

Category	Timing	Safeguard Measures	Section in ref
Heritage	Before construction	<p>high and temperatures declining, by trenching around the plant with an excavator, lifting the plant out of the ground with a soil and root ball, pruning foliage to approximately 10%, immediate planting into the relocation site and thorough watering. To date, the RTA has used a specialist ecologist to translocate threatened plants from the footprint of the Upgrade.</p> <ul style="list-style-type: none"> • Transplant seedlings and small juveniles to pots and once they are stabilised, plant at the relocation site. Growing on these seedlings and small juveniles would be preferable to leaving them in place as many would likely be lost due to grazing or competition with introduced species. • The RTA would consult with the DEC to determine if the two Davidson's Plum plants and seedlings could either be included in the Upgrade's translocation site or regrown as part of the landscaping for the proposed facility. • The RTA would implement a two-stage clearing procedure based on protocols developed by the RTA when clearing native vegetation. If threatened species are found during clearing, work would stop in the vicinity, the DEC would be advised and appropriate action taken. • During clearing and construction, the RTA would minimise the extent of habitat removed or disturbed. • Wildlife injured during the clearing activities would be sent to local care groups such as FAWNA (Tel: 0500 861 405). Wildlife placed into care should be rehabilitated and released close to the area where they are discovered. • If threatened plants or animals are discovered during construction, work would stop in the vicinity of the discovery so that further disturbance is prevented. The RTA would notify the DEC and other relevant authorities and follow their requirements. • The RTA would not use weed-infested topsoil in landscaping or revegetation unless it is first sterilised or treated. • The proposed facility would be rehabilitated using seed collected from native species in the immediate area. • The RTA would implement measures to control weeds during operation of the proposed facility. • The Flora and Fauna Management Plan would form a part of the Construction Environmental Management Plan (CEMP) detailed in Section 7.2. • The RTA would prepare a Heritage Management Plan that details procedures if Aboriginal objects are discovered during construction. The Plan would include the 	6.3,6.4

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		<p>following safeguards:</p> <ul style="list-style-type: none"> The locations of PADs 6 and 7 would be shown on design plans. The approximate boundary of PAD 7 adjoining the existing Pacific Highway would be delineated with a temporary protective fence fenced to ensure that no disturbance occurred in its vicinity. If Aboriginal artefacts are discovered, work must stop in the vicinity of the discovery so that further disturbance is prevented. The RTA would notify the DEC and the Tweed-Byron Local Aboriginal Land Council and the DEC and follow their requirements. If relics are disturbed or excavated, work must stop in the vicinity of the discovery so that further disturbance is prevented. The RTA must determine whether an excavation permit under s140 of the Heritage Act 1977 is required before work continues. The Heritage Management Plan would form a part of the Construction Environmental Management Plan (CEMP) detailed in Section 7.2 	
Legislation	At all times	<ul style="list-style-type: none"> If relics are disturbed or excavated, work must stop in the vicinity of the discovery so that further disturbance is prevented. The RTA would determine whether an excavation permit under s140 of the Heritage Act 1977 would be required before work continues. If Aboriginal artefacts are discovered, work must stop in the vicinity of the discovery so that further disturbance is prevented. The RTA would notify the DEC and the Tweed-Byron Local Aboriginal Land Council and the DEC and follow their requirements. If threatened species are discovered during construction, work must stop in the vicinity of the discovery so that further disturbance is prevented. The RTA would notify the DEC and follow their requirements. 	2.5
Noise and vibration	Before construction	<ul style="list-style-type: none"> The RTA would prepare a Noise and Vibration Management Plan that details control measures to be undertaken during construction of the proposed facility. The Plan would include the following safeguards to reduce construction noise impacts: <ul style="list-style-type: none"> Construction activities, including entry and departure of heavy construction vehicles would be restricted to the hours of 7.00 AM to 6.00 PM (Monday to Friday) and 8.00 AM to 1.00 PM (Saturday). No work would occur on Sundays or public holidays. Work outside these hours would be permitted in limited circumstances: any work which does not cause noise emissions to be audible at any nearby residential property; the delivery of materials that is required outside these hours as requested by police or other authorities for safety reasons; and emergency work to avoid the loss of lives, property and/or to prevent environmental harm. Any other work outside these hours would only be carried out in consultation with local residences and the DEC (EPA). 	6.1

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		<ul style="list-style-type: none"> • Noisy machines such as trucks or excavators would not be left idling unnecessarily. Where possible, all machines would be stopped during rest breaks to reduce noise impacts. • Operators would use less than full engine speed where full power is not required, to minimise noise. This recommendation mainly applies to trucks manoeuvring on the site. • Noise from reversing alarms would be controlled to the lowest possible levels that meet WorkCover requirements. If practical, machines with excessively noisy alarms would be modified or removed from the site. • All machines would be maintained in good condition, with particular attention to exhaust silencers, engine covers and other noise reduction devices. Unnecessarily noisy machines would not be allowed on the site. • Residents within 500 m of the proposed facility would be made fully aware of the project and anticipated construction noise impacts before the project commences. Residents would be kept informed of the progress of the work and, in particular, the expected duration of remaining noise impacts. The Contractor would be sensitive to resident's concerns and, where practical, modify the construction program to better suit any particular community needs. • The Noise and Vibration Management Plan would form a part of the Construction Environmental Management Plan (CEMP) detailed in Section 7.2. 	
Noise and vibration	During construction	<ul style="list-style-type: none"> • The RTA will also provide at-residence treatment to the residence on the former Jagwen property. 	6.1
Noise and vibration	During operation	<ul style="list-style-type: none"> • The RTA would prepare an Operational Noise Management Report that would form part of the Noise and Vibration Management Plan in the CEMP. It would require the RTA to monitor operational noise once the proposed facility was open to traffic and assess the accuracy of traffic noise predictions in this REF. It would also identify noise monitoring and complaint response procedures. Should the report indicate a clear trend in traffic noise levels that are higher than the predictions made in this REF, the RTA would investigate additional operational noise mitigation measures following the guidelines in the RTA ENMM. 	6.1
Soil and water quality	Before construction	<ul style="list-style-type: none"> • The RTA would prepare and implement a Soil and Water Management Plan that details measures to limit erosion and changes to water quality during construction of the proposed facility. The Plan would include the following safeguards: • Clearly define the extent of construction and minimise the extent of vegetation clearing. • Protect topsoil and material stockpiles from erosion by hydroseeding. 	6.8

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		<ul style="list-style-type: none"> • Consider where possible use of crowns, heads and branches of cleared vegetation as sediment filters. • Provide catch drains to divert clean runoff around disturbed areas. • Where possible, maintain buffer areas between disturbed sites and drainage lines. • Where practical, establish a 20 m buffer to watercourses that are not within the construction footprint. • Use drainage structures to protect exposed embankment batters during construction. • Install appropriate erosion and sedimentation controls based on best-practice procedures. The RTA would use techniques presented in the NSW Department of Housing's Managing Urban Stormwater Soils & Construction (1998) and the RTA's Road Design Guide (1993) to minimise soil erosion during construction. • Progressively revegetate all exposed and disturbed areas as quickly as practical, using seed collected from native species in the immediate area. • If work occurs in a watercourse or drainage line, the RTA would notify New South Wales Fisheries of its intention to undertake dredging and reclamation and liaise with them during the preparation of Work Method Statements. The Work Method Statements would follow relevant guidelines and notes prepared by New South Wales Fisheries. The RTA would identify ways to minimise impacts before disturbance occurs, such as by using erosion and sedimentation controls and minimising clearing. • The Soil and Water Management Plan would form a part of the Construction Environmental Management Plan (CEMP) detailed in Section 7.2 	
Soil and water quality	Before construction	<ul style="list-style-type: none"> • The RTA would ensure that all inspection lids on in-ground tanks are effectively secured to prevent unauthorised access and associated illegal activities such as dumping. 	6.8
Soil and water quality	Before construction	<ul style="list-style-type: none"> • The RTA would prepare a Soil and Water Management Plan that outlines procedures to detect and manage potential acid sulphate soils and rock. The procedures would be based on ASSMAC guidelines (1998) and would only be implemented in low-lying areas near the existing Pacific Highway where intermittent water logging occurs: • The RTA would prepare in situ tests for potential acid sulphate soils prior to disturbance. • If action criteria are exceeded in materials that would be exposed or removed, the RTA would prepare an acid sulphate soils management plan based on ASSMAC guidelines (1998). The plan would generally require the RTA to avoid disturbance or neutralise acid sulphate soils or rock. • The Soil and Water Management Plan would form a part of the Construction Environmental Management Plan (CEMP) detailed in Section 7.2 	6.9

Category	Timing	Safeguard Measures	Section in ref
Soil and water quality	Before operation	<ul style="list-style-type: none"> The AWTS would be regularly maintained and serviced in accordance with the manufacturer's requirements. Treated solid wastes would be removed periodically during maintenance. 	6.8
Urban design and landscaping	Before construction	<ul style="list-style-type: none"> The RTA would prepare a landscape concept design for the proposed facility. It would complement the landscape design for the Upgrade. 	4.5
Urban design and landscaping	Before construction	<ul style="list-style-type: none"> For the proposed facility, representatives of the trucking industry requested that the RTA consider two design issues: <ul style="list-style-type: none"> Make sure that landscaping, and in particular trees, provides enough shade to keep trucks and cabs out of direct sun. Ensure that the turning paths for B-Double trucks are generous. The RTA has addressed these requests in the concept design of the proposed facility and would further address these requests in the detailed design provided that they do not conflict with road design guidelines and that they are practical and cost-effective. 	5.2
Urban design and landscaping	Before construction	<ul style="list-style-type: none"> The landscape design would adopt the following principles: <ul style="list-style-type: none"> Revegetation of the upper batter of the cut using a low, native shrub and grass seeding mix to integrate the batter into the surrounding pastoral landscape and the ramp batter to the southeast of the Yelgun Interchange. Revegetation of the lower batter of the cut using a Dry Sclerophyll Forest seeding mix to reduce the scale of the cut batter. Provision of buffer planting within and below the remainder of the former Jagwen property to the south. Revegetation of the mound to the southeast of the Yelgun Interchange roundabout with Dry Sclerophyll Forest species to complement the existing vegetation to the north of the roundabout and increase screening of the proposed facility. Continuation of Dry Sclerophyll Forest revegetation to the mounds along the existing Pacific Highway (the future Service Road) to create a strongly vegetated edge and improve screening of the proposed facility (top right). Revegetation of the mound between the heavy vehicle parking sections to continue the vegetated effect of the mounds and batter and to provide a limited screen to and from the heavy vehicle parking area (right, second from top). Incorporation of feature tree planting to highlight the proposed facility's entry and complement the feature plantings at the Yelgun Interchange (right, second from bottom). Introduction of clear stem trees in the picnic area to allow easy movement between the shelters, provide shading in summer, and ensure clear views around the area for safety 	6.5

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Urban design and landscaping	Before construction	<p>(bottom right).</p> <ul style="list-style-type: none"> • Provision of a permeable visual barrier in the form of timber bollards between vehicles and the picnic area to define the edge between vehicles and pedestrians (bottom right). • Suitable local native plants would be used in all landscaping to integrate with the surrounding vegetation in the Billinudgel Nature Reserve and the Yelgun Interchange. • The RTA would prepare an Urban Design and Landscaping Plan based on the landscape concept design shown in Appendix 1. and principles presented above. The Plan would include the following safeguards: <ul style="list-style-type: none"> • Integrate the earthworks and landscaping with the Yelgun Interchange to create a seamless transition between the two elements. • Provide five to eight metre roundings to the tops and sides of the cut batter to integrate the cut into the existing landform. • Provide landscape mounds between the proposed facility and existing Pacific Highway (the future Service Road) to reduce views to the proposed facility. • Revegetate the cut batter with suitable local native vegetation as early as possible. • Provide landscaped areas and trees within the proposed facility to reduce the scale of the cut batter, provide shade, and break up the large areas of paving required for parking. • Provide screen planting at the perimeter of the proposed facility and around structures within the proposed facility. • Strip and stockpile topsoil from the site for use in landscape mounds and revegetation. • The Urban Design and Landscaping Plan would form a part of the Construction Environmental Management Plan (CEMP) detailed in Section 7.2 	6.5
Urban design and landscaping	Before construction	<ul style="list-style-type: none"> • The RTA takes care to make rest areas as safe as practical. The proposed facility would have lighting at the entrance and exit intersections with the future Service Road, and throughout the area where the toilet building and picnic shelters are located. Low-level, vandal-resistance security lighting would be provided at key walking paths. An emergency telephone would also be provided. The RTA would ensure that landscaping did not reduce visibility or personal safety for users of the rest area. 	6.6
Water quality	During operation	<ul style="list-style-type: none"> • The Humeceptor would be maintained by the contractor that constructs the Upgrade for ten years after opening to traffic. Maintenance after this period would be managed by the RTA and may be subcontracted or handed over to a third party. 	4.7

Appendix 2.
**Submissions on the proposed combined
heavy/light vehicle rest area at Yelgun**

Responses to submissions on the proposed combined heavy/light vehicle rest area at Yelgun

The RTA proposes to construct and operate a combined heavy vehicle/light vehicle rest area (the *proposed facility*) at Yelgun. An REF was finalised by Acacia Environmental Planning in November 2004. The REF describes the proposed activity and assesses its likely impacts on the environment. It also identifies safeguards that would be implemented to minimise or avoid adverse impacts.

The REF was exhibited from 23 November to 22 December 2004. The REF was displayed at several places during this time: Ocean Shores, Billinudgel, Byron Bay, Mullumbimby, Murwillumbah and Brunswick Heads. The REF was also displayed at the Ocean Shores Shopping Centre and was staffed for one day by RTA representatives on 25 November 2004. The REF has been available for viewing or downloading on the RTA web site since 23 November 2004. The RTA placed public notices of the REF's exhibition in the Northern Star on 22 and 27 November, the Byron Shire Echo on 23 and 30 November and 7 December, and the Byron Shire News on 24 November and 1 December.

The RTA received 34 submissions from individuals, community groups and a company. Responses have been prepared to these issues and are presented in the attached Word document. New commitments arising from consideration of the submissions are summarised below. The RTA will consider these issues and responses in its Decision Report.

Issue	Response (new commitment)
Mixing heavy and light vehicle two-way traffic at Yelgun Interchange and existing Pac Hwy.	The RTA has reviewed alternative access arrangements to separate these two types of traffic and would undertake further reviews of alternative access arrangements during the detailed design phase of the proposed facility. Subject to alternative access arrangements being practical, suitable and cost effective, the RTA will modify the access to the rest area to separate traffic accessing the rest area from traffic on the Service Road.
Potential pollution in Billinudgel Nature Reserve or State Environmental Planning Policy No 14 Coastal Wetland No 57.	During the detailed design phase for the proposed facility, the RTA would investigate options to contain spills, including a downstream storage basin with a lockable outlet. If spills occurred, then the basin outlet could be locked by emergency services and any spills or pollutants could be removed from the storage basin.
Potential light pollution	Lights [at the rest area] would be shielded to avoid such spill. Other than the RTA-owned former Jagwen residence (which would be protected from light spill by landscaping on the cut batter and benches), there are no known residences in direct line of sight to the lights that would be installed at the entry and exit of the proposed facility.
Community consultation	The RTA would notify nearby residents during construction of the rest area to make them aware of the proposed facility and to provide regular progress updates on its construction.
Road safety	In addition, the RTA would conduct road safety audits during the detailed design and after construction to verify the suitability of the rest area.
Maintenance of water quality	The RTA would consider the need for a trash rack during the detailed design of the stormwater drainage system.
Road safety	The increase in heavy vehicle traffic would occur entirely between the Yelgun Interchange and the entry to the rest area because this is the most direct route to the rest area (and would be signposted to make this clear).

The RTA engaged Acacia Environmental Planning Pty Ltd to prepare this report. Acacia Environmental Planning certifies that at the time of accepting the contract for preparation of this report, it had no contractual interest in the construction and/or operation of the proposed rest area at Yelgun.

Signed: 

Norman Shapiro

Director, Acacia Environmental Planning Pty Ltd

3 February 2005

I have examined this report and certification by Acacia Environmental Planning and accept the report on behalf of the RTA.

Name (print)	Peter Borrelli BE Civil (Hons), MEIAust, CPEng	Designation	Senior Project Manager Strategic Projects
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Signed		Date	3 FEB 2005
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Responses to submissions on the Yelgun Rest Area (last printed 3-Feb-05)

Sub No	Issue No	Last Name	Issue	Sub-Issue	Description	Response
5819	1	Watson	Traffic noise	accel/decel noise	Will be severely affected by noise of trucks accelerating and decelerating at Interchange.	The writer lives at Lot 4(24) Stock Route Road. Figure 7 of the REF shows that Lot 4(22) and Lot 4(24) Stock Route Road are about 500 m from the proposed facility. Pages 35 to 38 of the REF show that predicted noise levels from vehicles using the road network would comply with relevant road traffic noise criteria at Lot 4(24). Exceedances would occur at Lot 4(22) from the BH2Y Upgrade, not the ramps. There would be some changes in noise character from heavy vehicles using the Yelgun Interchange ramps to access the rest area. Predicted noise levels following the industrial noise policy assessment methodology would comply with relevant industrial noise criteria during the daytime at the two residences. During the night time, maximum noise levels from the proposed facility and along the Service Road would satisfy the sleep arousal goal at the two residences. However, noise from heavy vehicles accelerating onto and decelerating from the Yelgun Interchange ramps would exceed the sleep arousal goal at Lot 4(22) but would be below the maximum noise levels from vehicles using the BH2Y Upgrade and the road traffic noise criterion of 60 to 65 dB(A). The RTA is providing mitigation treatment at Lot 4(22) as part of the BH2Y Upgrade, as noted on page 38 of the REF.
5819	2	Watson	Fauna	mortality	Traffic will impact fauna in wildlife reserve.	At its closest point, the BNR is about 90 m away from the northern boundary of the rest area. The BNR is completely separated from the rest area by the existing Pac Hwy (and future Service Road) corridor. The rest area would not have direct impacts on either flora or fauna in the BNR. Fauna exclusion fencing shown in the Conybeare Morrison Concept Plan and Detail in Appendix 1 of the REF would be constructed between the BNR and the Service Road, from a point south of the rest area entry and extending to existing exclusion fencing north of the Yelgun Interchange to prevent fauna from gaining access to the Service Road and the rest area. Given the barrier created by fauna exclusion fencing, the operation of the rest area would not have adverse indirect impacts on fauna in the BNR, such as injury or death from collision with vehicles.
5819	3	Watson	Fauna	noise	Traffic noise will impact fauna in wildlife reserve.	BNR is currently subject to road traffic noise from the existing Pac Hwy. Once the BH2Y Upgrade is opened, traffic volumes on the Service Road between the Yelgun Interchange and the rest area entry are expected to increase if the proposed facility proceeds (see Table 2 of the REF). However it would be substantially lower than existing traffic volumes on the existing Pac Hwy. The increase would be a small proportion of projected traffic volume on either the BH2Y Upgrade or the Service Road. Consequently, there would be only a minor increase in road traffic noise from the proposed facility and it would be unlikely to affect fauna in the BNR when compared to road traffic noise levels, both existing and after opening of the BH2Y Upgrade. The RTA must ensure that the rest area complies with the road traffic noise criteria in the DEC's Environmental Criteria for Road Traffic Noise, however this document does not address noise criteria for fauna in nature reserves.