

# Appendix B

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Consideration of clause 228(2) factors and matters of national environmental significance

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## Clause 228(2) Checklist

In addition to the requirements of the *Is an EIS required?* guideline as detailed in the REF, the following factors, listed in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000*, have also been considered to assess the likely impacts of the proposal on the natural and built environment.

Factor	Impact
<p><b>Any environmental impact on a community?</b></p> <p>The long term benefits of the proposal would include improved safety along the proposal for road users, the construction of additional lanes and intersection improvement would improve travel times and allow for increased traffic flow. The proposal would also cater for the predicted traffic growth as a result of population growth in major regional centres. There would be an increase in the safety and level of service for pedestrian and cyclists using the Pacific Highway through the provision pedestrian crossings at the upgraded intersections and improved connections and extensions of existing shared use pathways.</p> <p>Construction activities have the potential to impact residents, and businesses in the region, Accesses may be temporarily altered and road users may experience temporary delays during construction which would be carried out in stages to further minimise potential traffic and access impacts. Other construction impacts include the generation of noise and vibration, and a potential reduction in air quality and visual amenity. These impacts are likely to occur throughout the construction period, which is anticipated to last for up to 18 to 24 months and would be managed and mitigated through safeguards listed in <b>Chapter 7</b>. Acquisition (full and partial) and property adjustment of some properties would also be required for construction of the proposal.</p>	<p>Long term positive</p> <p>Short term negative</p>
<p><b>Any transformation of a locality?</b></p> <p>The proposal would result in changes to the locality through widening of the Pacific Highway, intersection upgrades and vegetation removal.</p> <p>A number of mitigations measures have been provided in <b>Chapter 7</b> to minimise any negative impacts. A landscape plan has also been developed and cleared land would be revegetated at the conclusion of the construction works.</p>	<p>Short term negative</p>
<p><b>Any environmental impact on the ecosystems of the locality?</b></p> <p>The proposal would occur within a modified and disturbed environment. The proposal would require the removal of areas of exotic and native vegetation. Of which, 3.13 hectares is EECs comprised of:</p> <ul style="list-style-type: none"> <li>• 2.78 hectares of the EEC Swamp Sclerophyll Forest. The clearing would occur along the edge of the existing highway and along the edges of larger patches of Swamp Sclerophyll forest which extent beyond the project study area to the north and south</li> <li>• 0.35 hectares of the EEC Freshwater Wetlands. The clearing would occur at two locations, including the area next to the Lisarow Wetland and along the western edge of the Pacific Highway between Lisarow Railway Station and the Lisarow Rail Overbridge. The clearing would mainly affect the disturbed edges of these wetlands.</li> </ul> <p>The proposal would also require removal of 2.61 hectares of the threatened flora species <i>Melaleuca biconvexa</i> listed as vulnerable under the TSC Act and the EPBC Act. There is also potential for indirect impacts to 0.73 hectares of <i>Melaleuca biconvexa</i> from changes in hydrology during flood events during operation of the proposal. Assessments of significance found that the proposal is likely to have a</p>	<p>Long term negative</p>

Factor	Impact
<p>significant impact on <i>Melaleuca biconvexa</i> despite the implementation of mitigation measures identified in the draft REF. Therefore, be a request for Director General Requirements (DGRs) for a SIS has been submitted to the OEH, and DGRs were received on 25 March 2015. A SIS has subsequently been prepared and confirmed the findings of the Biodiversity assessment that the proposal is likely to have a significant impact to <i>Melaleuca biconvexa</i>.</p> <p>Assessments of significance undertaken for the other identified EECs and threatened species likely to occur found that the impacts from the proposal would not be considered significant. Mitigation measures would be implemented to manage impacts to biodiversity and cleared areas would be appropriately revegetated at the completion of works.</p> <p>Impacts to native animals and plants, including threatened species, populations and ecological communities and their habitats were considered in <b>Section 6.1</b>.</p>	
<p><b>Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</b></p> <p>There would be a minor reduction in the aesthetic quality of the locality due to the removal of vegetation, increase in road width, construction of a new bridge and changes to the intersection layout and some property boundaries. These changes, however, would be consistent with the regional context which is urban in character. Mitigation measures would however be implemented to reduce visual impacts and detailed design would be undertaken in accordance with the urban design objectives of the proposal. These include revegetation and landscaping of the road corridor and retention of vegetation where practical. The various land uses next to the proposal including areas defined as recreational and environmental spaces have been considered as part of the urban design process. As such the proposal would improve the visual amenity surrounding the intersection through improved landscaping and implementation of urban design principles.</p>	<p>Short term negative</p> <p>Long term positive</p>
<p><b>Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</b></p> <p>The proposal is right next to the Lisarow Cemetery which has rare local historic and social significance as a mid-19th century cemetery associated with the early settlement of the district.</p> <p>While the boundary of the cemetery was considered a hard boundary throughout the design process and all required work would be undertaken outside the boundary of the Lisarow Cemetery. There would still be potential impacts on the cemetery which would include:</p> <ul style="list-style-type: none"> <li>• The removal and relocation of the cemetery gates</li> <li>• Potential physical damage to headstones and above ground components of the graves</li> <li>• Removal of the vegetation along the current cemetery boundary.</li> </ul> <p>In addition, potential direct visual impacts may occur as a result of the proposal, associated with the installation of safety fencing, removal of the gates and vegetation removal.</p> <p>The impacts associated with the proposal would be mitigated through the implementation of safeguards outlined in <b>Table 7-1</b>.</p>	<p>Short term, minor, negative.</p>
<p><b>Any impact on the habitat of protected fauna (within the meaning of the <i>National Parks and Wildlife Act 1974</i>)?</b></p> <p>The proposal would occur within a modified and disturbed environment. The proposal would require the removal of areas of exotic</p>	<p>Long term negative</p>

Factor	Impact
<p>and native vegetation. Of which, 3.13 hectares is EECs comprised of:</p> <ul style="list-style-type: none"> <li>• 2.78 hectares of the EEC Swamp Sclerophyll Forest. The clearing would occur along the edge of the existing highway and along the edges of larger patches of Swamp Sclerophyll forest which extent beyond the project study area to the north and south</li> <li>• 0.35 hectares of the EEC Freshwater Wetlands. The clearing would occur at two locations, including the area next to the Lisarow Wetland and along the western edge of the Pacific Highway between Lisarow Railway Station and the Lisarow Rail Overbridge. The clearing would mainly affect the disturbed edges of these wetlands.</li> </ul> <p>The proposal would also require removal of 2.61 hectares of the threatened flora species <i>Melaleuca biconvexa</i> listed as vulnerable under the TSC Act and the EPBC Act. There is also potential for indirect impacts to 0.73 hectares of <i>Melaleuca biconvexa</i> from changes in hydrology during flood events during operation of the proposal. Assessments of significance found that the proposal is likely to have a significant impact on <i>Melaleuca biconvexa</i> despite the implementation of mitigation measures identified in the draft REF. Therefore, be a request for DGRs for a SIS has been submitted to the OEH, and DGRs were received on 25 March 2015. A SIS has subsequently been prepared and confirmed the findings of the Biodiversity assessment that the proposal is likely to have a significant impact to <i>Melaleuca biconvexa</i>.</p> <p>Assessments of significance undertaken for the other identified EECs and threatened species likely to occur found that the impacts from the proposal would not be considered significant. Mitigation measures would be implemented to manage impacts to biodiversity and cleared areas would be appropriately revegetated at the completion of works.</p> <p>Impacts to native animals and plants, including threatened species, populations and ecological communities and their habitats were considered in <b>Section 6.1</b>.</p>	
<p><b>Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</b></p> <p>The proposal would occur within a modified and disturbed environment. The proposal would remove the proposal would require the removal of areas of exotic and native vegetation. Of which, 3.13 hectares is EECs comprised of:</p> <ul style="list-style-type: none"> <li>• 2.78 hectares of the EEC Swamp Sclerophyll Forest. The clearing would occur along the edge of the existing highway and along the edges of larger patches of Swamp Sclerophyll forest which extent beyond the project study area to the north and south</li> <li>• 0.35 hectares of the EEC Freshwater Wetlands. The clearing would occur at two locations, including the area next to the Lisarow Wetland and along the western edge of the Pacific Highway between Lisarow Railway Station and the Lisarow Rail Overbridge. The clearing would mainly affect the disturbed edges of these wetlands.</li> </ul> <p>The proposal would also require removal of 2.61 hectares of the threatened flora species <i>Melaleuca biconvexa</i> listed as vulnerable under the TSC Act and the EPBC Act. There is also potential for indirect impacts to 0.73 hectares of <i>Melaleuca biconvexa</i> from changes in hydrology during flood events during operation of the proposal. Assessments of significance found that the proposal is likely to have a significant impact on <i>Melaleuca biconvexa</i> despite the implementation of mitigation measures identified in the draft REF. Therefore, be a request for DGRs for a SIS has been submitted to the OEH, and DGRs were received on 25 March 2015. A SIS has subsequently been prepared and confirmed the findings of the Biodiversity assessment that the proposal is likely to have a significant impact to <i>Melaleuca biconvexa</i>.</p>	<p>Long term negative</p>

Factor	Impact
<p>Assessments of significance undertaken for the other identified EECs and threatened species likely to occur found that the impacts from the proposal would not be considered significant. Mitigation measures would be implemented to manage impacts to biodiversity and cleared areas would be appropriately revegetated at the completion of works.</p> <p>Impacts to native animals and plants, including threatened species, populations and ecological communities and their habitats were considered in <b>Section 6.1</b>.</p>	
<p><b>Any long-term effects on the environment?</b></p> <p>The proposal would occur within a modified and disturbed environment. The proposal would require the removal of areas of exotic and native vegetation. Of which, 3.13 hectares is EECs comprised of:</p> <ul style="list-style-type: none"> <li>• 2.78 hectares of the EEC Swamp Sclerophyll Forest. The clearing would occur along the edge of the existing highway and along the edges of larger patches of Swamp Sclerophyll forest which extent beyond the project study area to the north and south</li> <li>• 0.35 hectares of the EEC Freshwater Wetlands. The clearing would occur at two locations, including the area next to the Lisarow Wetland and along the western edge of the Pacific Highway between Lisarow Railway Station and the Lisarow Rail Overbridge. The clearing would mainly affect the disturbed edges of these wetlands.</li> </ul> <p>The proposal would also require removal of 2.61 hectares of the threatened flora species <i>Melaleuca biconvexa</i> listed as vulnerable under the TSC Act and the EPBC Act. There is also potential for indirect impacts to 0.73 hectares of <i>Melaleuca biconvexa</i> from changes in hydrology during flood events during operation of the proposal. Assessments of significance found that the proposal is likely to have a significant impact on <i>Melaleuca biconvexa</i> despite the implementation of mitigation measures identified in the draft REF. Therefore, be a request for DGRs for a SIS has been submitted to the OEH, and DGRs were received on 25 March 2015. A SIS has subsequently been prepared and confirmed the findings of the Biodiversity assessment that the proposal is likely to have a significant impact to <i>Melaleuca biconvexa</i>.</p> <p>Assessments of significance undertaken for the other identified EECs and threatened species likely to occur found that the impacts from the proposal would not be considered significant. Mitigation measures would be implemented to manage impacts to biodiversity and cleared areas would be appropriately revegetated at the completion of works.</p> <p>Impacts to native animals and plants, including threatened species, populations and ecological communities and their habitats were considered in <b>Section 6.1</b>.</p>	<p>Long term negative</p>
<p><b>Any degradation of the quality of the environment?</b></p> <p>Landscape and urban design has been considered as part of the development of the concept design, which would minimise visual degradation of the environment. Measures to manage the potential visual impacts from the construction of the proposal have been outlined in <b>Section 6.7.4</b>.</p> <p>The proposal has the potential to degrade the quality of the environment through accidental spills and erosion and sedimentation during construction. A Soil and Water Management Plan would be implemented to mitigate these impacts refer to <b>Section 6.5</b> and <b>Section 6.8</b>. Construction work would be stage and sites would be rehabilitated as work progresses to minimise impacts.</p>	<p>Short term negative</p> <p>Short term negative</p>

Factor	Impact
<p><b>Any risk to the safety of the environment?</b></p> <p>The construction work has the potential to temporarily decrease safety along the Pacific Highway and local road within proposal area due to road work and movement of construction plant.</p> <p>Operation of the proposal would not pose any risk of safety of the environment. All chemicals and fuels used during construction and maintenance activities would be stored within bunded areas to ensure that spills are not released to the environment</p>	Short term negative
<p><b>Any reduction in the range of beneficial uses of the environment?</b></p> <p>The proposal would improve public transport, pedestrian and cycling facilities and improved access and through traffic through the intersection and therefore within the locality.</p>	Long term positive
<p><b>Any pollution of the environment?</b></p> <p>There is the potential for accidental spills of chemicals during the construction period which could affect surrounding land and surface and groundwater. There is the potential for air quality to be reduced during construction activities.</p> <p>The proposal is expected to have a beneficial impact on air quality in the area. Increased efficiency of the Pacific Highway would result in shorter vehicle delays and a reduction in associated air emissions.</p> <p>There is also a risk of increased accidental fuel spillage from increased vehicle numbers during operation which would be managed as discussed in <b>Section 6.5.4</b>.</p>	<p>Short term negative</p> <p>Long term positive</p> <p>Short term negative</p>
<p><b>Any environmental problems associated with the disposal of waste?</b></p> <p>Waste would be managed in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i> and recycled where possible. Issues associated with the disposal of waste are not expected.</p>	Nil
<p><b>Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</b></p> <p>The proposal would require a number of resources as described in <b>Chapter 3</b>. None are to put pressure on resources or are likely to become in short supply as a result of the proposal. Resource use management measures are provided which would include reuse and recycling when feasible refer to <b>Section 6.14.4</b>.</p>	Nil
<p><b>Any cumulative environmental effect with other existing or likely future activities?</b></p> <p>There is, potential for short-term negative cumulative impacts related to traffic delays and access if construction occurs simultaneously with other developments proposed in the area including:</p> <ul style="list-style-type: none"> <li>• DA 38864 - The extension of the Woolworths centre shopping development at No 3 Parsons Road, Lisarow</li> <li>• Stage 3a Upgrade of the. Upgrade to Pacific Highway between Ourimbah Street at Lisarow and Glen Road at Ourimbah.</li> </ul> <p>Pollution, waste and resource use and construction noise and vibration would also have negative cumulative impacts. A change to the visual amenity of the area could also result from the construction activities.</p>	Short-term, minor, negative

Factor	Impact
<p><b>Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</b></p> <p>The proposal is not located within a coastal area and would not result in any impact on coastal processes and coastal hazards.</p>	<p>Nil Impact</p>

## Matters of National Environmental Significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government Department of the Environment.

This REF has been prepared to meet the requirements of the EPBC Act strategic assessment approval for Roads and Maritime Part 5 road activities. A referral is not required for proposed actions that may affect nationally listed threatened species, ecological communities and migratory species. Impacts on these matters are still assessed as part of the REF in accordance with Australian Government significant impact criteria and taking into account all relevant guidelines and policies.

Factor	Impact
<p><b>a. Any impact on a World Heritage property?</b> There would be no impact to World Heritage properties by the proposal.</p>	Nil
<p><b>b. Any impact on a National Heritage place?</b> There would be no impact to National Heritage places by the proposal.</p>	Nil
<p><b>c. Any impact on a wetland of international importance?</b> There would be no impact to wetlands of international importance by the proposal.</p>	Nil
<p><b>d. Any impact on a listed threatened species or communities?</b> The Biodiversity Assessment completed for the REF and included as <b>Appendix C</b> has identified 5 species listed under the EPBC Act that would be impacted by the proposal and includes the following:</p> <ul style="list-style-type: none"> <li>• One vulnerable flora species: <i>Melaleuca biconvexa</i> (Biconvex Paperbark)</li> <li>• Two vulnerable fauna: Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>) and the Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>)</li> <li>• Two endangered fauna species: Swift Parrot (<i>Lathamus discolor</i>) and the Regent Honeyeater (<i>Anthochaera Phrygia</i>).</li> </ul> <p>According to the assessments of significance it is unlikely that there would be a significant impact to the threatened fauna species, or any threatened fauna populations or ecological communities as a result of the proposal. Mitigation measures to manage impacts to these species are included in <b>Section 6.1</b>. There is however likely to be a significant impact to the threatened flora species <i>Melaleuca biconvexa</i>. In summary potential impacts to the species have been identified as:</p> <ul style="list-style-type: none"> <li>• Removal of up to 2.61 hectares (19.55%) of the local 'mapped' population may be directly impacted. <i>Melaleuca biconvexa</i> retained next to the proposal may be indirectly impacted through increased pollution and nutrients through further road development, competition from invasive weeds in edge habitats and changes in hydrology during flood events during operation of the proposal. There is therefore potential for indirect impacts to 0.73 hectares of <i>Melaleuca biconvexa</i></li> <li>• The <i>Melaleuca biconvexa</i> population at the Lisarow study site is considered an important population according to the <i>Matters of National Environmental Significance (MNES) Significant Impact Guidelines 1.1 EPBC Act</i> (DoE 2013) due to the fact that a portion of the population is one of three identified sites for</li> </ul>	Long term negative

Factor	Impact
<p>conservation investment under the NSW 'Saving our Species' program. The population is therefore considered of high conservation value in the context of long-term strategic urban and conservation planning. The proposal will directly impact around 0.68 hectares of the 54 hectare conservation site, although may indirectly impact on a larger area through the introduction of weeds and untreated run-off.</p> <ul style="list-style-type: none"> <li>• It is acknowledged that <i>Melaleuca biconvexa</i> occurs widely through the Gosford and Wyong LGA and that the site population is considered large relative to other known populations in this locality and a portion of this population has been identified as important habitat worthy of conservation investment. Further to this, the magnitude of the impact is large (around 25 per cent of the local population – direct and indirect impacts), and there are long-term impacts expected from run-off of untreated pollutants into the habitat of the species.</li> <li>• Therefore the proposal is considered likely to have an adverse impact on an important population over the long-term through reduction in population size and introduction of threats (weeds, polluted run-off). Although based on observation of the regenerative capacity of the species at this site, and the resilience of the species to these existing threats, the probability that the impact will lead to local extinction is considered very low.</li> </ul> <p>An Assessment of Significance was completed for <i>Melaleuca biconvexa</i> under the EPBC Act and EP&amp;A Act. The conclusion of the NSW assessment was that the proposal will likely have a significant impact on this species based on the magnitude of the impact, and the long-term indirect impacts expected from run-off of untreated pollutants into the remaining habitat and high likelihood of weed invasion into adjacent habitats influenced by the disturbance and edge effects. The species has been identified under the Threatened Species Profile Database (TSPD) as a species that is unable to withstand further loss in the Hunter / Central Rivers CMA sub-region and the population at the site is considered viable in its current state given size and extent. This has been recognised by identifying a portion of the population as a priority area for long-term conservation investment under the NSW Saving Our Species program.</p> <p>Similarly the conclusion of the EPBC Act Assessment of Significance found that the proposal will likely have a significant impact on this species. This was based on the fact that the population is considered an 'important population' in accordance with the definition under the EPBC Act and that the magnitude of the impact is large with high potential for indirect impacts as described above. Considering the above, a request for Director General Requirements (DGRs) for a SIS has been submitted to the OEH, and DGRs were received on 25 March 2015. A SIS has subsequently been prepared, and confirmed the findings of the Biodiversity assessment that the proposal is likely to have a significant impact to <i>Melaleuca biconvexa</i>.</p> <p>As <i>Melaleuca biconvexa</i> is also a threatened species under the EPBC Act and is considered a matter of national environmental significance (MNES) a referral is required under the EPBC Act. However the Federal Government granted approval for strategic assessments under the EPBC Act in September 2015, with respect to the impacts of Roads and Maritime activities on nationally listed threatened species, ecological communities and migratory species. Consequently, Federal approval is not required for the proposal, provided Roads and Maritime apply the measures approved under the endorsed strategic assessment.</p>	
<p><b>e. Any impacts on listed migratory species?</b></p> <p>The <i>Biodiversity Assessment</i> completed for the REF and included as <b>Appendix C</b> identified a total of 33 migratory fauna species were identified as potentially occurring within 10 kilometres of the proposal. Of these 33 migratory species, two species listed under the EPBC Act including the Cattle Egret (<i>Bulbulcus ibis</i>) and Black-faced Monarch (<i>Monarcha melanopsis</i>), were reported in the spring-summer</p>	<p>Nil</p>

Factor	Impact
<p>survey in cleared grazing land to the east of the proposal area habitats. A further nine species are considered to have at least a moderate potential to occur in the wetland and forest habitats in the study area include the following:</p> <ul style="list-style-type: none"> <li>• Rufous Fantail (<i>Rhipidura rufifrons</i>)</li> <li>• Satin Flycatcher (<i>Myiagra cyanoleuca</i>)</li> <li>• Swift Parrot (<i>Lathamus discolor</i>)</li> <li>• White-throated Needletail (<i>Hirundapus caudacutus</i>)</li> <li>• Fork-tailed Swift (<i>Apus pacificus</i>)</li> <li>• Great Egret (<i>Ardea alba</i>)</li> <li>• Latham's Snipe (<i>Gallinago hardwickii</i>)</li> <li>• Pacific Golden Plover (<i>Pluvialis fulva</i>)</li> <li>• Painted Snipe (<i>Rostratula benghalensis</i> (sensu lato)).</li> </ul> <p>There is no evidence to suggest that an area of important habitat exists in the study area for any listed migratory species. No areas of 'important habitat' for any listed migratory bird species as defined under the EPBC Act Policy 3.21 was identified. Assessments of significance completed for migratory has found that the proposal is unlikely to significantly impact on any migratory species.</p>	
<p><b>f. Any impact on a Commonwealth marine area?</b> There would be no impact to Commonwealth marine areas by the proposal.</p>	Nil
<p><b>g. Does the proposal involve a nuclear action (including uranium mining)?</b> The proposal does not involve a nuclear action (including uranium mining).</p>	Nil
<p><b>h. Additionally, any impact (direct or indirect) on Commonwealth land?</b> There would be no direct or indirect impact to Commonwealth land by the proposal.</p>	Nil