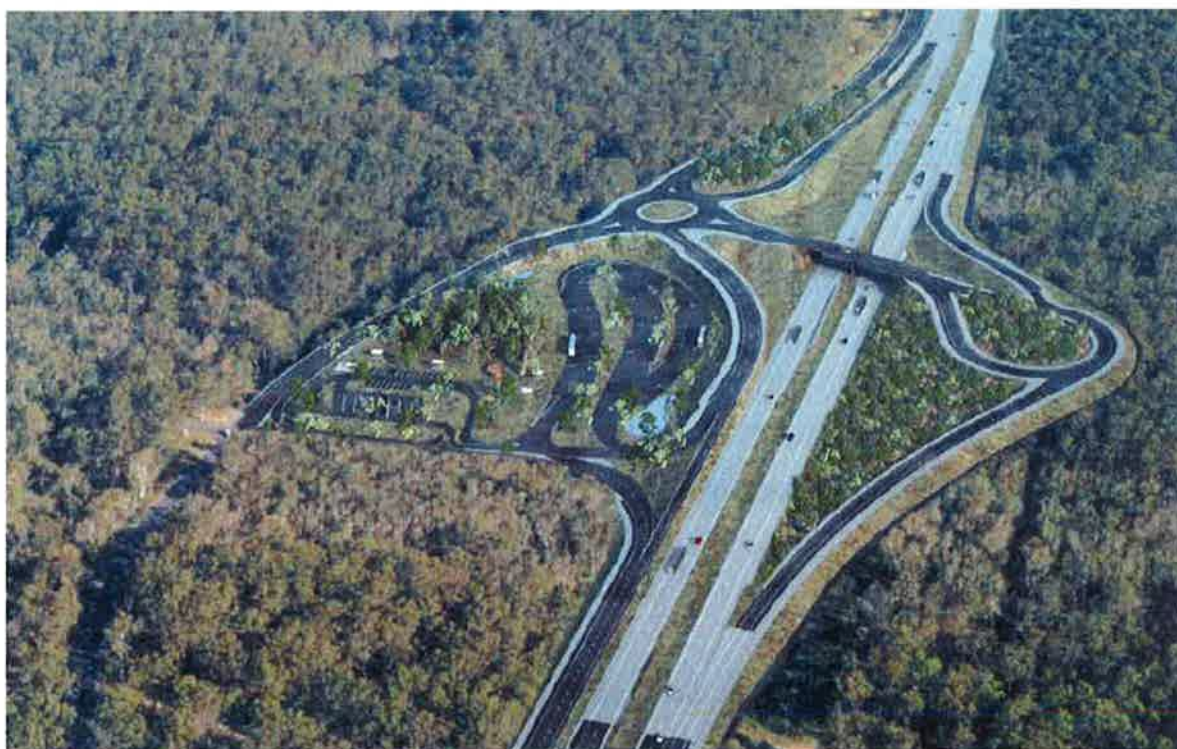


**MODIFICATION REQUEST:
Arrawarra Rest Area
Pacific Highway Upgrade – Sapphire to
Woolgoolga
(MP06_0293 MOD 6)**

***To incorporate a rest area at Arrawarra for light
and heavy vehicles as part of the Sapphire to
Woolgoolga Pacific Highway upgrade***



Director-General's
Environmental Assessment Report
Section 75W of the
Environmental Planning and Assessment Act 1979

October 2012



Cover Image: Artist impression of Arrawarra Rest Area, looking south towards Woolgoolga (EA 2011)

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EXECUTIVE SUMMARY

The Pacific Highway Upgrade - Sapphire to Woolgoolga project was approved by the then Minister for Planning on 13 January 2009 under Part 3A of the *Environmental Planning and Assessment Act 1979* (the Act). By virtue of savings and transitional provisions, the approval is now deemed to be a transitional Part 3A project.

The project is a 25 kilometre dual carriageway upgrade of the Pacific Highway located in the Coffs Harbour Local Government Area. Construction of the project commenced in August 2010 and is expected to be completed by early 2014 (weather permitting).

The Roads and Maritime Services has submitted a request (MP06_0293 MOD 6) under section 75W of the Act, seeking a modification to the Minister's approval to construct a rest area for light and heavy vehicles at the northern extremity of the project corridor adjacent to the Arrawarra Interchange, Arrawarra.

The department exhibited the modification request between Monday 28 November 2011 and Monday 12 December 2011 (15 days). The department received 15 submissions during the exhibition of the modification request – 2 submissions from public authorities and 13 submissions from the general public and special interest groups.

Key issues raised include site selection, hydrology/water quality, biodiversity (including fragmentation impacts on threatened species), traffic, loss of amenity (including noise and lighting), Aboriginal heritage, visual impacts, safety and social impacts.

Site selection, hydrology/water quality and biodiversity are considered to be the main issues in relation to the proposed modification. The department has undertaken a detailed assessment of the proponent's Environmental Assessment, submissions from the general public and public authorities, the Response to Submissions Report and Statement of Commitments and has concluded that the modification would not pose significant environmental or amenity risks to the surrounding area and residences, with the implementation of the proposed management measures. On balance, the department is satisfied that the proposed modification is justified and in the public interest and has therefore recommended its approval.

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1. BACKGROUND

1.1 Original Project

The Pacific Highway Upgrade – Sapphire to Woolgoolga project is a 25 kilometre dual carriageway upgrade of the Pacific Highway located in the Coffs Harbour Local Government Area. The project location is shown in Figures 1-2.

Figure 1: Project Location (Base Image Source: Google Maps 2012)

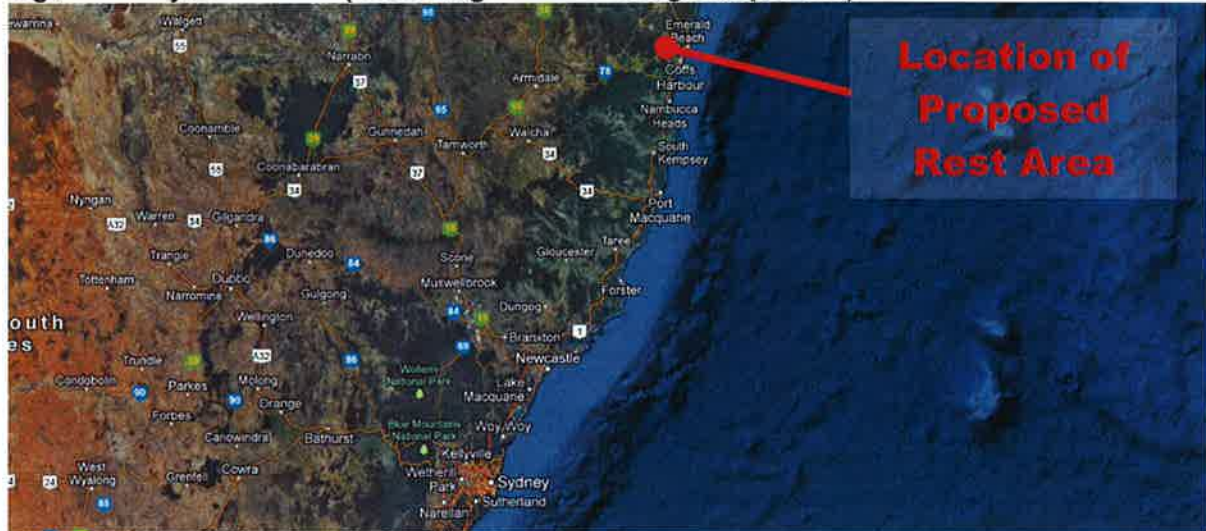


Figure 2: Location of Proposed Rest Area (Base Image Source: Google Maps 2012)



The project was approved by the then Minister for Planning on 13 January 2009 under Part 3A of the *Environmental Planning and Assessment Act 1979* (the Act). By virtue of savings and transitional provisions, the approval is now deemed to be a transitional Part 3A project.

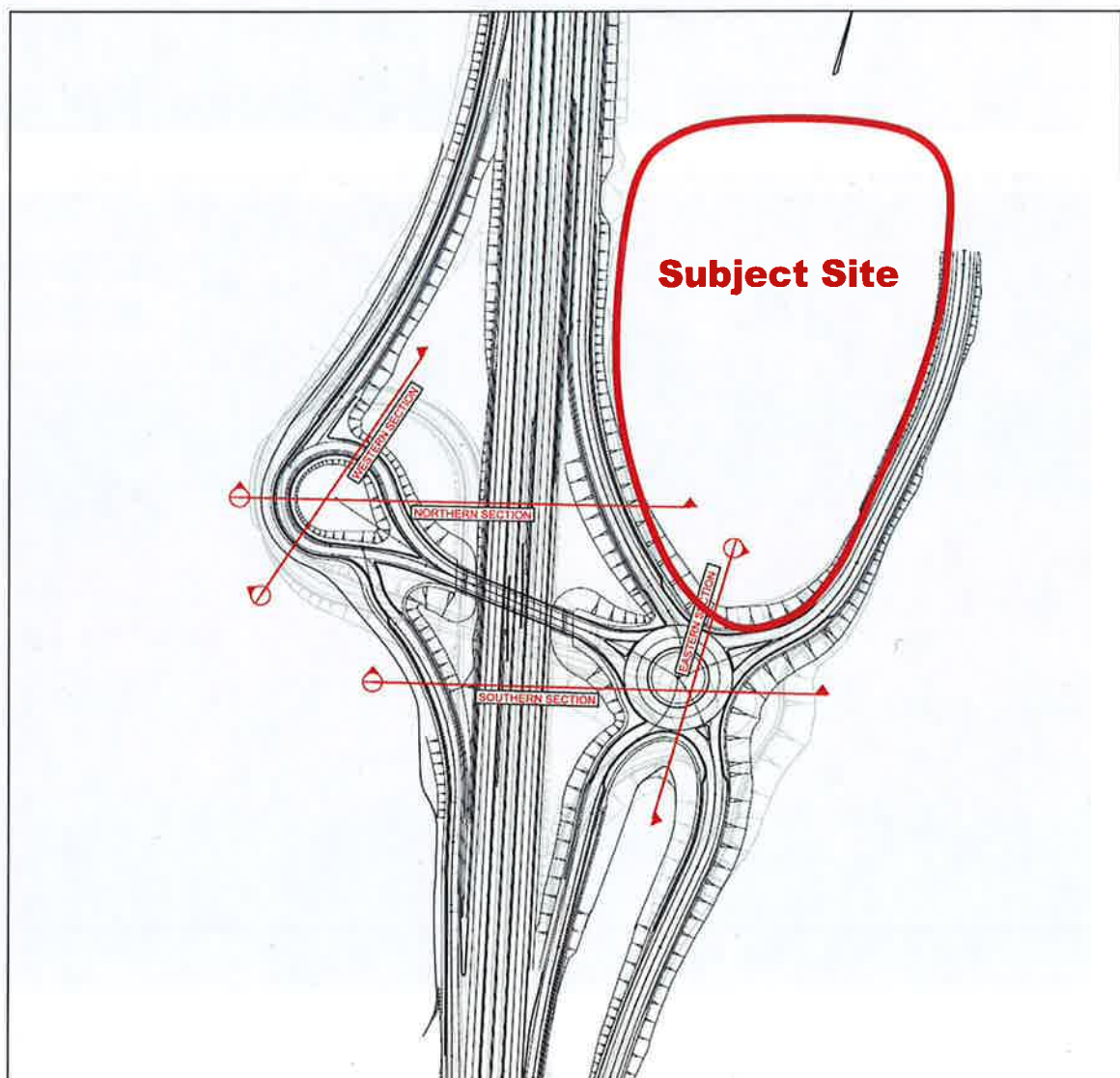
Construction of the project commenced in August 2010 and is expected to be completed by early 2014 (weather permitting).

The project has been modified a total of five times:

- on 14 November 2009 in relation to stakeholder consultation and special interest groups;
- on 22 February 2010 in relation to the timing of minor clearing of Endangered Ecological Communities and threatened species habitat, the salvage of Aboriginal objects and the submission of the Biodiversity Offset Strategy;
- on 9 September 2010 in relation to light wells in culverts;
- on 29 October 2010 in relation to non-Aboriginal heritage; and
- on 25 February 2011 in relation to blasting criteria.

Refer to **Figure 3** for the approved project layout at Arrawarra.

Figure 3: Approved Project Layout of Arrawarra Interchange following compliance with Condition 2.1 (Base Image Source: RMS 2011)



Rest Area

In May 2004, the Roads and Traffic Authority, now Roads and Maritime Services (RMS) published the *Pacific Highway Safety Review*, which confirmed the need for rest areas on the Pacific Highway and identified the need to construct an additional rest area in the Coffs Harbour/Woolgoolga area. As part of the Pacific Highway Upgrade Program, the RMS is looking to establish rest areas at 50km intervals along the upgraded highway. This section of the Pacific Highway is one of two sections where rest areas, particularly for heavy vehicles, are in excess of 100km apart. The proposed Arrawarra Rest Area would be located between the two existing light and heavy vehicle rest areas at Clybucca and Halfway Creek, reducing the 140km distance between these two areas.

The site of the proposed rest area is located in an area of existing road reserve, and is bounded by the existing Pacific Highway to the west, the former Pacific Highway to the east, Arrawarra Beach Road to the North and the approved Arrawarra interchange to the south. The site and surrounding area comprises predominately the Dry Sclerophyll Forest habitat vegetation community. The locations of the closest noise sensitive receivers are shown in **Figure 4** below.

The proposed Arrawarra Rest Area was originally included in the EA for the Sapphire to Woolgoolga project. However, following public exhibition between December 2007 and February 2008, a number of issues were raised which required further consideration. These included:

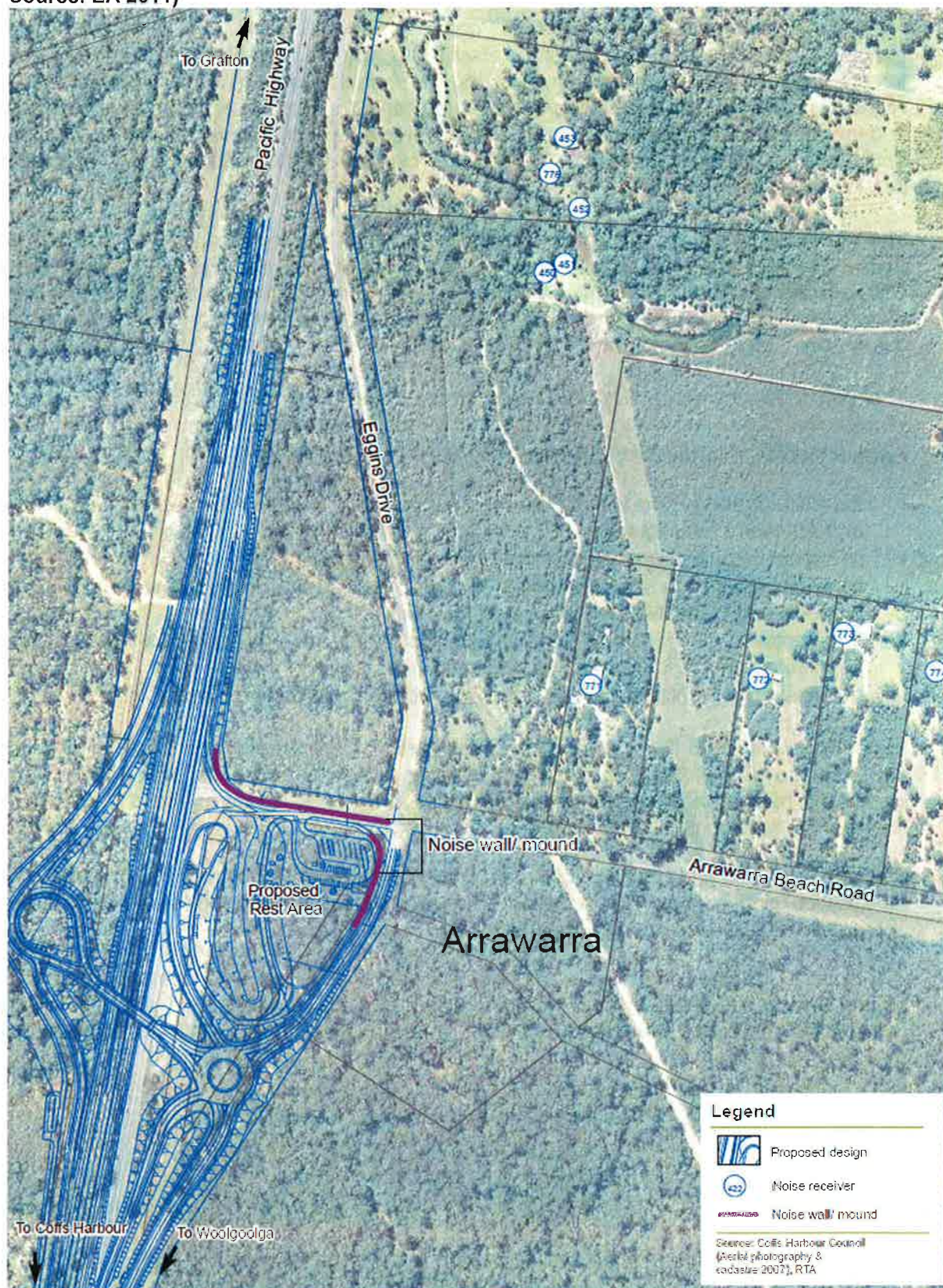
- the cultural and environmental sensitivity of the area including the surrounding Yarrawarra and Arrawarra Estuary systems;
- its habitat value for endangered frogs, gliders, and microbats;
- its location within a wildlife corridor between the vegetation on the western side of the proposal and Garby Nature Reserve on the east;
- fragmentation of existing glider habitat which could lead to long term decline in glider populations east of the Pacific Highway; and
- potential noise, lighting and visual impacts on the Arrawarra Beach community.

In April and July 2008 the RMS, in consultation with the Department, the Office of Environment and Heritage (OEH), the Department of Primary Industries and Coffs Harbour City Council, identified a number of potential rest area locations in the area. Based on these identified sites, a comparative assessment was undertaken.

Between July 2008 and October 2008 a short list was created, being A3 Arrawarra (subject of this modification) and C3 South Woolgoolga. The preferred location was then selected based on the shortlist and further refinements were made to the preferred site.

In October 2008, the RMS advised that the Arrawarra Rest Area would be withdrawn from the project due to the issues raised as part of the exhibition process and also due to design refinements, particularly the reservation of land for the inclusion of a potential future service centre on the rest area site.

Figure 4: Location of Closest Residential Receivers to the Proposed Rest Area (Base Image Source: EA 2011)



2. PROPOSED MODIFICATION

2.1 Modification Description

The proponent proposes to construct a rest area for light and heavy vehicles adjacent to the Arrawarra interchange, at the northern extremity of the Pacific Highway Upgrade – Sapphire to Woolgoolga project.

The key aspects of the proposed modification are listed in **Table 1**. The proposed modified layout is shown in **Figures 5-6**.

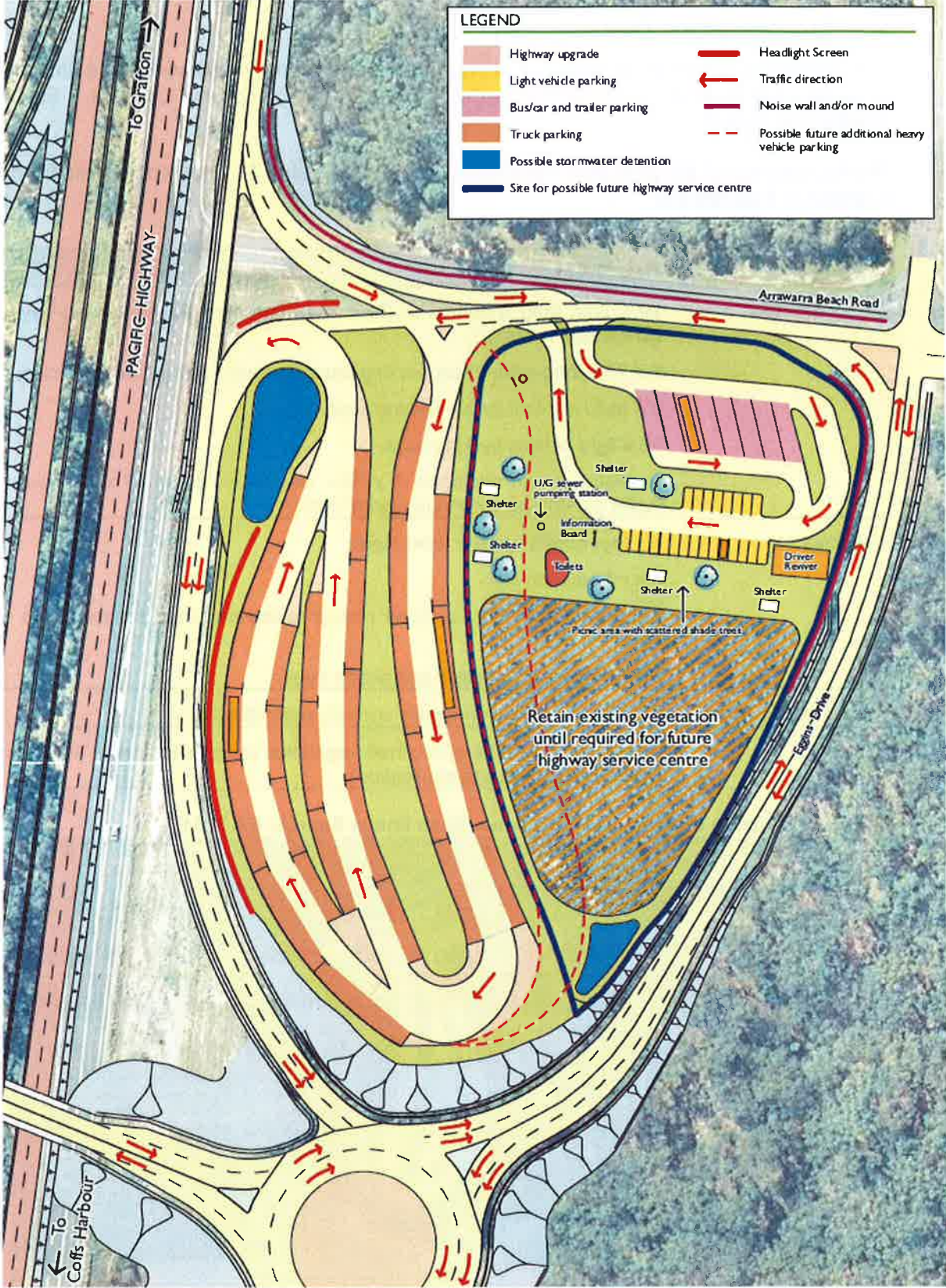
Table 1: Key Proposed Modifications

Aspect	Description
Parking	20 x 30m long B-double or 30 x 20m long semi-trailer parking bays (or a combination of both). 8 x 20m long semi-trailer parking bays for stock / refrigerated vehicles. 8 x bus / car and trailer parking bays. 23 x light vehicle parking bays. Provision for an additional 8 x 30m long B-double or 12 x 20m long semi trailer parking (or a combination of both).
Facilities	1 x four cubicle unisex toilet block. 1 x information sign. Provision for a 24 hour driver reviver facility including concrete slab 15m x 8m. Picnic area with shelters and shade trees.
Water Management	Stormwater detention/quality control swales/basins.
Other	Approximately 0.5ha of retained vegetation for possible future service centre (subject to a separate application).

Figure 5: Location of Proposed Rest Area (Base Image Source: EA 2011)



Figure 6: Layout of Proposed Rest Area (Base Image Source: EA 2011)



3. STATUTORY CONTEXT

3.1 Modification of the Minister's Approval

Section 75W of the Act provides that a proponent can request the Minister to modify the approval of a project. The Minister's approval is not required if the project, as modified, will be consistent with the original approval. The subject modification is not consistent with the approval, but would not result in a radical transformation and therefore an assessment in accordance with Section 75W of the Act is considered appropriate.

Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or his delegate) may approve or disapprove of the carrying out of the project under section 75W of the Act.

3.2 Delegated Authority

On 14 September 2011, the Minister delegated his powers and functions under section 75W of the EP&A Act to officers of the department in cases where the relevant Council has not made an objection, no Political Donations Disclosure Statements have been received and there are less than 25 public submissions (not including submissions from public authorities) in the nature of objections in respect of the modification request.

As 13 public submissions were received (see Section 4), the Executive Director, Major Projects Assessment may determine the modification request under delegated authority.

4. CONSULTATION AND SUBMISSIONS

4.1 Exhibition

Under Section 75X(2)(f) of the Act, the Director-General is required to make the modification request publicly available. The Department:

- publicly exhibited it from Monday 28 November 2011 until Monday 12 December 2011 (15 days):
 - on the Department's website;
 - at the Department's Information Centre;
 - at the RMS' Pacific Highway Office, Grafton;
 - at Coffs Harbour City Council Offices; and
 - at the Nature Conservation Council of NSW.
- advertised the public exhibition in the Coffs Harbour Advocate and Woolgoolga Advertiser on 28 November 2011, and in the Coffs Harbour Independent on 1 December 2011; and
- notified the Office of Environment and Heritage (OEH) and Coffs Harbour City Council (CHCC) in writing.

The Department received 15 submissions during the exhibition of the modification request – 2 submissions from public authorities and 13 submissions from the general public and special interest groups.

A summary of the issues raised in submissions is provided below.

4.2 Public Authority Submissions

Two submissions were received from public authorities including CHCC and the OEH.

Coffs Harbour City Council

CHCC did not object to the proposal, but provided a number of comments:

- raised a number of concerns relating to infiltration rates, water quality, stormwater treatment, design of stormwater control systems, re-use of rainwater/harvested water, provision of water for stock trucks, compliance with Council's Water Sensitive Urban Design (WSUD) policy and receiving water objectives;
- requested further information/details relating to hydrology and hydraulics, in particular, the impacts of the fauna crossing, details of ponds, extent of WSUD treatments proposed and operational stormwater treatment and controls;
- requested a mandatory 1:4 ratio be implemented for the removal of hollows (loss of hollows:provision of nestbox);
- considered the EA lacked a comprehensive flora and fauna assessment;
- believed the proposal will further fragment important coastal habitat within the regional wildlife corridor and state significant corridor;
- believed that hard surfaces associated with the proposal are likely to increase discharge rates and contaminates into Arrawarra Creek which feeds into the Marine Park;
- raised concerns over increased erosion of Arrawarra Creek;
- stated that existing vegetation/trees on site provide an important resource for arboreal species; and
- raised concerns over the paving of Eggins Close, the economic impact of the proposal on Woolgoolga (raised by the Woolgoolga Chamber of Commerce), information boards should be designed and located in consultation with Council, and that bike stands should be provided.

The issues raised by Council are addressed in **Section 4.4** and **Section 5** below.

OEH

- supported the proposed layout as it retains 1.41ha of Swamp Sclerophyll Endangered Ecological Community (EEC) and Squirrel Glider habitat compared to previous layouts;
- stated the EA did not adequately address impacts to the Squirrel Glider population in the vicinity and Hoary Wattled Bat which was recorded near the site;
- requested more information should be provided in relation to potential increases in stormwater runoff and the risk of water pollution in Arrawarra Creek and the Solitary Island Marine Park;
- requested an additional glider crossing should be provided in the general location of the rest area;
- mitigation measures should be provided to protect the Wallum Froglet and Giant Barred Frog during construction and operation;
- highlighted the possibility that Aboriginal objects may be located within the area, and expects that the proponent will develop appropriate management strategies to address this possibility;
- supported the process for dealing with any cultural material recovered from the project area during construction;
- acknowledged the consultation undertaken to date with the local Aboriginal community and encourages further engagement in developing appropriate cultural heritage outcomes for the life of the proposal; and
- reiterated the relevant legislative requirements relating to Aboriginal cultural heritage.

The issues raised by the OEH are addressed in **Section 4.4** and **Section 5** below.

4.3 Public Submissions

13 submissions were received from the public objecting to the proposed modification. The key issues raised in public submissions are listed in **Table 2**.

Table 2: Summary of Issues Raised in Public Submissions

Issue	Times mentioned	Proportion of submissions (%)
Inappropriate location for a rest area	11	84.62
Impacts on native flora and fauna	9	69.23
Loss of habitat	6	46.15
Objects to service centre	6	46.15
Impacts on Estuary/ Arrawarra Creek/ Solitary Islands Marine Park	6	46.15
Flooding/Stormwater	5	38.46
Fragmentation of native vegetation/ Impacts on habitat corridor	5	38.46
RMS consultation process	4	30.77
Lack of fauna crossings	3	23.08
Impacts on Arrawarra Village	3	23.08
Noise	3	23.08
Social impacts/safety	2	15.38
Inadequacies in EA	2	15.38
Visual amenity	1	7.69
Lighting impacts	1	7.69

The Department has considered the issues raised in submissions in its assessment of the proposed modification.

4.4 Proponent's Response to Submissions (RtS)

The proponent provided a response to the issues raised in submissions (Response to Submissions), which is included in **Appendix C**. The RtS identified additional assessment undertaken since the exhibition of the EA and included a response to the issues raised in submissions from the general public and public authorities.

No amendments were made to the proposed modification, however a review of the stormwater drainage arrangements was undertaken which included an assessment of the impact of the proposed rest area on flooding in the area.

The department forwarded a copy of the RtS to the OEH and CHCC for comment. The documents were also placed on the department's website.

A summary of agency comments on the RtS is provided below.

OEH

Raised no further issues, however made the following comments:

- accepts RMS' position that the number and location of swale drains and biofiltration basins would be confirmed at detailed design stage;
- accepts RMS' position that the presence of the Giant Barred Frog will be presumed to occur, and will implement standard mitigation measures including frog fencing and hygiene protocols for this species. The Wallum Froglett occurs upstream of the existing Pacific Highway and is unlikely to occur in the vicinity of the subject site;
- notes that RMS has already committed additional funding for a fauna crossing to the south of the site (southern side of Arrawarra Creek), comprising 2x glider poles; and
- expects RMS to implement standard practices associated with pre clearing surveys.

Coffs Harbour City Council

Made a number of comments including recommended conditions relating to:

- impacts of flooding, particularly the extent of flooding on downstream properties in more frequent rainfall events, impact of additional flows on Arrawarra Creek, and impact of raised levels of the rest area on flooding;
- the proposal not meeting the NSW standards for removing suspended solids, phosphates and nitrogen from the stormwater;
- provision of rainwater tanks;
- provision of nest boxes for hollows removed;
- the site selection process in that social and economic issues have been given greater weighting than environmental/biodiversity issues; and
- recommended 19 conditions be imposed on any approval granted.

The department forwarded a copy of Council's submission to RMS for information, and requested a response to the issues relating to flooding and water quality. RMS provided a response to the water quality and flooding issues. These matters and other issues raised by Council are addressed further in **Section 5** below.

The department has considered Council's recommended conditions and notes that the intent of Council's conditions are covered by the existing conditions for the Sapphire to Woolgoolga project and the Statement of Commitments. The department agrees with the provision of rainwater tanks and has recommended that this be required for the rest area.

5. ASSESSMENT

The Department considers the key issues for the proposed modification to be:

- Site Selection;
- Biodiversity; and
- Hydrology.

The department has also considered other issues raised in submissions and in the proponent's assessment, including, visual amenity, lighting, adequacy of EA and social impact/safety. The department considers these issues generally pose a low environmental risk and that the proponent has developed a range of commitments to manage or mitigate these impacts. Where no specific commitment exists, or where the department considers a commitment needs strengthening, specific conditions have been recommended. The department's consideration of these issues is addressed in **Section 5.4**. The proposal does not include a service centre and therefore matters such as economic impact have not been included in this assessment

5.1 Site Selection

Issue

The site of the proposed Arrawarra Rest Area was selected following a detailed investigation into a number of potential rest area sites north of Woolgoolga (between Woolgoolga and Arrawarra). Suitable sites within the highway corridor south of Woolgoolga in the Coffs Harbour/Woolgoolga were not available, primarily due to topographical and ecological constraints and potential amenity impacts on existing and proposed landuses.

The initial site selection process included 7 options. Of these, 3 options were located at the Arrawarra interchange, 1 option was located north of Bark Hut Road and 3 options were located at the south Woolgoolga interchange. Each of these options was assessed against their functional performance (including cost), biophysical performance and social-economic performance. Key factors considered in selecting these sites were:

- proximity to a grade separated interchange;
- proximity to residential areas;
- ecological impacts;
- criteria and objectives outlined in section 117 Ministerial Direction No. 5.4 (Commercial and Retail Development along the Pacific Highway, North Coast);
- minimum site area of 3 hectares;
- capacity for 15 B-Doubles, 9 stock trucks, 6 car and trailers and 20 cars; and
- opportunities for future expansion to include a service centre.

Following this analysis, 2 options were short listed for further comparative assessment. These were option A3 (subject of this modification) and option C3 (South Woolgoolga on the western side of the existing Pacific Highway to the north west of the Pacific Highway / Unwins Bridge Road intersection). This more detailed assessment included the provision of a future service centre.

This assessment considered both short listed options against: traffic, transport and economics; noise and vibration; Aboriginal and non-Aboriginal heritage; planning and land use, agriculture and forestry; socio-economic considerations; flora and fauna; hydrology, water and soil management; and landscape, visual and urban design. At the completion of this assessment, it was concluded that option A3 was the preferred option for the following reasons:

- it would have less noise and other amenity impacts;
- it would have less impact on existing agricultural landuses;
- it would have less impact on potential employment lands identified as a 'special investigation area' under Council's *Our Living City Settlement Strategy* 2008; and
- it would be less expensive to build.

RMS publicly exhibited this assessment between 28 September 2009 and 30 October 2009. A total of 62 submissions were received from the public. In February 2010 RMS held workshops with the Department, Office of Environment and Heritage and Coffs Harbour City Council. In May 2010 RMS released its rest area assessment submissions report.

Following selection of the preferred site for a rest area, RMS identified a number of opportunities to further refine the concept design. These refinements included:

- minimising potential impacts on EEC vegetation north of Arrawarra Beach Road by relocating the site of a potential future service centre to the south side of Arrawarra Beach Road to the rest area site (saving 1.41 hectares of EEC vegetation),
- minimising potential noise impacts on nearby residents by relocating the site of a potential service centre;
- noise attenuation measures along the eastern and northern boundaries of the site;
- provision for potential future additional heavy parking;
- provision of enhanced outcomes for stormwater flows and water quality, and
- rationalising access arrangements into the proposed rest area.

A further EA was prepared for the revised Arrawarra site and displayed for public comment between 6 April 2011 and 9 May 2011. A total of 16 submissions were received. A submissions report was prepared and released by the RMS in October 2011.

Department's Consideration

The Department acknowledges that the *Pacific Highway Safety Review* (RTA 2004) identifies the need for a light and heavy vehicle rest area to be constructed in this section of the Pacific Highway, specifically in the Coffs Harbour/Woolgoolga area. RMS, through a site selection process has determined that the Arrawarra site is the best performing option.

The Department has reviewed RMS' site selection process, including the detailed assessment of the two short listed options, and is satisfied that all potential options within the project corridor have been thoroughly investigated.

It is noted that while the Arrawarra site is a better performing option than the South Woolgoolga site, it would have a greater impact on non-EEC vegetation than the South Woolgoolga site. This matter is considered in **Section 5.2** of this report.

5.2 Biodiversity

Issue

The subject site is located adjacent to the Arrawarra interchange, which has recently been cleared as part of the construction for the Sapphire to Woolgoolga project. The remaining vegetation on site is fragmented by Arrawarra Beach Road to the north, the former Pacific Highway (being used as a construction access road) to the east/south east and the existing Pacific Highway (and construction corridor for the Pacific Highway upgrade project including Arrawarra interchange) to the west.

The site is located within the Coffs Harbour City Council's Regional Wildlife Corridor between Red Rock and Emerald Beach and Category 2 – High Conservation Lands under Council's draft *Priority Habitats and Corridors Strategy 2010* (as exhibited). The site is also considered to form part of a Regional Fauna Corridor under the Mid North Coast Subregional Strategy.

The proponent has undertaken a number of biodiversity assessments which were appended to the EA for the Sapphire to Woolgoolga project. These included:

- Sapphire to Woolgoolga Route Options Report, Ecological Assessment (Connell Wagner 2002);
- Sapphire to Woolgoolga Supplementary Options Ecological Assessment (Connell Wagner 2004);
- Sapphire to Woolgoolga Fauna Investigations, working paper 7a (Connell Wagner 2007);
- Vegetation Survey of the Preferred Route for the Pacific Highway Upgrade between Sapphire and Woolgoolga, working paper 7b (Ecos Environmental 2006);
- Sapphire to Woolgoolga – Arrawarra Interchange Flora and Fauna, working paper 7c (Connell Wagner 2007); and
- Proposed Pacific Highway Upgrade between Sapphire and Arrawarra – Targeted Frog Survey, working paper 7d (Lewis Ecological Surveys 2006).

In addition to the above assessments, a report entitled *A Comparison of Ecological Constraints for Potential Rest Area and Service Centre options* (September 2009) was appended to RMS' Rest Area Assessment Report September 2009.

The field surveys indicate that the subject site is presently occupied by a 2.47 hectare pocket of Black-Butt/Grey Iron Bark Very Tall Open Forest (Dry Sclerophyll Forest Habitat) vegetation community.

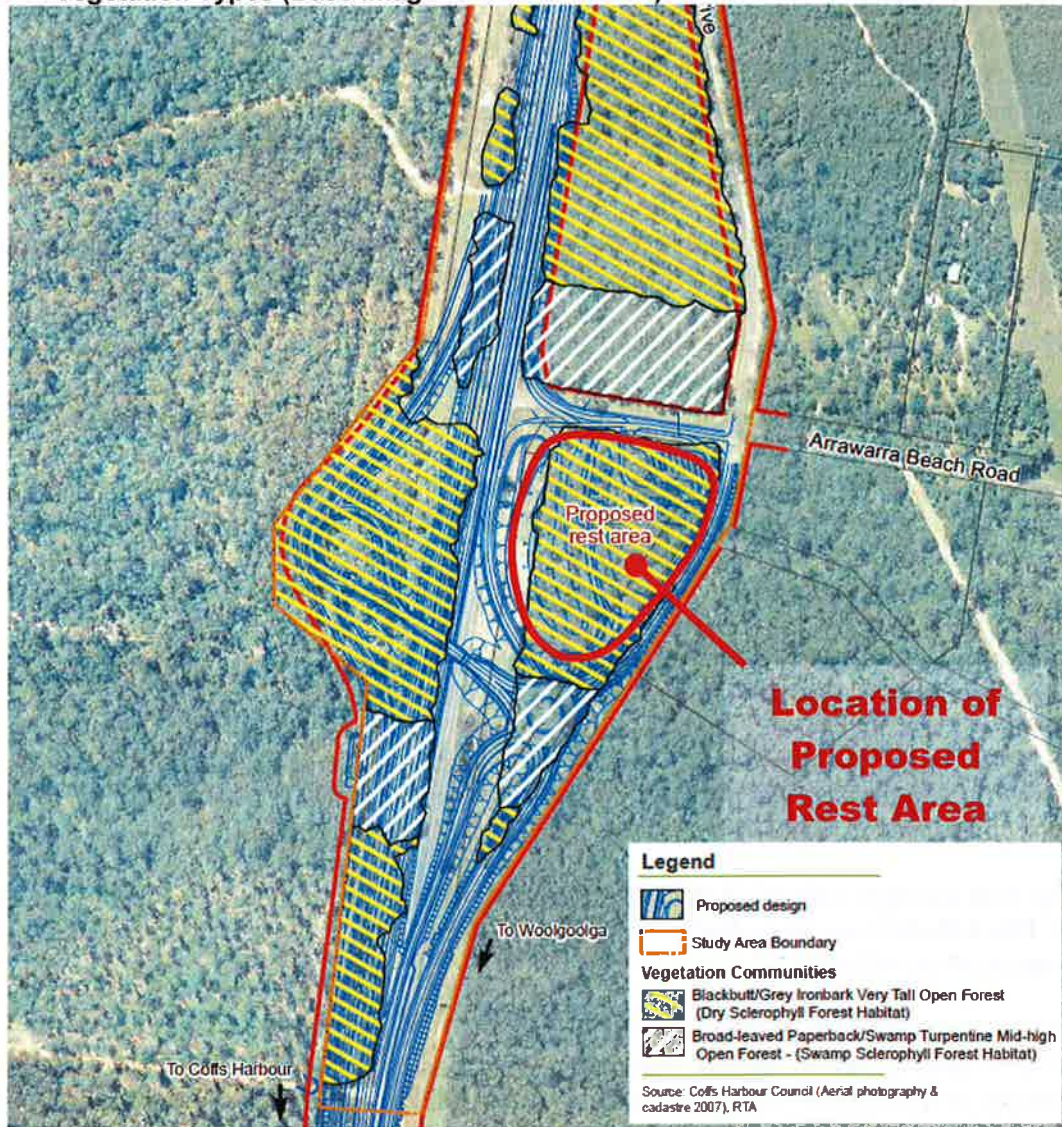
The *Comparison of Ecological Constraints for Potential Rest Area and Service Centre options* (2009) report states that the site contains known habitat resources for 7 fauna species and potential habitat resources for an additional 16 fauna species currently listed as threatened on the *Threatened Species Conservation Act 1995*. Of these, 4 fauna species known or likely to occur on the site are listed as threatened on the *Environment Protection and Biodiversity Conservation Act 1999*.

It is not considered likely that threatened flora species occur on the site and there is no EEC vegetation on the site.

The rest area EA includes additional mitigation and management measures for flora and fauna including:

- the retention of as much existing vegetation as possible, particularly in the south eastern portion of the site;
- vegetation to be retained on site is to be fenced/marked and included in the project CEMP; and
- updating the Biodiversity Offset Package to include offsets as a result of clearing of native vegetation.

Figure 7: Vegetation Types (Base Image Source: EA 2011)



Department's Consideration

The proposal would require the clearing of approximately 1.97 hectares of Black-Butt/Grey Iron Bark Very Tall Open Forest vegetation, which is not listed as an EEC. Although the vegetation provides habitat resources for eight threatened fauna species and potential habitat for an additional 20 threatened species, the Department is of the opinion that due to the proximity and layout of the surrounding road network, the ecological value of the vegetation on the site has been compromised and is unlikely to provide an effective and important corridor function. Further, surveys of hollow bearing trees have estimated an abundance of 5 hollows per hectare, which is considered a relatively low number to attract hollow dependent fauna.

Following design refinements to the layout of the proposed rest area, approximately 0.5 hectares in the south-eastern corner of the site has been reserved for the potential future service centre. As a result, 1.41 hectares of EEC vegetation to the north of Arrawarra Beach Road, the original location of the potential future service centre, would be retained. The future service centre would be subject to a separate approval process.

The OEH has stated that given the nature and vegetation type of the site, it is unlikely that threatened frog species would be found on the site. In any case, RMS has committed to assuming the presence of frogs on the site and implementing appropriate frog fencing and hygiene protocols during construction.

In terms of connectivity for terrestrial fauna, the EA for the original project proposed a bridge over Arrawarra Creek, located to the south of the site, which provides for fauna access (not less than 1 metre to 1.5 metres wide) on either side of the creek during normal flows. In addition, RMS has committed to install two additional glider poles immediately to the south of Arrawarra Creek. This dedicated fauna crossing would complement the approved fauna crossings in the vicinity of the site and improve fauna connectivity for gliders in the vicinity of the proposed rest area. A number of threatened bats are known or likely to occur in the area (foraging/breeding/habitat). The approved Construction Environmental Management Plan and associated sub plans for the project include a number of management/mitigation measures to protect these species, particularly during pre clearing and clearing stages.

With regards to biodiversity offsets, the department approved the Biodiversity Offset Strategy for the Pacific Highway Upgrade – Sapphire to Woolgoolga project on 3 June 2010 in accordance with condition 2.12 of the project approval. The approved Strategy proposes to offset between 217.3 hectares and 255.4 hectares of vegetation (condition 2.12 requires a minimum offset of 98.8 hectares).

The Biodiversity Offset Package is currently being finalised in accordance with condition 2.13 of the project approval, and would be updated to include additional offsets relating to clearing of an additional 1.97 hectares of native vegetation (2.47 hectares minus 0.5 hectares of retained vegetation for potential future service centre). As the vegetation to be removed is non-EEC and comprises state forest land, an offset ratio of 1:1 or 1:2 would apply subject to consultation with the Department of Primary Industries (NSW Forests). Regardless of the relevant ratio to be used, the additional offset required as a result of the proposed modification is likely to be captured by the Biodiversity Offset Package which is proposing a greater amount of offset lands than that required by condition 2.12 of the project approval.

The department recognises that the preferred option for the proposed rest area is not the option that has the least impact on biodiversity compared to the south Woolgoolga option. However, it is acknowledged that RMS has refined the concept design for the rest area to minimise impacts on flora and fauna. On balance, and in consideration of all other relevant issues, the department does not believe that the proposal would have consequential and irreversible detrimental impacts on the ecology of the local area, subject to the implementation of mitigation measures such as pre clearing surveys, installation of exclusion fencing for 'no go' areas and installation of nest boxes for displaced fauna.

5.3 Hydrology

Issue

Flooding, stormwater and water quality were issues raised by the Council and approximately 50% of all submissions received during the exhibition period. In response to these issues, RMS assessed the hydrological implications of the proposal on Drainage Line A (to the north of the site), both during construction and during operation of the Highway Upgrade. A *Review of Flooding in the Vicinity of Arrawarra Beach Road, Arrawarra – Sapphire to Woolgoolga Pacific Highway Upgrade* (22 May 2012) was prepared and is appended to the Rts. This

review also analysed the flooding event which occurred in the area on 26 January 2012. A further report dated 16 August 2012 was prepared in response to Council's concerns.

These reviews analysed rainfall events from a 1 year average recurrence interval (ARI) to a 100 year ARI. The RtS states that the total catchment area of at the existing Eggins Drive culvert has been reduced from 70.1 hectares to 68.4 hectares, with the difference being redirected to the Arrawarra Creek catchment area further south.

These reviews indicate that the approved Sapphire to Woolgoolga upgrade project (without rest area) resulted in a 7% increase in peak flows in a 2 year ARI compared to the pre-highway upgrade scenario, and the proposed modification would result in a 1% increase in peak flows in a 2 year ARI compared to the pre-highway upgrade scenario. For less frequent rainfall events, a reduction in peak flows would occur for both scenarios compared to the pre highway upgrade. The review concludes that peak flows for the proposed modification would be less than those experienced as a result of the approved Sapphire to Woolgoolga project (without rest area) for all rainfall events. While the rest area would include additional hard surface areas, the proposed swales and bioretention system would contribute to this reduction in peak flows.

With regards to volumes, increases would be experienced for minor events up to a 2 year ARI compared to the pre highway upgrade scenario and decreases would be experienced in larger, less frequent events. The hydrological report dated 16 August 2012 concludes that "the proposal will have a negligible effect on the envelope of flooding along Drainage Line A", which is based on a worse case scenario in wet catchment conditions. In comparison, the approved Sapphire to Woolgoolga upgrade project (without rest area) would result in minor increases in volumes for all rainfall events.

The May 2012 review also looked at how the proposed modification would cope with a similar rainfall event to that which was experienced on 26 January 2012 (classified as a 10 year ARI), and has determined that peak flows and volumes would be reduced. This is comparable to the approved Sapphire to Woolgoolga upgrade project (without rest area) scenario for peak flows.

The August 2012 review included a consideration of the potential flooding impacts on Drainage Line B (Arrawarra Creek) to the south of the site. This review concludes that the proposal would increase peak flows for more frequent rainfall events (up to 5 year ARI) by up to 36%. Given the portion of the site that contributes to the total catchment area of Drainage Line B is 0.5% of the 960ha catchment, the total impact on the peak flows of Arrawarra Creek in the context of the entire catchment in rainfall events more frequent than a 5 year ARI would be negligible. Further, this catchment differs from Drainage Line A as there is less development downstream of the proposed rest area. As such, these minor increases would not result in significant property related flooding impacts.

This review also assessed the behaviour of peak flows in the vicinity of the site as a result of raised ground levels. It concludes that peak flow levels may increase by up to 20mm to the west (upstream) of the site in a 100 year ARI. Peak flows downstream of the site would be redistributed across the floodplain.

As part of the proposed rest area, RMS is proposing stormwater treatment comprising swales to remove coarse sediment runoff. Portions of these swales will also form part of the proposed bioretention system to remove suspended solids, phosphorus and nitrogen from the stormwater runoff before it enters both Arrawarra Creek and Yarrawarra Creek systems.

A total of four scenarios have been modelled, the preferred scenario requiring 310m² of swales and 103m² of bioretention treatment area. The following outcomes would be achieved:

- 83.6% of total suspended solids removed (NSW target 85%);
- 64.8% of total phosphorous removed (NSW target 65%); and
- 33.8% of total nitrogen removed (NSW target 45%).

While this scenario falls short of the targets outlined in the *DECC NSW: Managing Urban Stormwater: Environmental Targets, Consultation draft* (October 2007), an additional 580m² of additional swales and 94m² of additional bioretention treatment area would be required to successfully meet each target. The RMS have argued that for only a relatively modest improvement in water quality, the additional costs (construction and maintenance of the swales and bioretention system), and additional clearing of native vegetation (approx 200m²) outweigh the benefits of a larger system.

Department's Consideration

The department acknowledges the additional hydrological and detailed design work that has been undertaken as part of the RtS. In terms of hydrology, the review of flooding adequately assesses the potential impacts of the proposal on Drainage Line A (north of the site) and concludes that only minor increases in peak flows would occur in the more frequent rainfall events (1% increase in rainfall events up to a 2 year ARI) compared to the pre highway upgrade scenario. This result is an improvement over the approved Sapphire to Woolgoolga upgrade project, which proposes increases of up to 7% for rainfall events up to a 2 year ARI compared to the pre highway upgrade scenario. The department considers that the proposed rest area would provide an improved outcome for potential peak flows in all rainfall events than the approved Sapphire to Woolgoolga upgrade project (without the rest area).

With regards to Drainage Line B (Arrawarra Creek), the department does not consider that the proposal would significantly impact on peak flows and volumes of stormwater on Arrawarra Creek, or compromise bank stability, particularly given the size of the catchment area compared to the portion of the proposed rest area site contributing to the catchment (0.5% of 960ha).

With regards to water quality, the department considers the proposed stormwater swales and bioretention systems to be an improvement over the original design of the proposed rest area. It is noted that the predicted results of the system removing suspended solids, phosphorus and nitrogen falls short of the NSW targets. However, suspended solids and phosphorus are only 1.4% and 0.2% short of the NSW target, and according to RMS, nitrogen is notoriously difficult to remove from stormwater. To meet these targets, an additional 200m² of native vegetation would have to be cleared which is not considered justifiable, given the likely resultant minor improvements in water quality. Further, the OEH raised no objection to the size and design of the proposed swales and bioretention systems.

The department is satisfied that the proposal as modified would result in a better outcome in terms of water quality than the approved project, and would not adversely impact upon the water quality of the Arrawarra and Yarrawarra Creek systems, estuaries and Solitary Islands Marine Park.

5.4 Other Matters

Noise

The proposed rest area is located between 250 metres and 550 metres south west of the nearest sensitive receivers, known as the northern group and eastern group of residences. Consideration of noise levels from the proposed rest area was undertaken as part of the original EA for the project and included an assessment against the *Environmental Criteria for*

Road Traffic Noise (ECRTN) EPA 1999 and the NSW Industrial Noise Policy (INP) EPA 2000.

Two scenarios have been compared, the approved Sapphire to Woolgoolga upgrade project (without rest area) and the proposed modification. In both cases, the calculated noise impact for eastern residences would be 1 dBA below the ECRTN criteria of 55 dBA and for northern residences would be 0.5 dBA below the ECRTN criteria (including allowance) of 56 dBA. The assessment concludes that there would be no differences in noise levels experienced by all noise sensitive receivers, and in both cases, noise levels would be within the ECRTN criteria.

No specific policy exists for assessing noise impacts from a rest area. Therefore RMS has adopted the conservative approach and also assessed the proposed modification against the INP. The assessment concluded that noise levels during the day, evening and night complied with the INP criteria. Further, additional assessment was undertaken against the Environmental Noise Control Manual, specifically sleep arousal guidelines. It was found that the maximum noise levels were within the guidelines for both groups of sensitive receivers.

While no specific mitigation measures are required for the proposed modification, RMS is proposing to construct two noise walls on the eastern and northern boundaries of the site to further minimise any potential impacts on noise sensitive receivers. This is in addition to the mitigation/management measures relevant to the approved Sapphire to Woolgoolga upgrade project (that would also apply to the subject modification).

The department considers the noise assessment to be adequate, and acknowledges the additional mitigation measures proposed by RMS. While no exceedences of the ECRTN criteria or INP criteria are expected, the proposed noise walls will ensure that additional noise impacts on noise sensitive receivers are unlikely.

Aboriginal Heritage

RMS prepared an Aboriginal cultural heritage assessment of the Arrawarra area which includes the subject site. During field surveys, one scatter of surface artefacts (S2W-14) was recorded and subsequently registered on the OEH AHIMS database as site #22-1-373. This site is located approximately 300 meters south west of the subject site, on the western side of the existing Pacific Highway. Aboriginal stakeholder representatives assessed this site to be of low-moderate in situ social-cultural significance.

No constraints were identified on the site of the proposed rest area, however a number of conditions have been recommended relating to induction for workers and procedures for unexpected finds. The department is satisfied that with the implementation of these recommendations, adverse impacts on potential Aboriginal heritage items can be minimised.

Other

Issue	Comment
Social impacts/Safety	It is considered unlikely that the proposed rest area would result in social impacts. RMS has stated that there are no examples of safety issues at other rest areas along the Pacific Highway. Further, adequate lighting would be installed to allow for passive surveillance of the area.
Lighting	A condition is recommended requiring lighting to be designed to ensure that it is directed away from nearby residential properties. RMS has stated that facilities lighting would be the cutoff type to minimise light spill from the rest area on nearby residential properties.
Traffic	The Level of Service (LoS) for the Arrawarra interchange is predicted to be good (LoS A and B) in 2011 and 2031 both with and without a rest area.
Visual impact	The proposed rest area is located on the eastern side of the existing Pacific Highway/Upgrade and to the north east of the Arrawarra interchange. It is surrounded by mature vegetation to the north, east and south east. Noise walls are also proposed along the north and east boundaries. While the proposed rest area would be visible from the existing/upgraded highway, views to the site from residential properties to the north and east would be limited. Landscaping is also proposed which would complement the existing surrounding vegetation, and retained vegetation on site. The department has recommended a condition to require the proponent to prepare an Urban Design and Landscape Plan for the rest area in consultation with Coffs Harbour City Council. The proposed modification is therefore not considered to be visually intrusive and would sit well within its landscape.

6. CONCLUSION AND RECOMMENDATIONS

The department has considered the modification request, submissions from the public and government authorities and the proponent's response to these submissions.

The RMS is looking to establish rest areas at 50km intervals along the upgraded highway as part of the Pacific Highway Upgrade Program. The proposed Arrawarra Rest Area would be located between the two existing light and heavy vehicle rest areas at Clybucca and Halfway Creek, reducing the 140km distance between these two areas.

The department considers that on balance, the subject site is the most appropriate location for the proposed rest area and would contribute positively to road safety by addressing fatigue management. Furthermore, the proponent has demonstrated in its assessment of the proposal that the construction and operation of the proposed rest area would generally result in minimal impacts on the surrounding community and environment, particularly in relation to hydrology and biodiversity. The department notes that a range of management and mitigation measures are proposed to be implemented to address and manage potential impacts.

In conclusion, the department is satisfied that with the proposed mitigation and management measures and the recommended conditions of approval, the project would have minimal impacts on the surrounding community, and therefore recommends approval of the modification request.

Prepared by


9/10/12

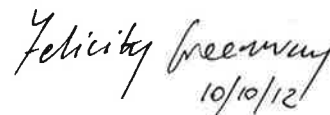
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APPENDIX A MODIFICATION REQUEST

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4982

APPENDIX B SUBMISSIONS

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4982

APPENDIX C RESPONSE TO SUBMISSIONS

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4982

APPENDIX D RECOMMENDED MODIFYING INSTRUMENT
