Appendix B

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

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact</th>
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<tbody>
<tr>
<td><em>Any environmental impact on a community?</em></td>
<td>Short-term negative</td>
</tr>
<tr>
<td>The proposal would have construction impacts through generation of noise, potential traffic impacts and potential reduction in air quality and visual amenity. These would be managed through safeguards listed in Chapter 7. Potential adverse impacts during operation would be associated with social impacts such as property acquisition. The proposal would be likely to improve traffic conditions, safety and access in the region.</td>
<td></td>
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</tbody>
</table>

| *Any transformation of a locality?* | Long-term positive | Long-term negative | Short-term negative |
| The proposal would result in a transformation of the locality through the construction of a new bridge at Dignams Creek and the construction of a new road alignment. This transformation is considered to have moderate to high visual impacts when viewed from local residences within 500 metres of the proposal in the Dignams Creek Valley. Long range visual impacts of the proposal are considered to be minor. The proposal would be in keeping with the surrounding land uses which include the existing road alignment and bridge. Urban design principles would be implemented and include consideration to the landscape character and visual amenity of the area. The construction of a new road alignment would result in disturbance to topography, vegetation and soils; however this impact would be appropriately remediating. | |

| *Any environmental impact on the ecosystems of the locality?* | Long-term negative | Short-term negative | Long-term negative |
| The proposal involves the removal of 20.6 hectares of native vegetation, which includes the permanent removal of about 0.2 hectares of native vegetation that comprises River-flat Eucalypt forest on Coast Floodplains – a TEC under the TSC Act. The proposal would directly impact on threatened flora including around 50 individuals of the Square Raspwort (*Haloragis exaltata* subsp. *exaltata*) which is listed as vulnerable under the TSC Act and the *Environmental Planning and Conservation Biodiversity Act 1999* (EPBC Act). The proposal would remove 19.9 hectares of habitat that meets the criteria for habitat critical to the survival of Koalas in accordance with DSEWPaC (2012). Vegetation removed would also include known foraging |
### Factor Impact

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Habitat (and may also remove breeding habitat) for 24 threatened species, and may also remove potential foraging and breeding habitat for a number of other species. Given the large areas of protected habitat present in the locality and immediately adjacent to the study area, significant impacts are unlikely for these species. Overall impacts to flora and fauna during construction are considered minimal with the implementation of mitigation measures (refer to Section 6.1.4).</td>
<td>Long-term positive</td>
</tr>
<tr>
<td>RMS and OEH are currently negotiating a land and biodiversity offset package for the revocation. Based on a preliminary analysis of the proposal utilising the Biobanking assessment methodology, it is expected that RMS would need to secure improved biodiversity outcomes in the order of 125 hectares of intact (good to moderate condition) vegetation. The proposal would have minimal impacts on flora and fauna during operation. These would include indirect noise impacts, erosion and sedimentation, spread of weeds and the risk of vehicles striking fauna. A combination of wildlife structures would be used in the proposal to minimise impacts to wildlife corridors, and allow safe movement of fauna across the highway. This includes construction of two dedicated fauna underpasses with fauna furniture, two combined drainage culvert/fauna underpasses, one canopy rope bridge and a new bridge over Dignams Creek which allows fauna passage on both sides of the creek.</td>
<td>Short-term negative</td>
</tr>
<tr>
<td>Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? During construction, the proposal would result in a reduction in the aesthetic quality of the locality as a result of noise, air quality, visual impacts and traffic movements. These impacts would be minimised through implementation of safeguards outlined in Section 7.2. The proposal would result in a minor reduction in the aesthetic quality of the locality due to the removal of vegetation and the alteration of the local landscape for the construction of the new road alignment. A range of mitigation measures to reduce visual impacts would be implemented (refer Section 6.3.4). Overall locality in the vicinity of the proposal is not considered to be substantially reduced as a result of the proposal.</td>
<td>Short-term negative</td>
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<td>Factor</td>
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<tr>
<td>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?</td>
<td>Nil</td>
</tr>
<tr>
<td>The proposal would not significantly impact on heritage sites or Aboriginal cultural heritage values. Sites in the vicinity of the proposal would be protected through the measures in Section 7.2.</td>
<td></td>
</tr>
<tr>
<td>Any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974)?</td>
<td>Long-term negative</td>
</tr>
<tr>
<td>The proposal involves the removal of 20.6 hectares of native vegetation, which includes the permanent removal of about 0.2 hectares of native vegetation that that comprises River-flat Eucalypt forest on Coast Floodplains – a TEC under the TSC Act.</td>
<td></td>
</tr>
<tr>
<td>The proposal would directly impact on threatened flora including around 50 individuals of the Square Raspwort (<em>Haloragis exaltata</em> subsp. <em>exaltata</em>) which is listed as vulnerable under the TSC Act and the EPBC Act.</td>
<td></td>
</tr>
<tr>
<td>The proposal would remove 19.9 hectares of habitat that meets the criteria for habitat critical to the survival of Koalas in accordance with DSEWPaC (2012).</td>
<td></td>
</tr>
<tr>
<td>Vegetation removed would also include known foraging habitat (and may also remove breeding habitat) for 24 threatened species, and may also remove potential foraging and breeding habitat for a number of other species. Given the large areas of protected habitat present in the locality and immediately adjacent to the study area, significant impacts are unlikely for these species. Overall impacts to flora and fauna during construction are considered minimal with the implementation of mitigation measures (refer to Section 6.1.4).</td>
<td></td>
</tr>
<tr>
<td>RMS and OEH are currently negotiating a land and biodiversity offset package for the revocation. Based on a preliminary analysis of the proposal utilising the Biobanking assessment methodology, it is expected that RMS would need to secure improved biodiversity outcomes in the order of 125 hectares of intact (good to moderate condition) vegetation.</td>
<td></td>
</tr>
<tr>
<td>Water quality impacts during construction and operation are not likely to result in any impact to fauna at Dignams Creek. Mitigation measures are included in Section 6.1.4.</td>
<td></td>
</tr>
<tr>
<td>A combination of wildlife structures would be used in the proposal to minimise impacts to wildlife corridors, and allow safe movement of fauna across the highway. This includes construction of two dedicated fauna underpasses with fauna furniture, two combined drainage culvert/fauna underpasses, one canopy rope bridge and a new bridge over Dignams Creek which allows fauna passage on both sides of the creek.</td>
<td></td>
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</tbody>
</table>
Factor | Impact
--- | ---
Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? | Long-term negative
The proposal is considered unlikely to endanger any species of flora or fauna. | Long-term negative
The proposal involves the removal of 20.6 hectares of native vegetation, which includes the permanent removal of about 0.2 hectares of native vegetation that that comprises River-flat Eucalypt forest on Coast Floodplains – a threatened ecological community under the TSC Act. | Long term positive
The proposal would directly impact on threatened flora including around 50 individuals of the Square Raspwort (*Haloragis exaltata* subsp. *exaltata*) which is listed as vulnerable under the TSC Act and the EPBC Act. | 
The proposal would remove 19.9 hectares of habitat that meets the criteria for habitat critical to the survival of Koalas in accordance with DSEWPaC (2012). | 
Vegetation removed would also include known foraging habitat (and may also remove breeding habitat) for 24 threatened species, and may also remove potential foraging and breeding habitat for a number of other species. Given the large areas of protected habitat present in the locality and immediately adjacent to the study area, significant impacts are unlikely for these species. Overall impacts to flora and fauna during construction are considered minimal with the implementation of mitigation measures (refer to Section 6.1.4). | 
RMS and OEH are currently negotiating a land and biodiversity offset package for the revocation. Based on a preliminary analysis of the proposal utilising the Biobanking assessment methodology, it is expected that RMS would need to secure improved biodiversity outcomes in the order of 125 hectares of intact (good to moderate condition) vegetation. | 
The operation of the proposal would potentially result in the injury or mortality of fauna species as a result of vehicle strike along the new Princes Highway alignment at Dignams Creek. However the likelihood of this occurring is not increased compared to the existing road. | 
A combination of wildlife structures would be used in the proposal to minimise impacts to wildlife corridors, and allow safe movement of fauna across the highway. This includes construction of two dedicated fauna underpasses with fauna furniture, two combined drainage culvert/fauna underpasses, one canopy rope bridge and a new bridge over Dignams Creek which allows fauna passage on both sides of the creek. | 

Upgrade of the Princes Highway Dignams Creek
Review of Environmental Factors
Appendix B
### Factor

**Any long-term effects on the environment?**

The proposal would impact on the environment through the improvement of the Dignams Creek crossing and the road alignment approaching the crossing. This improvement would result in an increase in road safety, and traffic and freight efficiency.

Visual impacts are expected due to the modification of the location landscape. However, this impact can be minimised through the implementation of safeguards outlined in Section 6.3.4.

The proposal involves the removal of 20.6 hectares of native vegetation, which includes the permanent removal of about 0.2 hectares of native vegetation that comprises River-flat Eucalypt forest on Coast Floodplains – a TEC under the TSC Act. Vegetation removal also includes potential habitat for 24 threatened fauna species.

The proposal would directly impact on threatened flora including around 50 individuals of the Square Raspwort (*Haloragis exaltata* subsp. *exaltata*) which is listed as vulnerable under the TSC Act and the EPBC Act.

The proposal would remove 19.9 hectares of habitat that meets the criteria for habitat critical to the survival of Koalas in accordance with DSEWPaC (2012).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact</th>
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</thead>
<tbody>
<tr>
<td>Any long-term effects on the environment?</td>
<td>Positive long-term impact</td>
</tr>
<tr>
<td></td>
<td>Minor negative long-term impact</td>
</tr>
<tr>
<td></td>
<td>Long-term negative</td>
</tr>
<tr>
<td></td>
<td>Long-term negative</td>
</tr>
</tbody>
</table>

### Any degradation of the quality of the environment?

Landscape and urban design has been considered as part of the development of the design, which would minimise visual degradation of the environment.

The proposal would require the removal of vegetation for the construction of the new Princes Highway road alignment and has the potential to degrade the quality of the environment through accidental spills and erosion and sedimentation during construction. The site would be rehabilitated after construction which would reduce the risk of long-term degradation to the environment. Mitigation measures would be implemented to reduce impacts to biodiversity, water quality, hydrology and soils, air quality, noise and traffic impacts from the construction and operational phase. These impacts would be minimised through the implementation of safeguards outlined in Chapter 6.

### Any risk to the safety of the environment?

Operation of the proposal would not pose any risk to the 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.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Short-term negative</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Long-term minor negative</td>
</tr>
<tr>
<td></td>
<td>Nil</td>
</tr>
<tr>
<td>Factor</td>
<td>Impact</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Any reduction in the range of beneficial uses of the environment?</td>
<td>Short-term negative</td>
</tr>
<tr>
<td>The proposal would result in traffic impacts during construction which would include an increase in the volume of heavy vehicles, interruption of traffic flow and temporary change in speed limit. These traffic impacts would reduce the beneficial use of the Princes Highway during the construction of the proposal.</td>
<td></td>
</tr>
<tr>
<td>Any pollution of the environment?</td>
<td>Short-term Negative</td>
</tr>
<tr>
<td>There is the potential for accidental spills of chemicals during the construction period which could affect surrounding land including waterways. Air quality would be reduced during construction activities. The proposal would result in minor short-term air pollution from plant and machinery and the generation of dust during construction. Management of air quality impacts would be undertaken in accordance with the mitigation measures outlined in Section 6.10.4.</td>
<td>Short-term Negative</td>
</tr>
<tr>
<td>Any environmental problems associated with the disposal of waste?</td>
<td>Nil</td>
</tr>
<tr>
<td>Waste would be managed in accordance with the Waste Avoidance and Resource Recovery Act 2001 and recycled where possible. It is not anticipated that there would be issues encountered with the disposal of waste.</td>
<td>Nil</td>
</tr>
<tr>
<td>Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</td>
<td>Nil</td>
</tr>
<tr>
<td>All resources required would not be in short supply and would be readily available. During the extraction of water from Dignams Creek for the purposes of road construction activities, water flows would be maintained to ensure the continuing supply of water to downstream water bodies.</td>
<td>Nil</td>
</tr>
<tr>
<td>Any cumulative environmental effect with other existing or likely future activities?</td>
<td>Short-term negative</td>
</tr>
<tr>
<td>The proposal forms part of progressive ongoing upgrade works for the Princes Highway. The cumulative impacts as a result of the construction of the proposal and other development proposals along the Princes Highway are not considered to contribute any major environmental impacts due to the distance of the proposal from other works on the Princes Highway. Once the proposal is completed, a positive cumulative impact is considered likely, as all the proposals when considered together would result in improved road design, improved safety and a cumulative reduction in travel time for motorists using the Princes Highway. No local developments have been identified in the vicinity of the proposal and therefore the construction of these developments would not overlap resulting in cumulative</td>
<td>Long-term positive</td>
</tr>
</tbody>
</table>
The proposal involves the removal of 20.6 hectares of native vegetation, which includes the permanent removal of about 0.2 hectares of native vegetation that comprises River-flat Eucalypt forest on Coast Floodplains – a threatened ecological community under the TSC Act. Vegetation removal also includes potential habitat for 24 threatened fauna species. The removal of this vegetation is not considered to be significant and would be minimised where possible. Furthermore, the proposal includes the revegetation of the road corridor following completion of the works and an offset strategy would be implemented.

Cumulative impacts are addressed in detail in Section 6.13.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</td>
<td>Nil</td>
</tr>
<tr>
<td>The proposal is not located within a coastal area and would not result in any impacts to coastal processes or coastal hazards</td>
<td>Long-term negative&lt;br&gt;Long-term positive</td>
</tr>
</tbody>
</table>
Matters of National Environmental Significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), 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 Sustainability, Environment, Water, Population and Communities.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact</th>
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</thead>
<tbody>
<tr>
<td>a. Any impact on a World Heritage property?</td>
<td>Nil</td>
</tr>
<tr>
<td>The proposal is not likely to impact (either directly or indirectly) any World Heritage Properties as they are not in close proximity</td>
<td></td>
</tr>
<tr>
<td>b. Any impact on a National Heritage place?</td>
<td>Nil</td>
</tr>
<tr>
<td>There are no Commonwealth heritage places impacted by the proposal.</td>
<td></td>
</tr>
<tr>
<td>There are no previously recorded heritage items on the Australian Heritage Database, the State Heritage Inventory or the Register of the National Trust listed as being present within the study area. A search of the RTA Heritage and Conservation Register (5 January 2009) revealed that the Dignams Creek Bridge is listed under Section 170 of the Heritage Act.</td>
<td></td>
</tr>
<tr>
<td>There are a further ten potential heritage items identified within the proposal area, which do not meet the criteria for heritage listing.</td>
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<tr>
<td>There are no heritage constraints that would act to preclude the proposal.</td>
<td></td>
</tr>
<tr>
<td>c. Any impact on a wetland of international importance?</td>
<td>Nil</td>
</tr>
<tr>
<td>There would be no impact to wetlands of international importance close to the proposal.</td>
<td></td>
</tr>
<tr>
<td>d. Any impact on a listed threatened species or communities?</td>
<td>Negative</td>
</tr>
<tr>
<td>The proposal involves the removal of 20.6 hectares of native vegetation, which includes the permanent removal of about 0.2 hectares of native vegetation that comprises River-flat Eucalypt forest on Coast Floodplains – a TEC under the TSC Act.</td>
<td></td>
</tr>
<tr>
<td>The proposal would directly impact on threatened flora including around 50 individuals of the Square Raspwort (<em>Haloragis exaltata</em> subsp. <em>exaltata</em>) which is listed as vulnerable under the TSC Act and the EPBC Act. This equates to less than 5 per cent of the local population of Square Raspwort (<em>Haloragis exaltata subsp. Exaltata</em>).</td>
<td></td>
</tr>
<tr>
<td>The proposal would remove 19.9 hectares of habitat that meets the criteria for habitat critical to the survival of Koalas in accordance with DSEWPac (2012).</td>
<td></td>
</tr>
<tr>
<td>Vegetation removed would also include known foraging habitat (and may also remove breeding habitat) for 24 threatened species, and may also remove potential foraging and breeding habitat for a number of other species.</td>
<td></td>
</tr>
<tr>
<td>Assessments of significance were undertaken for threaten</td>
<td></td>
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</tbody>
</table>
biodiversity positively identified or have a moderate or high likelihood of occurring in the study area. Provided the mitigation measure detailed in Chapter 6 are adequately implemented, the proposal is unlikely to have a significant impact on any threatened species of ecological communities listed under the TSC Ac or EBPC Act.

RMS and OEH are currently negotiating a land and biodiversity offset package for the revocation. Based on a preliminary analysis of the proposal utilising the Biobanking assessment methodology, it is expected that RMS would need to secure improved biodiversity outcomes in the order of 125 hectares of intact (good to moderate condition) vegetation.

A combination of wildlife structures would be used in the proposal to minimise impacts to wildlife corridors, and allow safe movement of fauna across the highway. This includes construction of two dedicated fauna underpasses with fauna furniture, two combined drainage culvert/fauna underpasses, one canopy rope bridge and a new bridge over Dignams Creek which allows fauna passage on both sides of the creek.

e. **Any impacts on listed migratory species?**
   A total of 11 migratory fauna species listed under the EPBC Act were positively identified or have a moderate or high likelihood of occurring in the study. No migratory species would be significantly impacted by the proposal.

f. **Any impact on a Commonwealth marine area?**
   There are no Commonwealth marine areas close to the proposal

<table>
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<tr>
<th>Factor</th>
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<tr>
<td>Forest habitat positively identified or have a moderate or high</td>
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<tr>
<td>likelihood of occurring in the study area. Provided the mitigation</td>
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<tr>
<td>measure detailed in <strong>Chapter 6</strong> are adequately implemented, the</td>
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<tr>
<td>proposal is unlikely to have a significant impact on any threatened</td>
<td></td>
</tr>
<tr>
<td>species of ecological communities listed under the TSC Ac or EBPC Act.</td>
<td></td>
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<tr>
<td>RMS and OEH are currently negotiating a land and biodiversity</td>
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<tr>
<td>offset package for the revocation. Based on a preliminary analysis of</td>
<td></td>
</tr>
<tr>
<td>the proposal utilising the Biobanking assessment methodology, it is</td>
<td></td>
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<tr>
<td>expected that RMS would need to secure improved biodiversity outcomes</td>
<td></td>
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<tr>
<td>in the order of 125 hectares of intact (good to moderate condition)</td>
<td></td>
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<tr>
<td>vegetation. A combination of wildlife structures would be used in the</td>
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<tr>
<td>proposal to minimise impacts to wildlife corridors, and allow safe</td>
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<tr>
<td>movement of fauna across the highway. This includes construction of</td>
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<tr>
<td>two dedicated fauna underpasses with fauna furniture, two combined</td>
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<tr>
<td>drainage culvert/fauna underpasses, one canopy rope bridge and a new</td>
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<tr>
<td>bridge over Dignams Creek which allows fauna passage on both sides of</td>
<td></td>
</tr>
<tr>
<td>the creek.</td>
<td></td>
</tr>
<tr>
<td><strong>e. Any impacts on listed migratory species?</strong></td>
<td>Negative</td>
</tr>
<tr>
<td>A total of 11 migratory fauna species listed under the EPBC Act</td>
<td></td>
</tr>
<tr>
<td>were positively identified or have a moderate or high likelihood of</td>
<td></td>
</tr>
<tr>
<td>occurring in the study. No migratory species would be significantly</td>
<td></td>
</tr>
<tr>
<td>impacted by the proposal.</td>
<td></td>
</tr>
<tr>
<td><strong>f. Any impact on a Commonwealth marine area?</strong></td>
<td>Nil</td>
</tr>
<tr>
<td>There are no Commonwealth marine areas close to the proposal</td>
<td></td>
</tr>
<tr>
<td>**g. Does the proposal involve a nuclear action (including uranium</td>
<td>Nil</td>
</tr>
<tr>
<td>mining)?</td>
<td></td>
</tr>
<tr>
<td>The proposal does not involve a nuclear action (including uranium</td>
<td></td>
</tr>
<tr>
<td>mining).</td>
<td></td>
</tr>
<tr>
<td>**h. Additionally, any impact (direct or indirect) on Commonwealth</td>
<td>Nil</td>
</tr>
<tr>
<td>land?</td>
<td></td>
</tr>
<tr>
<td>There is no Commonwealth land in close proximity to the proposal.</td>
<td></td>
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</tbody>
</table>