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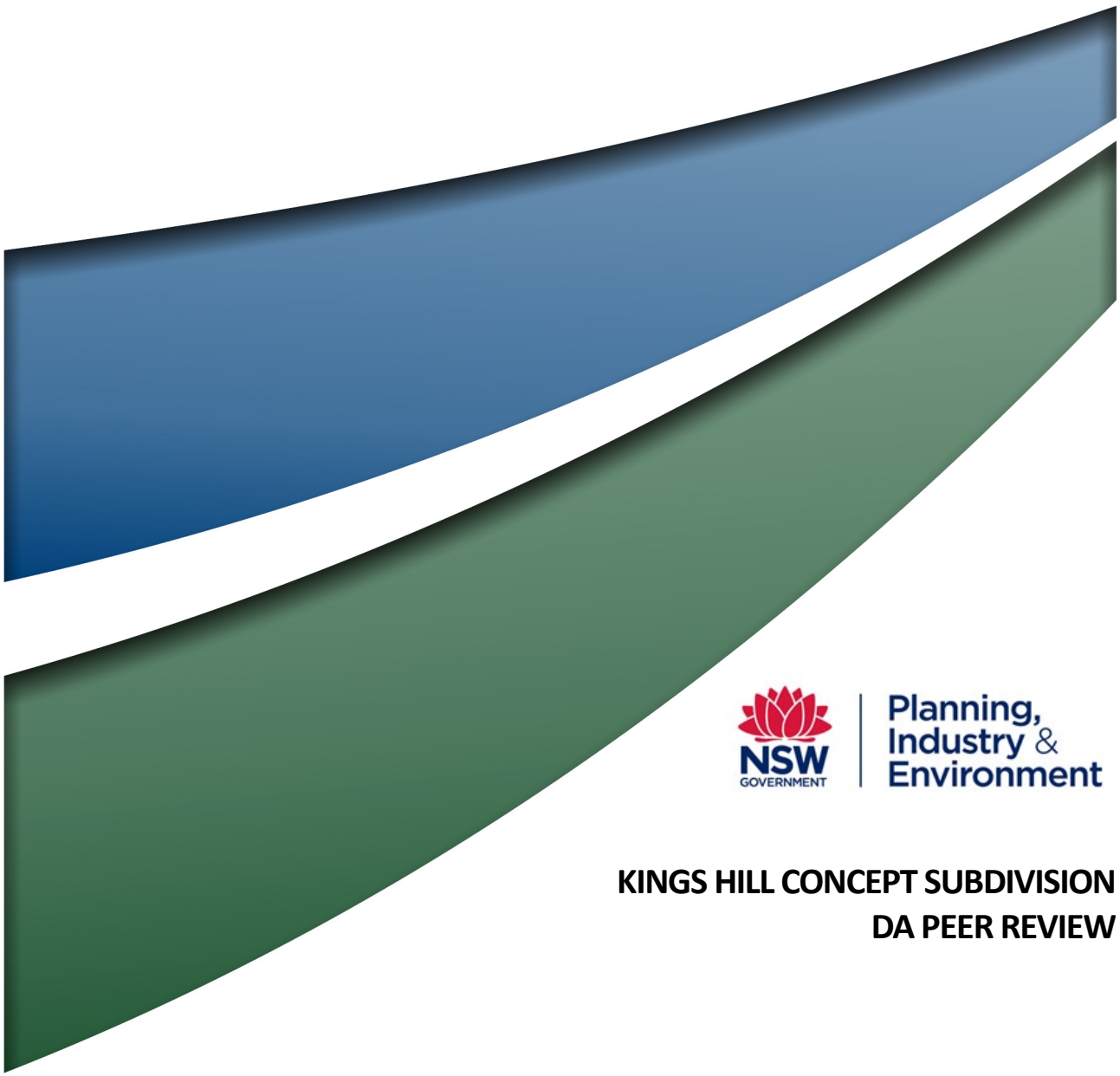

NSW GOVERNMENT | Planning, Industry & Environment

KINGS HILL CONCEPT SUBDIVISION
DA PEER REVIEW

ADDENDUM

October 2021

KINGS HILL CONCEPT SUBDIVISION DA PEER REVIEW

ADDENDUM

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Department of Planning, Industry & Environment

Project Director:	Travis Peake
Project Manager:	Allison Riley
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Newcastle

75 York Street
Teralba NSW 2284

T| 1300 793 267
E| info@umwelt.com.au

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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
1	Allison Riley	1 October 2021	Travis Peake	1 October 2021

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1.0 Introduction

The Hunter and Central Coast Regional Planning Panel ('The Panel') deferred determination of a regionally significant development application - PPS-2018HCC047 (Port Stephens Council DA 16-2018-772-1) at 3221 Pacific Highway Kings Hill and 35 Six Mile Road Kings Hill following a public meeting on 22 December 2020. The DA is for a concept residential subdivision of 1900 lots to be completed over 33 stages. The site is approximately 517 hectares (ha) with just over 311 ha zoned for urban purposes and 205 ha zoned E2 Environmental Conservation.

The DA is supported by a suite of documents which includes a Species Impact Statement (SIS) (Kings Hill Development Species Impact Statement (RPS 2020)). The DA was lodged on 23 November 2018 and is being assessed under former planning provisions. The SIS concludes that with avoidance and mitigation measures proposed, there will be no significant impact on threatened species, populations or ecological communities. Council and an independent ecologist (Matt Doherty of MJD Environmental) engaged by the Council support this conclusion. If this conclusion is accepted, concurrence of the Chief Executive of OEH (now Coordinator-General, Environment, Energy and Science (EES)) is not required.

Umwelt was engaged by the Department of Planning, Industry and Environment (DPIE) to undertake a peer review of biodiversity matters relating to the Kings Hill Concept Subdivision Development Application (DA). The peer review was finalised in May 2021, and subsequently the Panel has considered the outcomes and has engaged with Council and the applicant in relation to the findings.

Following a Joint Expert Meeting between Umwelt and RPS (the Applicant's biodiversity specialist) on 16 June 2021, and a briefing of the Panel by the applicant on 17 June 2021, the applicant provided further information and analysis to support the outcomes of the SIS.

Umwelt was engaged by DPIE to undertake a review of supplementary information provided by APP in correspondence of 29 July 2021. The outcome of that review is provided in this Addendum report.

1.1 Approach to Addendum Report

Umwelt has reviewed and provided additional commentary on the RPS Memo (27 July 2021) and Kings Hill Concept DA Memorandum of Advice from TF Robertson SC on (28 July 2021) that are appended to correspondence from APP corporation on 29 July 2021.

This report should be read in conjunction with the Kings Hill Subdivision DA Peer Review (Umwelt 2021).

The 10 summary points provided in the APP correspondence have formed the basis for the structure of this report with **Table 1.1** providing a summary of Umwelt's response and further detail provided in **Sections 2.1** to **2.2** below.

Table 1.1 APP correspondence - 10 summary points

APP Key Guidance Summary (APP Memo 29 July 2021)		Umwelt Response
a	The Panel has no power to decide whether concurrence is required: that is a function given exclusively to Council;	Outside the scope of Umwelt's assessment.
b	Even if Council decided that concurrence was required, the concurrence authority has no power to refuse concurrence because the DA did not propose offsetting any residual impacts on biodiversity, or to impose a condition on its concurrence to require offsetting for that purpose;	Outside the scope of Umwelt's assessment.
c	Neither the Threatened Species Guidelines nor the seven-part test is a focal point for consideration of biodiversity issues, wherever arising in the determination of the application;	Outside the scope of Umwelt's assessment.
d	Neither is exhaustive of the matters to be considered in determining those issues;	Outside the scope of Umwelt's assessment.
e	In deciding if the DA involves likely significant impacts on threatened species or their habitats, or in deciding to grant or refuse consent, the decision-maker must consider the mitigation measures including the proposal to enhance the carrying capacity of the conservation reserve for koala, phascogale and other species;	Agreed. The decision-maker must consider the mitigation measures proposed in the SIS when making its assessment. Umwelt has considered the full range of impact avoidance and mitigation strategies that have been proposed and described in the SIS.
f	Offsets compensate for residual impacts of the project on biodiversity, mitigation measures reduce the likely impacts of the proposal: reserving part of the existing habitat and enhancing its carrying capacity by ecological restoration is not an offset, in the context of this DA;	Umwelt accepts that the 'conservation area' described in the SIS and other impact avoidance and mitigation measures proposed do not constitute an 'offset' in the context of this DA. Further discussion is provided in **Section 2.1** below.
g	The threatened species guidelines cannot require decision-makers to ignore mitigation measures, if they have been incorporated in the DA. It is obligatory to consider the development proposal as a whole, including its proposals for ecological restoration and adaptive management;	Agreed, the decision maker is required to consider the development proposal as a whole, including mitigation measures.
h	Restoration of koala habitats by tree species selection is a critical path of the Government's Koala Strategy (2018), is recommended by DPIE's Koala Habitat Revegetation Guidelines (2020), and is supported by over 40 years scientific research into koala habitat preferences: to describe the SIS prescriptions as novel is to disregard evidence even if that is the correct question to ask, which it is not;	Further discussion of the restoration of koala habitats by tree selection is provided in **Section 2.1** below.
i	Umwelt has adopted a legally flawed approach to the threshold question of significant impact, and it has disregarded evidence that the threshold of significance has not been exceeded;	Disagree. Further discussion of Umwelt's assessment of the threshold of significance is provided in **Section 2.1** below.

APP Key Guidance Summary (APP Memo 29 July 2021)		Umwelt Response
j	The SIS correctly determined and additional research has confirmed that the area to be cleared does not largely comprise an EEC.	Disagree. Further analysis of the extent of Lower Hunter Spotted Gum Ironbark EEC occurring in the development area is inadequate to reasonably find that PCT 1950 is strongly inconsistent with the LHSGIF EEC. Further details are provided in **Section 2.2** below.

2.0 Detailed Responses to Points of Contention

Umwelt undertook a thorough review of all of the additional information presented in APP's correspondence and considered all of the points raised on their merits. As identified in **Table 1.1**, additional information is provided below to respond to APP's letter of 29 July 2021.

2.1 Additional Consideration of Impacts to Koala

TR Robertson SC has provided additional commentary in relation to the impact of the Project on the koala, specifically in relation to the proposed nutrient enrichment program and the significant impact threshold. No new data or revised assessment was provided to support the Applicant's position of no significant impact.

The total area of habitat on the site for the koala was estimated to be approximately 152 ha, based on the presence of koala feed trees, and the presence of a known breeding population of the koala.

The conclusion reached in Section 8.2.20.5 of the SIS that the proposal will not result in a significant impact on the koala, is based on the following:

- A total of 38.47 ha or 12.9% of KHD's land zoned R1 is to be excluded from development and incorporated into a conservation area
- Revegetation of cleared areas with preferred koala food trees
- Establishment of koala fencing, road grids and bridges to mitigate impacts associated with proposed residential development
- A revegetation program comprising the establishment of swamp mahogany (Eucalyptus robusta) in detention basins that will be located within the Proposal impact footprint. These canopy species may be available to the koala for foraging purposes following maturation, and
- Intra-forest enrichment plantings with the purpose of increasing foliar nutrient value across the conservation area.

The SIS contends that additional compensatory measures are not considered necessary (i.e. the proposal, inclusive of the amelioration measures specified in the SIS, is not likely to have a significant impact on affected species), however compensatory measures are proposed to further safeguard and strengthen the protection of local habitat for threatened species, including notably the koala (RPS 2021). A total of 189.46 ha of known koala habitat is proposed to be retained and managed in-perpetuity in the proposed conservation area. Umwelt accepts that this retained conservation area does not constitute an 'offset' in the context of this DA.

2.1.1 Nutrient Enrichment Program

It is agreed that restoration of koala habitat through the targeted planting of preferred koala food trees is key to arresting the ongoing decline of koalas across their range, through revegetating cleared lands,

rebuilding and strengthening corridors, and decreasing the distance between forest patches. Umwelt's peer review determined that the nutrient enrichment program is likely to provide highly valuable insights into the long-term conservation status of the koala.

Umwelt notes in response to additional information provided by the Applicant:

- The Applicant's expert, Dr Frank Lemckert, described the nutrient enrichment program as 'relatively novel', when requested to provide feedback on the nutrient enrichment program (EcoLogical 2020).
- Dr Lemckert does not provide any commentary on the effectiveness of the nutrient enrichment strategy to mitigate the impacts of the proposal such that the local population of koala will not be placed at risk of extinction.

Whilst it may contribute to an increase in preferred koala food trees and availability of nutrients/foraging habitat in a generally nutrient poor ecosystem if the program is successful, the proposed forest enrichment program should not be relied on as an impact mitigation strategy for the koala that would materially reduce the risk of the project having a residual significant impact on the koala as the risk of failure for this program also needs to be considered on its merits.

Section 4.2.1.6 of the Biodiversity Management Plan (BMP) relates to the monitoring of revegetation/ enrichment plantings. Monitoring of tree plantings is proposed to measure success against performance targets. In accordance with the BMP, all planted trees are to be inspected to evaluate survivorship for the first two years. If alive, the tree height is to be measured for growth rate evaluation. If dead, recommendation for replacement is to be evaluated following consideration of performance measures. Monitoring post the initial two year period is to randomly sample 10% of plantings annually.

The monitoring and adaptive management settings prescribed under the BMP raise further uncertainty and risk in relation to the successful implementation of the nutrient enrichment program. The following are considered to increase the risk of failure:

- Monitoring and management timeframe – the five year monitoring program outlined in the BMP is considered to be inadequate in both time and scope to ensure the success of the program.
- No surety in relation to failure – after 2 years only 10% of seedlings are monitored and therefore it is considered that there is high risk of failure, especially if management and monitoring works are only undertaken during the 5 year life of the BMP.
- The BMP does not provide a trigger action response plan (TARP). A TARP identifies what actions are undertaken if monitoring and adaptive management identify that the nutrient enrichment program has failed in its establishment or in delivering the prescribed outcome. For example, if the BMP gave surety that the direct impacts of the proposed development would be offset in the event that the program failed in its objectives, the ability to avoid a significant impact on the koala would be more likely.

As noted in the original peer review (Umwelt 2021), the nutrient enrichment program described by the SIS and proposed as part of the impact mitigation strategy is likely to provide highly valuable insights into the long-term conservation status of the koala. If successful, the program could deliver higher quality koala foraging habitat than what is currently present on site and support the local koala population in the future. However, if the program does not deliver the outcomes predicted, the local viable population of the koala may be placed at risk of extinction.

Further consideration should also be given to the impact of the proposed nutrient enhancement program on the integrity of the LHSGIF EEC that is considered likely to occur widely in the study area (refer to **Section 2.2** for further information).

2.1.2 Significant Impact Threshold

The Applicant's biodiversity specialists RPS, in preparing the SIS, identified the local population as the koala 'hub' as defined by Phillips (2017). Umwelt accepts this approach and reviewed the context of the impacts accordingly. Additional information based on genetic studies was included in the SIS, however it is incorrect to suggest that Umwelt disregarded that evidence.

It appears from the information presented in the TR Robertson SC attachment, that the Applicant has reached its non-significant impact conclusions based on the premise that the local population of the koala, of which the individual animals and habitat present in the study area form part, occurs across a very large tract of forested and fragmented land stretching from Port Stephens to south of Port Macquarie, on the mid-North Coast. And because of the size of that population, the proportional impacts associated with the development are insignificant so long as the measures proposed in the SIS to mitigate impacts are followed (para 81).

RPS has not provided an updated assessment of significance that clarifies their position in relation to the impacts of the proposed development on a broader viable local population definition than that provided in the SIS.

TR Robertson SC examines What is a "viable local population"? in paragraphs 70 to 82 of the correspondence provided by APP. TR Robertson SC makes the following suggestions:

> *Para 79: I suggest that what describes a viable local population is the minimum area of usable habitat which enables the koala to reproduce successfully over several generations and to maintain the gene flow necessary for a healthy population.*
>
> *Para 80: There is some population data in the SIS, with an assessment by Dr Phillips of 50 animals as a minimum viable population and about 900 ha as an estimate of the area of habitat necessary (at least here where most habitat is secondary, not primary) to sustain that population. He did not expect the subject land to sustain more than about 27 koalas, and the area to be displaced ultimately by urbanisation had a nominal carrying capacity of 8 koalas, of which 3 can inhabit the restored wetlands. However, OWAD's scat and genetic analysis found only 10 individuals, which is consistent with the area comprising disturbed secondary habitat, with existing threatening processes. It is obvious from the genetic work that the koalas interbreed beyond the site, assisted by existing corridors.*

Umwelt has no doubt that koalas interbreed beyond the site, however the SIS did not determine a definitive population size, with different methods yielding different results (OWAD 2019a; Phillips 2019) and each of the methods having their limitations. We note that many of the areas in the study area were not accessible to the detection dogs which may have underestimated the number of individuals occupying the site, and Section 8.3 of OWAD (2019a) clearly articulates that the works undertaken as part of the study 'does not represent a population census for the subject site. Indeed the survey performed in this study was

not a full search of the subject site, but sampling only. Moreover, obtaining reliable census would require several rounds of genetic sampling as a form of 'mark recapture' sampling program'.

Following review of the additional information provided by the Applicant, we understand that Umwelt and the Applicant agree that approximately 341 ha of known (including breeding) habitat occurs, of which 152 ha will be directly impacted. Umwelt and the Applicant agree that the habitat is secondary koala habitat.

In assessing a local development, Umwelt believes that Dr Phillips' 900 ha Koala 'hub' is a more appropriate measure to consider the impacts on a local viable population of the species, rather than the broader Port Stephens to Port Macquarie population that has been suggested based on the genetic evidence. As noted above, RPS identified Dr Phillips' 900 ha Koala 'hub' as the viable local population in the assessment of significance provided in the SIS (refer to Section 8.2.20.4 of the SIS). It is considered that the genetic evidence presented in the SIS and the additional information provided by the applicant, likely corresponds to the regional population (or meta-populations) mapped by DPIE (2020) and known as Areas of Regional Koala Significance (ARKS). The proposed development falls within the Wang Wauk ARKS. The NSW Koala Monitoring Framework, released by DPIE since the preparation of both the SIS and Peer Review, and referred to by Mr Robertson, does not identify a local population that is relevant to the proposed development.

The direct impact to 152ha of known koala habitat is not expected to be adequately counterbalanced by the nutrient enrichment program and the conservation of approximately 189ha of existing known habitat. The proposed development will result in an overall decrease in the extent of occupancy of the local population and the Applicant's biodiversity specialist (RPS) consider the habitat to be removed as potentially regarded as important to the long-term survival of the species in the locality (refer to Section 8.2.20.4 of the SIS). The proposed development will also introduce barriers, reduce connectivity (despite the implementation of mitigation measures designed to address this issue) and reduce the overall area of occupancy of the species.

Therefore, rather than the impact being 'insignificant' (TR Robinson SC, para 81), in relation to the threshold of significance, there is a real chance or possibility that the loss of approximately 152 ha of known koala habitat in the Port Stephens LGA will result in a significant impact on a viable local population of the koala, even after taking into account all of the impact avoidance and mitigation strategies presented in the SIS and the risk of failure of those strategies.

2.2 Analysis of Additional LHSGIF EEC Information

In a memo dated 27 July 2021, RPS provided an assessment of the similarity of PCT 1590 (as represented at the Kings Hill site by plot data from Cumberland Ecology and RPS) against floristic data newly sampled from 6 sites regarded by the author as representative 'reference' sites of the Lower Hunter Spotted Gum Ironbark Forest EEC (LHSGIF EEC). Summarised features of this assessment include:

- 3 floristic plots sampled in Columbey National Park, regarded as reference sites by the author
- 3 floristic plots sampled in Werakata National Park, regarded as reference sites by the author
- Brief methodology on data analysis
- Presentation and interpretation of statistical analyses

- Conclusion, with the findings supporting the position presented in the SIS
- Appendix containing floristic data obtained from the reference sites.

No methodology was provided on the manner in which reference sites were chosen and deemed to be suitably representative; the location of the reference sites was not provided (other than a general map); statistical analysis presented comparisons between PCT 1590 and the reference sites, and PCT 1584 (which was never in question as being non-EEC) and the reference sites, but no analysis was provided of the similarity between PCT 1600 (regarded at the Kings Hill site as adequately conforming to the EEC). Umwelt corresponded with RPS, via email, on 27 and 29 September 2021, with specific questions, and RPS responded promptly. The further information supplied has been taken into account in this assessment.

Umwelt has reviewed all of the additional information, including further emails provided, and has reached the conclusion that the additional information does not definitively remove the reasonable possibility that PCT 1950 corresponds in whole, or part, with LHSGIF EEC. There remains a reasonable likelihood, at least, that this EEC is present and will be affected by the proposed development (including actions within the Conservation Area (**Section 2.1.1**)). There is therefore a reasonable likelihood, at least, of a significant impact on this EEC. Umwelt's reasoning for this is based on multiple lines of evidence, or lack of definitive evidence, and is summarised in the following sections.

2.2.1 Selection of Reference Sites

It is beneficial to assess the floristic data from the subject site against floristic data collected at suitably located reference sites. RPS has undertaken such sampling, collecting data from 3 sites each at Columbey National Park (Clarence Town) and Werakata National Park (Cessnock). The following observations are made regarding the reference sites:

- Limits of range: Six reference sites were sampled, from 2 geographic localities (3 each), to compare the 46 PCT 1590 sites against. Three of the reference sites are located in Columbey NP, near Clarence Town. Clarence Town is listed as being at the geographical limit of the known distribution of the EEC. It would have introduced more robustness and less uncertainty to sample more reference sites in the core part of the EEC's known range, being the Beresfield-Cessnock area.
- Overall reference site suitability: Umwelt has plotted the grid locations of the reference sites (provided by RPS in subsequent email) and confirms that their location with mapped LHSGIF units is appropriate.

2.2.2 Statistical Analyses

RPS provided various statistical analyses to assess the floristic similarity, or otherwise, between PCT 1590 and the LHSGIF EEC. The analyses were presented in various formats: similarity matrix; dendrogram; scatter plot (nMDS plot); and floristic composition table for each statistically significant cluster group. The following observations are made on the statistical analysis approach and outcomes:

- Analysis breakup: For a reason that is not explained, other than that it is consistent with the SIS, the analyses are undertaken in two separate data batches: Cumberland Ecology data + LHSGIF EEC references sites; and RPS data + LHSGIF EEC reference sites. The data are not combined and presented in one comprehensive output.

- Consideration of PCT 1600: The focus of the analysis is on the consistency, or otherwise, of PCT 1590 and LHSGIF EEC reference sites. No observations are made by the author on PCT 1600, which has been accepted by RPS and Umwelt as comprising the LHSGIF EEC on the site. Evidence in the dendrograms (p. 8 of the memo) and the nMDS plot (p. 9 of the memo) indicates that PCT 1590 is much more closely related to the LHSGIF EEC reference sites than is PCT 1600. These were not labelled by RPS, and this information only came to light during correspondence between Umwelt and RPS.

- nMDS plots demonstrate likely continuum: The nMDS plots displayed on p. 9 and p. 12 of the RPS memo show that the PCT 1590 plots 'abut' the LHSGIF EEC reference plots, slightly separated by a small gap between 40% similarity contours relied upon by the author. This is consistent with the notion that LHSGIF EEC grades into the Somerville (2009) MU 67 (see **Section 2.2.4**), and reinforces the complexities that occur at the edge of geographical ranges, as demonstrated above by the placement of PCT 1590 between the LHSGIF EEC reference sites and PCT 1600 (=LHSGIF EEC) in the nMDS plot on p. 9.

- Overall findings on statistical analyses: Notwithstanding the above, the statistical analyses do lend evidence to the RPS position that PCT 1590 is not strongly consistent with LHSGIF EEC. Rather, the analyses confirm that PCT 1590 exhibits elements of the LHSGIF EEC, as well as elements of an ecological community/s that is possibly not the EEC. This is consistent with its location at the edge of the known distribution of the EEC. While the statistical analyses lend weight to the RPS position, it does not dispel Umwelt's view that the LHSGIF EEC has not been reasonably proven to be absent from the site where PCT 1590 occurs.

2.2.3 Contradictory Knowledge

Some of the new evidence, and pre-existing views, contradict the notion that PCT 1590 at Kings Hill is not the LHSGIF EEC. These observations follow:

- PCT 1600: RPS and Umwelt accept that PCT 1600 at Kings Hill is consistent with the LHSGIF EEC. Interestingly, the dendrogram (p. 8 of the memo) and the nMDS plot (p. 9 of the memo) indicate that PCT 1600 is less closely related to the LHSGIF EEC reference sites than is PCT 1590.

- Focus on Somerville (2009) MU 65: An important part of the RPS focus has been that PCT 1590 is consistent with Somerville (2009) MU 65. There is a presumption that consistency with MU 65 equals the absence of LHSGIF EEC. However, there is no place in the Final Determination that states this. Paragraph 4.6 of the Final Determination contains the only mention of MU 65. Importantly, it does not state that MU 65 is not consistent with the EEC. It does state the following: Lower Hunter Spotted Gum Ironbark Forest grades into Spotted Gum/Broad-leaved Mahogany/Red Ironbark moist shrubby open forest (MU 65 of Somerville 2009b) in areas with similar edaphic properties but receiving a higher average annual rainfall [bold text is Umwelt's emphasis]. The implication of this statement is that LHSGIF EEC gradually turns into MU 65. It is reasonable to accept that there is an implicit understanding that the most complex form of MU 65 is not the EEC; however, it is also reasonable to assume, especially through application of the Precautionary Principle, that ecotones between the EEC and MU 65 could reasonably be regarded as being consistent with the EEC Final Determination. The Final Determination makes it clear that the EEC is part of a continuum: Lower Hunter Spotted Gum Ironbark Forest belongs to a continuum of related ecological communities which have been described and iteratively refined following incremental additions to a regional quantitative floristic survey dataset (NPWS 2000; Peake 2006; Somerville 2009a, 2009b; Sivertsen al. 2011; Bell 2013).

- Overall findings on contraindicative knowledge: The assessments above point to knowledge that contradicts to the RPS proposal that PCT 1590 is inconsistent with the LHSGIF EEC. The contradictory knowledge is consistent with a complex interchange (ecotone) of PCTs at the edge of their distributional limits.

2.2.4 Reasonable Doubt

As suggested by the observations above, the new data and analyses provide useful information, much of it supportive, to some extent, of the notion that PCT 1590 at Kings Hill is not entirely consistent with the LHSGIF EEC. Some of the data points to the very likely situation that Kings Hill occupies a geographic location where LHSGIF EEC grades into other non-EEC vegetation types; that the site is ecotonal. RPS has already identified some vegetation on site (PCT 1600) as constituting LHSGIF EEC. It is also the case that some information is unsupportive of the notion that PCT 1590 is not consistent with the LHSGIF EEC. Overall, given that the data varies between being slightly supportive and supportive of the occurrence of the LHSGIF EEC, it is prudent to apply due caution to an assessment that does not fully refute the presence of the EEC.

In summary, there is reasonable doubt that PCT 1590 is not the EEC; therefore there is an onus to assume it is the EEC if evidence is inadequate.

2.2.5 Conclusion

The further information suggests that some, or all, of PCT 1590 at the site could be reasonably regarded as LHSGIF EEC. Given that the site is located at the known geographic limit of the LHSGIF EEC, this is not surprising. It is reasonably likely that elements of PCT 1590 conform to the EEC, whilst others do not. Umwelt's evaluation is that the data presented in the RPS analysis demonstrate that, more likely than not, PCT 1590 at Kings Hill is occupying an ecotone between LHSGIF EEC and MU 65, and that it exhibits adequate elements of the EEC, as described in the Final Determination, to warrant its assignment as the EEC.

3.0 Conclusion

Following detailed consideration of the additional information provided by the Applicant, the conclusions drawn in Umwelt's peer review in May 2021 stand, specifically in relation to the recommendation that the SIS be referred to the EES (former OEH) for assessment and concurrence. The EES review should consider the range of technical matters identified in this peer review, including the overall adequacy of the mitigation measures and offsets.

4.0 References

The Department of Planning, Industry and Environment (DPIE) (2020) Framework for the spatial prioritisation of koala conservation actions in NSW Iconic Koala Project.

The Department of Planning, Industry and Environment (DPIE) (2021) NSW Koala Monitoring Framework.

umwelt
Environmental & Social
Consultants

Umwelt (Australia) Pty Limited

T| 1300 793 267 E| info@umwelt.com.au www.umwelt.com.au