

Attachment 1: Assessment of significance ('7-part test') under Section 5A of the NSW *Environmental Planning and Assessment Act 1979* for the Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner bioregions for Arrawarra Caravan park.

Background

Littoral rainforest in NSW North Coast, Sydney Basin and South East Corner Bioregions is listed as an endangered ecological community (EEC) under Part 3 of Schedule 1 of the *Threatened Species Conservation Act 1995* and is listed as Critically Endangered ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Littoral rainforest is generally a closed forest, with the structure and composition of the community changing closer to the ocean. Plants are predominately rainforest species, with evergreen mesic or coriaceous leaves, vines may be common and form a major component of the canopy (NSW Scientific Committee 2004).

The NSW Scientific Committee (2004) states that some stands may be regrowth or in the process of regenerating. Whilst the stand in question is small and only comprises of four trees, there is no minimum size or requirement for canopy cover under the TSC Act. The area of occurrence on the site covers an area of less than 0.1 hectares so does not meet the criteria under the EPBC Act for the critically endangered Littoral rainforests and coastal vine thickets of eastern Australia.

Littoral Rainforest EEC	
Assessment of Significance criterion (Seven Part Test)	
a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	n/a
b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction	n/a
c) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed: <ul style="list-style-type: none"> i. Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or ii. Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction 	<p style="text-align: center;">Local occurrence and composition</p> <p>A small patch of Littoral rainforest covers an area of approximately 600 m² in total and comprises of four trees. This small fragment is located in the northern section of the site bordering the creek. The ground cover consists of exotic grasses and there are no mid storey species. It is a highly disturbed area.</p> <p>Two larger communities of Littoral rainforest are mapped to the north and east of the site (on the opposite sides of the banks).</p> <p style="text-align: center;">Assessment</p> <p>The small patch of Littoral rainforest is highly degraded and comprises of four individual trees (encompassing a size of approximately 600 m²). Two larger littoral rainforest communities are located to the north and east of the site (on the opposite side of the banks to the site). The removal of the trees is unlikely to place the local community at risk of extinction.</p>
d) In relation to the habitat of a threatened species, population or ecological community: <ul style="list-style-type: none"> i. The extent to which habitat is likely to be removed or modified as a result of the action proposed, 	<p style="text-align: center;">Extent of impact on habitat</p> <p>The small patch comprising four trees is not connected directly to the larger areas of rainforest EEC. The habitat (approximately 600 m²) will be removed as a result of the proposed development, however this is not considered to have a significant impact on the local occurrence of the EEC.</p>

Littoral Rainforest EEC	
Assessment of Significance criterion (Seven Part Test)	
<p>and</p> <p>ii. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and</p> <p>iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.</p>	<p>Habitat fragmentation</p> <p>The small area of Littoral rainforest habitat in the northern section of the site will be cleared. This community at present is a small fragment which is highly degraded. The removal of this small area will not fragment the wider EEC in the local area</p> <p>Importance of habitat to be impacted</p> <p>The small area of Littoral rainforest habitat located in the northern section of the site will be cleared. As this patch comprises of four trees, it is not considered to provide an essential function to the survival of the wider EEC surrounding the site and is not likely to have an adverse impact.</p>
<p>e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)</p>	<p>To date, critical habitat has not been declared for this EEC under the TSC Act.</p>
<p>f) Whether the action proposed is consistent with the objectives or actions of a Recovery Plan or Threat Abatement Plan</p>	<p>A Recovery Plan does not exist for Littoral rainforest under the TSC Act, however the EPBC Conservation Advice (TSSC 2015) nominates the following key priority conservation topics:</p> <ul style="list-style-type: none"> a) Habitat loss, disturbance and modification b) Invasive weeds c) Trampling, browsing and grazing d) Fire e) Conservation information <p>The proposal is inconsistent with the above conservation action (a) as native vegetation is to be cleared as a result of the proposed action.</p>
<p>g) Whether the action proposed constitutes or is part of a Key Threatening Process (KTP) or is likely to result in the operation of, or increase the impact of, a KTP</p>	<p>KTPs (OEH 2016) that could be exacerbated by the proposed action include:</p> <ol style="list-style-type: none"> 1. Alteration to the natural flow regimes of rivers, streams, floodplains & wetlands; 2. Clearing of native vegetation; 3. Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants <p>The small patch of Littoral rainforest will be removed. The EEC communities that will remain are on the opposite side to the rockwall, with the rockwall likely locally improving local water quality through reducing erosion. The alteration to the flow regimes (if any) is not likely to have a significant impact to the surrounding communities.</p> <p>The clearing of native vegetation is unavoidable but is minimal (with four trees being removed). The site is highly modified and is</p>

Littoral Rainforest EEC	
Assessment of Significance criterion (Seven Part Test)	currently used as a caravan park. The clearing is not expected to have a significant impact on the local occurrence of Littoral rainforest due to the small size of the patch being removed. Native vegetation will be planted in the E2 zone bordering the creek and ongoing weed management will be undertaken, therefore loss and degradation due to invasion of escaped garden plants is not expected to impact on the communities on the opposite side of the creek.

Conclusion

The Littoral rainforest community in the northern section of the site is approximately 600 m² in size. The community is degraded and comprises of four trees. Two larger Littoral rainforest communities are mapped to the north and east of the site (on opposite sides of the creek). It is not expected that the removal of the trees will have a negative impact on the surrounding EEC in the locality given the small number of trees being removed. A Species Impact Statement is not recommended.

The fragment of Littoral rainforest to be removed on site is of relatively low ecological value, and no significant impact on the local occurrence of the rainforest EEC is expected. Any impact will be further reduced by revegetation within the northern section of the site, which will incorporate species to replicate the Littoral rainforest being removed. Over time, this is expected to increase the size, density and functioning of the EEC.

References

NSW Scientific Committee (2004), *Littoral rainforest in the NSW North Coast, Sydney Basin and South East Corner bioregions – endangered ecological community listing NSW Scientific Committee – final determination*, OEH

OEH, 2016, *List of key threatening processes*, OEH, accessed on 16/09/2016 <http://www.environment.nsw.gov.au/threatenedspecies/KeyThreateningProcessesByDoctype.htm>

Threatened Species Scientific Committee (TSSC) (2015). *Approved Conservation Advice for the Littoral Rainforest and Coastal Vine Thickets of Eastern Australia ecological community*. Department of the Environment

Attachment 2: Assessment of significance ('7-part test') under Section 5A of the NSW *Environmental Planning and Assessment Act 1979* for the Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner bioregions for Arrawarra Caravan

Background

Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner bioregions (“Coastal Saltmarsh”) is listed as an endangered ecological community (EEC) under Part 3 of Schedule 1 of the *Threatened Species Conservation Act 1995* (TSC Act) and a similar community (Subtropical and Temperate Coastal Saltmarsh) is listed as a vulnerable ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC). This assessment of significance deals only with the TSC listed community, as it does not meet the criteria under the EPBC listing.

Coastal Saltmarsh occurs within the intertidal zone along the shores of estuaries and lagoons along the NSW coast including NSW North Coast (OEH 2014, NSW Scientific Committee 2016). Species composition of this community varies with latitude and elevation however characteristic species of Coastal Saltmarsh includes *Baumea juncea*, *Juncus kraussii*, *Sarcocornia quinqueflora*, *Sporobolus virginicus*, *Triglochin striata*, *Isolepis nodosa* etc. with occasionally scattered mangrove stands (*Avicennia* spp.) scattered through the saltmarsh (OEH 2014, NSW Scientific Committee 2016). Reeds and salt pans may also occur in this vegetation community (OEH 2014).

Approximately 0.002 ha (20m²) of Coastal Saltmarsh occurs partially within the concept design footprint for the proposed development (one small patch is just north of the mapped easternmost section of the site, whereas the second patch occurs in the northern branch of the creek in the north-eastern tip of the site). Other larger patches exist greater than 30 m away from each patch (minimum 60m away from the two small patches). As per the EPBC conservation advice for subtropical and temperate coastal saltmarsh and the Coffs Harbour City Council Information Request, patches less than 0.1 ha in size and are greater than 30 m from another patch do not form part of a mosaic and therefore do not form part of the wider ecological community (TSSC 2013). The total area of coastal saltmarsh in NSW was reported in 1985 at approximately 5700 hectares of fragmented patches (generally less than 100 hectares in size). Further reduction and fragmentation have occurred since the 1985 estimate (NSW Scientific Committee 2016).

The EPBC conservation advice further states that patches less than 0.4 ha are less productive and swamped by external nutrient sources (TSSC 2013).

Upland Swamp EEC	
Assessment of Significance criterion (Seven Part Test)	
h) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	n/a
i) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction	n/a
<p>j) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:</p> <p>iii. Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or</p> <p>iv. Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction</p>	<p>Local occurrence and composition</p> <p>Two small patches of Coastal Saltmarsh of approximately 0.002 ha in total occurs within the concept design footprint and will be cleared as part of the revegetation works and therefore will be directly impacted by the proposal. These patches are greater than 30m away from other saltmarsh patches and therefore are considered to be in isolation from the other communities (TSSC 2013). There are five small patches of saltmarsh communities within 60m of the two patches that are the subject of this test.</p> <p>Assessment</p> <p>Approximately 0.002 ha of two isolated patches of Coastal Saltmarsh will be removed by the proposed action. Patches less than 0.4 ha are generally considered to be less productive and more prone to degradation through external nutrient sources (TSSC 2013). Given the small area to be cleared as part of the proposed development, it is unlikely that there will be adverse effects on the broader ecological community within the LGA, specifically given that there are patches within 60m of the two small patches to be cleared. The removal may have a moderate impact on the local occurrence of this community, but given the small area of removal, it is unlikely to be a significant impact on the regional occurrence.</p> <p>Potential indirect impacts to surrounding patches to remain were considered from potential changes in hydrology from the seawall. The stormwater basin outlets will be positioned away from the extant patches and the rock sea wall are on the opposite side of the patches and will not likely have any adverse changes to hydrology. The sea wall is likely to improve the water quality by minimising erosion affects to the banks of the creek, therefore potentially contributing to improving the locally remaining patch health.</p> <p>The removal of the two small patches on site is not considered to have an adverse effect on either the extent or composition of the EEC such that this local occurrence within the Arrawarra estuary is placed at risk of extinction (i.e. the two local</p>

Upland Swamp EEC	
Assessment of Significance criterion (Seven Part Test)	
<p>populations that are isolated will be removed, however this will not impact the surrounding communities as it is not a significant patch).</p>	<p>Two small patches of Coastal Saltmarsh of approximately 0.002 ha occurs within the concept design footprint and therefore will be directly impacted by the proposal. These patches are considered isolated from the other surrounding patches. Given the size of the patches and the potential of degradation to patches less than 0.4 ha, this is not considered to have an adverse effect on the wider salt marsh communities present in the surrounding areas.</p> <p>Habitat fragmentation</p> <p>The proposal constitutes the clearing and subdivision of four lots at Arrawarra Caravan Park which will result in the removal of two patches of Coastal Saltmarsh of approximately 0.002 ha in total. As these small patches are considered to be in isolation of the other larger patches (given that they are more than 30 m away), they are considered isolated (i.e. already fragmented) and do not contribute to the other communities as a source of propagules. The proposed action is therefore unlikely to significantly contribute to the fragmentation and isolation of Coastal Saltmarsh habitat within the local area.</p> <p>Importance of habitat to be impacted</p> <p>The proposal will result in the removal of two patches of Coastal Saltmarsh of approximately 0.002 ha in total. As these small patches are considered to be in isolation of the other larger patches (given that they are more than 30 m away), they are considered isolated and do not contribute to the other communities as a source of propagules (TSSC 2013). Patches less than 0.4 ha are less likely to remain functionally viable (TSSC 2013). Furthermore, five larger patches exist within 60m of the two isolated patches.</p> <p>The habitat potentially affected by the proposal is not considered to be of importance to the long-term survival of the EEC within the Arrawarra estuary.</p>
<p>k) In relation to the habitat of a threatened species, population or ecological community:</p> <p>iv. The extent to which habitat is likely to be removed or modified as a result of the action proposed, and</p> <p>v. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and</p> <p>vi. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.</p>	<p>To date, critical habitat has not been declared for this EEC under the TSC Act.</p> <p>A Recovery Plan does not exist for the Coastal Saltmarsh EEC, however the EPBC Conservation Advice (DoE 2013) nominates the following key priority conservation actions:</p> <ul style="list-style-type: none"> f) Avoid native vegetation clearance and destruction of the ecological community and its buffer zones g) Collate effective policies and management actions to support widely disseminate best practice and lessons learnt
<p>l) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)</p>	<p>m) Whether the action proposed is consistent with the objectives or actions of a Recovery Plan or Threat Abatement Plan</p>

Upland Swamp EEC	
Assessment of Significance criterion (Seven Part Test)	
<p>n) Whether the action proposed constitutes or is part of a Key Threatening Process (KTP) or is likely to result in the operation of, or increase the impact of, a KTP</p>	<p>h) Undertake surveys to identify areas where natural retreat of Coastal Saltmarsh may be possible and actively manage them</p> <p>i) Undertake effective community engagement and education to promote Coastal Saltmarsh community highlighting the importance of minimising disturbance, pollution and littering</p> <p>j) Promote the inclusion of Coastal Saltmarsh protection and projected tidal inundation zones into coastal zone management</p> <p>The proposal is inconsistent with the above conservation action as native vegetation is to be cleared as a result of the proposed action.</p> <p>KTPs (OEH 2016) that are likely to be exacerbated by the proposed action include:</p> <ol style="list-style-type: none"> 4. Alteration to the natural flow regimes of rivers, streams, floodplains & wetlands; 5. Clearing of native vegetation; 6. Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants 7. Loss of hollow-bearing trees; and 8. Removal of dead wood and dead trees. <p>This community is mainly associated with the sandy shores of the estuary with no canopy cover. Other than (2) and (4) above, it is anticipated that each of these KTPs will be mitigated through on-site management (e.g. drainage design, weed management and habitat translocation). As the patches are going to be removed, changes to hydrology will not cause any impact, however the rocks will not likely increase flows due to their roughness (i.e. they will not create a smooth surface). Furthermore, the patches that will remain are on the opposite side to the rockwall, with the rockwall likely locally improving local water quality through reducing erosion.</p> <p>The clearing of native vegetation is unavoidable but is minimal as the site is highly modified and is currently used as a caravan park, however would not be expected to have a significant impact on the two patches of saltmarsh if they were to remain given the open nature of the saltmarsh habitat. It is expected that only 0.002 ha of Coastal Saltmarsh vegetation will require removal.</p>

Conclusion

Approximately 0.002 ha Coastal Saltmarsh will be removed by the proposal. Alterations in the hydrological regime of the area are expected to be small, and therefore unlikely to significantly impact adjacent patches of this EEC. Patches of Coastal Saltmarsh that remain in Arrawarra Estuary will not be significantly impacted by the proposal. The small size of the two patches to be cleared (collectively approximately 0.002 ha) are likely to be less productive and more likely to be prone to degradation (TSSC 2013). Furthermore, the habitat potentially affected by the proposal is not considered to be of importance to the long-term survival of the EEC within the locality given they are not considered to contribute to the sharing of propagules.

Therefore, it is considered that the Coastal Saltmarsh EECs within the Arrawarra estuary are unlikely to be significantly affected by the proposed action as the two small isolated patches do not form part of the community. A Species Impact Statement is not recommended.

References

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DoE, 2016, *Subtropical and Temperate Coastal Saltmarsh in Community and Species Profile and Threats Database*, Department of the Environment, Canberra. Available from <http://www.environment.gov.au/sprat>. Accessed 24 June 2016.

DoE, 2013, Environment Protection and Biodiversity Conservation Act 1999 s266B, Conservation Advice for Subtropical and Temperate Coastal Saltmarsh. This conservation advice was approved by the Minister/Delegate of the Minister 2013.

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OEH, 2016, *Key Threatening Processes*, NSW Office of Environment and Heritage (OEH). New South Wales Government, Sydney, available from: <http://www.environment.nsw.gov.au/threatenedspecies/KeyThreateningProcessesByDoctype.htm>, accessed 24 June 2016.

NSW Scientific Committee, 2016, *Coastal saltmarsh in the NSW North Coast, Sydney Basin and South East Corner bioregions* - endangered ecological community listing: NSW Scientific Committee Final Determination, available from: <http://www.environment.nsw.gov.au/determinations/CoastalSaltmarshEndSpListing.htm>, accessed on 24 June 2016.

Threatened Species Scientific Committee (TSSC) (2013). *Commonwealth Conservation Advice for Subtropical and Temperate Coastal Saltmarsh*. Canberra: Department of Sustainability, Environment, Water, Population and Communities.