-construction |
| 88 | Tannins | As part of the CEMP measures for the management of mulch and tannin would be prepared in accordance with the Roads and Maritime Management of Tannins from Vegetation Mulch (2012). | Construction contractor | Pre-construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 89 | Erosion and sedimentation | A soil and water management plan would be prepared as part of the CEMP in accordance with the requirements of Roads and Maritime Services contract specification G38 prior to the commencement of construction. The soil and water management plan would include a progressive erosion and sediment control plan and also address the following:<br>• Roads and Maritime Code of Practice for Water Management<br>• Roads and Maritime Erosion and Sedimentation Procedure<br>• The NSW Soils and Construction – Managing Urban Stormwater Volume 1 'the Blue Book' (Landcom, 2004) and Volume 2 (DECC, 2008)<br>• Roads and Maritime Technical Guideline: Temporary Stormwater Drainage for Road Construction (2011).<br>Roads and Maritime Technical Guideline: Environmental Management of Construction Site Dewatering (2011). | Construction contractor | Pre-construction |
| 90 | Erosion and sedimentation | Erosion and sediment controls would be implemented in accordance with the soil and water management plan before any construction starts and inspected regularly, particularly after a rainfall event. Maintenance work would be undertaken as needed. | Construction contractor | Construction |
| 91 | Erosion and sedimentation | Site stabilisation of disturbed areas would be undertaken progressively as stages are completed. Controls would not be removed until areas are stabilised. | Construction contractor | Construction |
| 92 | Erosion and sedimentation | All stockpiles would be designed, established, operated and decommissioned in accordance with Roads and Maritime Stockpile Management Guideline (RTA, 2011k). | Construction contractor | Construction |
| 93 | Erosion and sedimentation | Controls would be implemented at exit points to minimise the tracking of soil and particulates onto pavement surfaces. | Construction contractor | Construction |
| 94 | Erosion and sedimentation | Any material transported onto pavement surfaces would be swept and removed at the end of each working day. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 95 | Excess spoil | Excess spoil not required or able to be used for backfilling would be stockpiled in a suitable location before being reused or removed from the site, and disposed of appropriately. | Construction contractor | Construction |
| 96 | Contamination of soil | The CEMP is to include contaminated land management procedures, which must comply with the CLM Act, Roads and Maritime Contaminated Land Management Guideline (2011l), Roads and Maritime Environmental Incident Classification and Reporting Procedure, and relevant EPA guidelines on contaminated land management.<br>The procedures would provide for dealing with:<br>• Areas of known contamination (if any).<br>• Unexpected contamination finds.<br>Any land contamination caused during construction | Construction contractor | Pre-construction |
| 97 | Contamination of soil | In the event that indicators of contamination are encountered during construction (such as odours or visually contaminated materials), work in the area would cease until advice on the need for remediation or other action is obtained from an environmental consultant. | Construction contractor | Construction |
| 98 | Contamination of soil | A fully equipped emergency spill kit would be kept on-site at all times. | Construction contractor | Construction |

**Table 3-1 Summary of site specific safeguards – water quality safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 99 | Sedimentation and contamination of surface water | Erosion, sedimentation and contamination measures identified in section 6.9.3 would be implemented. | Roads and Maritime and construction contractor | Pre-construction and construction |
| 100 | Disturbance of bed and banks | Bed and bank disturbance would be minimised in design and construction methodology. Appropriate measures from the Office of Water Guidelines for Watercourse Crossings and Guidelines for Riparian Corridors on Waterfront Lands would be incorporated into proposal design and the CEMP. | Roads and Maritime and construction contractor | Pre-construction and construction |
| 101 | Disturbance of bed and banks | All surfaces disturbed should be stabilised and restored as soon as practicable and in a progressive manner as works are completed. | Contractor | Construction |
| 102 | Disturbance of bed and banks | An Environmental Work Method Statement (EWMS) would be prepared in accordance with Section 4.13 of the Roads and Maritime QA Specification G36 for all works to be undertaken within the Clarence River and any access works on the river banks. | Contractor | Construction |
| 103 | Disturbance of bed and banks | The EWMS would be prepared considering the NSW DPI (Fisheries) guidelines Policy and guidelines for fish habitat conservation (2013) and any requirements for dredging and reclamation activities as advised by DPI (Fisheries). | Contractor | Construction |
| 104 | Disturbance of bed and banks | All temporary access points installed for construction access to the waterway (including constructed pads or temporary jetties) would be established in a manner such to minimise disturbance on the banks | Contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 105 | Disturbance of bed and banks | For all works likely to impact on the waterway (including all temporary access works and piling), a sediment / silt curtain and hydrocarbon boom would be placed in the Clarence River, weighted to the bed and secured to accommodate tidal flow. The hydrocarbon boom should be installed inside of the silt curtain when both are in operation. This would remain in place until the completion of drilling and removal of temporary access platforms. | Contractor | Construction |
| 106 | Contamination of surface water | All fuels, chemicals, and liquids would be stored at least 50 metres away from the river or drainage lines, flooded or poorly drained area or slopes above 10 per cent. They would be stored in an impervious bunded area within the compound site. Amounts stored on site would be minimised. For storage within 50 m, these would be, double-bunded or stored as approved by the Roads and Maritime Environment Officer. | Construction contractor | Construction |
| 107 | Contamination of surface water | Refuelling of plant and equipment is to occur in impervious bunded areas located a minimum of 50 m from drainage lines or waterways. Refuelling of plant and equipment over the waterway is to occur within a double-bunded area | Construction contractor | Construction |
| 108 | Contamination of surface water | Compounds and storage locations would be located as far as practicable outside areas subject to flooding. | Construction contractor | Construction |
| 109 | Contamination of surface water | Vehicle wash downs and/or concrete truck washouts would be undertaken within a designated bunded area of an impervious surface or undertaken off-site. | Construction contractor | Construction |
| 110 | Contamination of surface water | Visual monitoring of local water quality (i.e. turbidity, hydrocarbon spills/slicks) would be undertaken on a regular basis to identify potential spills or the effects of sediment-laden runoff. | Construction contractor | Construction |
| 111 | Contamination of surface water | Vehicles and plant would be properly maintained and regularly inspected for fluid leaks. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 112 | Contamination of surface water | Vehicle wash down would occur in a designated bunded area or at a dedicated location off-site. | Construction contractor | Construction |
| 113 | Contamination of surface water | A facility for collecting, treating and disposing of concrete wastes generated during construction would be installed on site. | Construction contractor | Construction |
| 114 | Contamination of surface water | An emergency spill kit would be kept on site at all times. All staff would be made aware of the location of the spill kit and trained in its use. | Construction contractor | Construction |
| 115 | Contamination of surface water | Work areas would be screened or netted to avoid loss of material into the river. This would include netting/ encapsulating the entire underside of the bridge over the river during demolition. | Construction contractor | Construction |
| 116 | Dewatering | Low lying areas of construction formations and excavations that collect stormwater would be dewatered (if required) in accordance with the soil and water management plan (as part of the CEMP) and Roads and Maritime Services' Technical Guideline for Dewatering. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 117 | Concrete batching plant storm water and waste water management | A storm and waste water management plan would be prepared to for the operation of the temporary concrete batching plant as a sub-plan to the temporary concrete batching plant CEMP.<br>This plan would include measures to address the following as a minimum:<br>Collection ground pits or tanks for first flush of contaminated water from areas such as cement and fly ash storage, concrete loading, agitator bowl washing and slumping, concrete wash out storage and truck washing areas.<br>The required first flush capture capacity is equivalent to 0.02 metres (20mm) multiplied by the area of the 'contaminated area' – that is 0.02 metres x length x breadth) i.e. a first flush capacity able to hold a 20mm rain event<br>Within 24 hours of a 20mm rainfall event, capacity is to be restored<br>Design the batching plant so that it is segregated into contaminated (alkaline), dirty (sand and aggregate storage) and hardstand / sealed areas to assist with water management. Divert clean stormwater away from contaminated and dirty operational areas.<br>Reuse water captured water for slumping and dust suppression. | Construction contractor | Construction |

**Table 3-1 Summary of site specific safeguards – Visual amenity safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 118 | Visual impact | Bridge works are to be managed in accordance with the *Roads and Maritime Bridge Aesthetics Guidelines (RTA 2003)*. | Roads and Maritime | Detailed design |
| 119 | Visual impact | The bridge design would consider:<br>• The bridge would be kept to a simple, clean structure with a slender profile with any services appropriately concealed in the design of the bridge<br>• The heritage of the existing bridge would be reflected in the pier shapes and pier spacing's in the new structure, including aligning the new piers with the existing bridge.<br>• The bridge would be a horizontal structure to acknowledge the general horizontal nature of the surrounding landscape<br>• The design to include spill through abutments to provide a more open appearance and enhance the slenderness of the bridge<br>• Treatment of abutments to consider pedestrian safety and potential for graffiti attack<br>• Lighting would be well placed and architecturally designed<br>• Detailing of the parapet and balustrade to allow views from the bridge<br>Appropriate interpretation of the existing bridge to be incorporated into the new bridge design. This would be determined in consultation with relevant stakeholders and the community | Roads and Maritime | Detailed design |
| 120 | Visual impact | The work site would be tidied and all rubbish removed at the end of each day. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 121 | Visual impact | Where feasible and reasonable, machinery would be kept within the construction compounds when not in use, with work areas to be restored progressively and maintained until established. | Construction contractor | Construction |
| 122 | Landscape impacts | Landscaping would be managed in accordance with the *Roads and Maritime Landscape Guideline (RTA 2008).* | Roads and Maritime | Detailed design |
| 123 | Landscape impacts | • Minimising the loss of existing vegetation wherever possible<br>• Where possible, flatter slopes of 3 in 1 to enable more effective planting, particularly on smaller batters where the impact on the overall footprint would be less significant<br>• Requiring minimal maintenance<br>• Use of native species in keeping with the character of the area and its identified ecological values. The landscape plan would enhance and augment existing native vegetation.<br>• Existing cultural plantings would also be considered<br>• Improved connectivity for pedestrians and cyclists<br>• Improved connectivity between the bridge and the river<br>• Pedestrian safety and potential for graffiti attack<br>• A picnic area on the eastern river bank<br>• New signage and landscape treatment at Clarence Street intersection to assist in wayfinding to Tabulam village centre<br>Minimising the visual intrusiveness of any fences required for safety purposes by setting back and using fences appropriate to a rural setting | Roads and Maritime | Detailed design |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 124 | Landscape impacts | A gateway treatment for both bridge approaches would be considered in the landscape design. It would:<br>• Eastern approach:<br>– Continue the ‘forested’ bushland descent from the Bruxner Highway into Tabulam<br>– Enhanced ‘cultural’ avenue planting on both sides of the bridge approaches, signifying proximity to Tabulam Village<br>• Western approach:<br>– Include formal planting of Forest Redgum to assist in identifying the Tenterfield Shire. | Roads and Maritime | Detailed design |

**Table 3-1 Summary of site specific safeguards – Climate change safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 125 | Increased temperature | Design and material selection would consider temperature, for example use non-conductive materials, and incorporate shade provision in open space. | Roads and Maritime | Detailed design |
| 126 | Increases in runoff depths and the magnitude of high flow events | Road grades (longitudinal and cross-section) would account for increased drainage requirements. | Roads and Maritime | Detailed design |
| 127 | Increases in rainfall intensity | Road grades (longitudinal and cross-section) would account for increased drainage requirements. | Roads and Maritime | Detailed design |
| 128 | Other climatic changes (e.g. frost, fog, wind) | Design and material selection would consider frost, fog and wind. Signage to provide warnings if necessary. | Roads and Maritime | Detailed design |

**Table 3-1 Summary of site specific safeguards – Socio-economics safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 129 | Construction related amenity impacts and traffic changes | Communication with residents, businesses and organisations located within Tabulam would be undertaken in advance of construction to ascertain any specific times/events that would be considered in construction programming (e.g. school or cultural events). | Roads and Maritime | Pre-construction |
| 130 | Construction related amenity impacts and traffic changes | Residents living near the bridge and the local community would be provided with timely and relevant information to enable them to understand the likely nature, extent and duration of vibration, dust and noise impacts and access changes. | Roads and Maritime | Pre-construction |
| 131 | Construction related amenity impacts and traffic changes | Roads and Maritime would work with local community organisations or Council to coordinate appropriate communication methods, including ensuring any vulnerable community members are appropriately engaged during the consultation period. | Roads and Maritime | Pre-construction |
| 132 | Construction related amenity impacts and traffic changes | Communications would include roadside signage, letterbox dropped newsletters, newspaper advertisements, Roads and Maritime web based information, a complaints line, and advice to specific service providers such as community transport and seniors organisations. | Roads and Maritime | Pre-construction |
| 133 | Economic opportunity | Construction workforce recruitment would give preference to local (Tabulam) labour. This would be included as a clause in the construction contractor's works contract. | Roads and Maritime | Pre-construction |
| 134 | Operational heritage and cultural impacts | Design of the new bridge would be undertaken in consultation with the local community, particularly the Aboriginal community and heritage stakeholders to include appropriate ways to remember the existing bridge and to enhance acceptance and ownership of the new bridge. This could include public art or other cultural opportunities. | Roads and Maritime | Detailed design |

**Table 3-1 Summary of site specific safeguards – Hazard and risk safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 135 | Risk Management | Emergency response plans would be incorporated into the CEMP. | Construction contractor | Pre-construction and construction |
| 136 | Risk Management | A pollution incident response management plan would be developed and implemented in accordance with the POEO Act requirements and Roads and Maritime Environmental Incident Classification and Management Procedure. The plan would form a sub-plan within the CEMP. | Construction contractor | Pre-construction and construction |
| 137 | Risk Management | An emergency spill kit would be kept on site at all times. All staff would be made aware of the location of the spill kit and trained in its use. | Construction contractor | Construction |

**Table 3-1 Summary of site specific safeguards – Land use safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 138 | Adjacent land use impacts | Roads and Maritime would consult with potentially affected landholders before and during construction to minimise the potential for impacts on land use. | Roads and Maritime | Detailed design |
| 139 | Utility impacts | Roads and Maritime would consult with relevant service providers during detailed design to identify possible interactions and develop procedures to be implemented to minimise the potential for service interruptions which have the potential to impact on existing land use.<br><br>Additional environmental approvals would be required for utility adjustments inconsistent with this REF. | Roads and Maritime | Detailed design |
| 140 | Crown reserve impacts | Roads and Maritime would consult with relevant reserve managers during detailed design to identify possible interactions and develop procedures to be implemented to minimise the potential for service interruptions which have the potential to impact on existing land use. | Roads and Maritime | Detailed design |

**Table 3-1 Summary of site specific safeguards – Hazard and risk safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Responsibility |
|---|---|---|---|---|
| 141 | Fuel consumption | Fuel use would be reduced whenever possible. This could include:<br>• Carpooling of workers to site<br>• Turning vehicles, machinery and equipment off when not in use<br>• Planning movements of personnel, equipment and materials to minimise trips<br>Ordering equipment and material to minimise trips to site | Construction contractor | Construction |
| 142 | Fuel consumption | Modern vehicles, equipment and machinery only would be used. These are more fuel efficient and have better emission controls than older models. | Construction contractor | Construction |
| 143 | Fuel consumption | All vehicles, machinery and equipment would be adequately maintained. | Construction contractor | Construction |
| 144 | Fuel consumption | Use of biodiesel for proposal vehicles, equipment and machinery would be investigated. | Construction contractor | Construction |

**Table 3-1 Summary of site specific safeguards – Resource consumption and water generation safeguards and management measures**

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 145 | Demand on resources | Procurement would endeavour to use materials and products with a recycled content where that material or product is cost and performance effective. | Construction contractor | Pre-construction and construction |
| 146 | Demand on resources | Excavated material would be reused on-site for fill where feasible to reduce demand on resources. | Construction contractor | Construction |
| 147 | Demand on resources | Any additional fill material required would be sourced from appropriate local sources and/or other Roads and Maritime projects. | Construction contractor | Construction |
| 148 | Waste minimisation | The following resource management hierarchy principles would be followed:<br>• Avoid unnecessary resource consumption as a priority<br>• Avoidance would be followed by resource recovery (including reuse of materials, reprocessing, and recycling and energy recovery)<br>Disposal would be undertaken as a last resort (in accordance with the *Waste Avoidance and Resource Recovery Act 2001*) | Construction contractor and Roads and Maritime | Construction |
| 149 | Waste minimisation | Excess materials must be disposed of according to the following (in order):<br>• All bridge timbers are to be assessed in accordance with RMS Environmental Direction No 10 Disposal/Recycling of replaced bridge timbers.<br>• Disposal via approved contractors (including the bridge timbers)<br>• Transfer to an RMS approved site for reuse on concurrent private/local government project<br>Disposal at an approved materials recycling or waste disposal facility. | Construction contractor and Roads and Maritime | Construction |
| 150 | Management of green waste | Cleared weed-free vegetation would be chipped and reused on-site as part of the proposed landscaping and to stabilise disturbed soils where possible. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 151 | Spoil management | Excess excavated material would be disposed of at an appropriate facility or reused appropriately for fill on the proposal site. | Construction contractor | Construction |
| 152 | Spoil management | Excess soil requiring waste disposal would first be assessed against the *Waste Classification Guidelines (DECCW, 2009).* | Construction contractor | Construction |
| 153 | Spoil management | Waste would be disposed of appropriately with supporting waste classification documentation. | Construction contractor | Construction |
| 154 | Waste management | A waste management plan would be prepared and included in the CEMP in accordance with Roads and Maritime Specification G36 Environmental Protection and relevant EPA guidelines. | Construction contractor | Pre-construction |
| 155 | Waste management | Garbage receptacles would be provided and recycling of materials encouraged. Rubbish would be transported to an appropriate waste disposal facility. | Construction contractor | Construction |
| 156 | Waste management | There would be no disposal or re-use of construction waste on to other land. | Construction contractor | Construction |
| 157 | Waste management | Waste would not be burnt on site. | Construction contractor | Construction |
| 158 | Waste management | Waste material, other than vegetation and tree mulch, would be removed form site once the works have been completed. | Construction contractor | Construction |
| 159 | Waste management | Portable toilets would be provided for construction workers and would be managed by the service provider to ensure the appropriate disposal of sewage. | Construction contractor | Construction |
| 160 | Waste management | Noxious weeds removed during work would be managed in accordance with the DPI requirements that relate to its classification status under the NW Act. | Construction contractor | Construction |
| 161 | Waste management | Site inductions would occur and be recorded by a Site Supervisor to ensure staff are aware of waste disposal protocols. | Construction contractor | Construction |
| 162 | Waste management | A facility for collecting, treating and disposing of concrete waste generated in the construction of the development would be installed on site. | Construction contractor | Construction |

| No. | Impact | Environmental safeguards | Responsibility | Timing |
|---|---|---|---|---|
| 163 | Waste management | All working areas would be maintained, kept free of rubbish and cleaned up at the end of each working day. | Construction contractor | Construction |
| 164 | Waste management | Lead paint materials would be managed in accordance with the Australian Standard AS4361.1 'Guide to Lead Paint Management – Part 1 Industrial Applications 1995'. | Construction contractor | Construction |
| 165 | Waste management | Bulk project waste (eg. fill) sent to a site not owned by the Roads and Maritime Services (excluding Office and Environment and Heritage licensed landfills) for land disposal would have prior formal written approval from the landowner, in accordance with *RTA Environmental Direction No. 20 – Legal Off-site disposal of Bulk RTA Project Wastes.* | Construction contractor | Construction |
| 166 | Waste management | If coal tar asphalt is identified and is to be removed, it would be disposed of to landfill in accordance with *RTA Environmental Direction No.21 – Coal Tar Asphalt Handling and Disposal.* | Construction contractor | Construction |
| 167 | Waste management | Any hazardous waste material Any hazardous waste material<br>stockpiles are to be fenced and<br>signed for public safety | Construction contractor | Construction |
| 168 | Wastewater contamination of soils and water | A dedicated concrete washout facility would be provided during construction so that run-off from the washing of concrete machinery and equipment can be collected and disposed of at an appropriate waste facility. | Construction contractor | Construction |

## 3.3 Licensing and approvals

Table 3-2: Summary of licensing and approval required.

| Requirement | Timing |
|---|---|
| A road occupancy permit would be required in accordance with section 138 of the *Roads Act 1993* for works within a classified road | Prior to commencement of construction. |
| Under the *Water Act 1912* a water licence is required to take water from a stream or river via a pump or other work for all purposes other than for basic landholder rights. | Prior to commencement of construction. |
| In accordance with section 199 of the *Fisheries Management Act 1994* the Minister for Primary Industries must be notified of any dredging or reclamation works prior to the undertaking of such works. | A minimum of three (3) days prior to the commencement of the works. |
| Approval under Section 38 of the *Heritage Act 1977* | Prior to commencement of construction. |

# 4 References


- Roads and Maritime *Timber Truss Bridge Conservation Strategy 2012*
- *Bruxner Highway at Tabulam (Building of new bridge over the Clarence River and removal of existing timber truss bridge) Review of Environmental Factors* (RMS 2015).