North East Link Project Environment Effects Statement: Expert Evidence Report for Inquiry and Advisory Committee (IAC)

Stephen Mueck retained by Manningham City Council

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Contents

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Qualifications and experience

Qualifications and training

- Bachelor of Science (Hons), Monash University
- Masters of Environmental Science, Monash University

Professional affiliations and memberships

- Australian Network for Plant Conservation (current member)
- *Pimelea spinescens* Recovery Team (current member)

Professional experience

I have over 35 years of experience in vegetation assessment, management and research and an extensive knowledge of the vegetation of south eastern Australia. This includes over ten years in senior scientific positions with what is now the Department of Environment, Land, Water and Planning (DELWP). While with the Department, I was coordinator of their Forest Flora Unit for 5 years during which I managed components of the Department's Silvicultural Systems Project. This included monitoring forest environments to assess the impact of timber harvesting practices on the flora of the Central Highlands and East Gippsland.

Since becoming a senior botanist with Biosis Research in 1995, I have been senior scientist and project manager on a number of major investigations including assessments for Melbourne's new Wholesale Market, the Environment Effects Statement for BHP's Eastern Gas Pipeline, preparation of management options for Mount Stirling and vegetation mapping for the Central Highlands and Western Regional Forest Assessment Areas. Relevant projects that I have supervised/participated in include:

- Ecological advisor to the Plantations Establishment Advisory Group, which included Australian Paper Plantations, the West Gippsland Catchment Management Authority, local government representatives and the Friends of the Gippsland Bush.
- Certification team ecologist on the SmartWood Scoping Team reporting on Hancock Victorian Plantation's softwood and hardwood operations and their application to be certified under the Forest Stewardship Council (FSC) standards.
- Assessment of the ecological impact of the DELWP and Melbourne Water forest firebreaks establishment program within the Victorian Central Highlands.
- A review of special values protection for Rainforest for DELWP as part of their forest regulation and compliance reform and participation in the reviews relating to threatened species and habitat.
- Assessment of the impact and state and federal offset requirements for a number of significant developments around Melbourne including the Deer Park Bypass, Melbourne Wholesale Markets, Alliance Business Park and the development of Williams Landing.
- Review of the EES for Stages 2 and 3 of the Western Highway, Beaufort to Ararat and Ararat to Stawell for VicRoads.

I have completed numerous flora surveys within most ecological vegetation classes in Victoria, undertaken conservation value assessments, worked on nature reserve design and management, prepared ecological design guidelines for developments and supervised and participated in both large and small scale ecological mapping exercises. I also have experience in preparing and implementing pest plant and animal management plans, am DELWP certified for vegetation quality assessments and have produced numerous plans and assessments for clients to achieve compliance with state and federal biodiversity legislation and policy. I have helped develop novel techniques for assessing and mitigating impacts to threatened flora and fauna. I also possess strong project management skills.

Further details about my qualifications and experience can be found in Appendix 1.

Area of expertise to make this report

General expertise

I have worked extensively with remnant native vegetation, including grasslands, woodlands, wetlands and forest environments, in south eastern Australia for more than 35 years, conducting flora and fauna surveys and providing specialist advice on ecological management within these environments.

I have provided advice on the ecological management and rehabilitation of a broad range of environments. This work has included projects involving the provision of advice on mitigating the environmental impacts of proposed developments and the rehabilitation of these environments after impacts associated with construction works, such as road works and the establishment of other infrastructure.

I have provided advice in similar circumstances to that associated with the development of North East Link (i.e. avoiding, minimising and offsetting unavoidable impacts) in a number of other instances, including the provision of both state and federal offsets in a manner consistent with relevant policies.

I have contributed to a chapter in the third edition of the Guidelines for the translocation of threatened plants in Australia prepared for the Australian Network for Plant Conservation and have been directly involved in the translocation of a number of rare and threatened flora, including Matted Flax-lily.

I have conducted an independent review of the biodiversity related components of the EES for the Western Highway Project Beaufort to Ararat Section 2 and provided updated information for the assessment of Stage 3 Ararat to Stawell.

Limitations

The assessment is a desktop assessment based on the publicly available documentation relating to the North East Link Project.

I am not aware of any undocumented agreements or discussions between the proponent, their consultants and the Department of Environment, Land, Water and Planning (DELWP) and/or the Department of the Environment and Energy (DoEE).

Scope of this report

1. I was requested by Harwood Andrews, acting on behalf of Manningham City Council in relation to the North East Link Environment Effects Statement (EES) process to prepare an expert witness report for circulation that:
   a) provides my opinion on the capacity of the Project to achieve acceptable ecological outcomes having regard to relevant legislation, policy and best practice, including in relation to:
      i) offset requirements for the removal of native vegetation;
      ii) the likely impact of the Project on the Matted Flax-lily and the proposed mitigation measure; and
      iii) the likely impact of modifying parts of Koonung Creek to a covered channel and shading of parts of Koonung Creek by noise walls.
   b) provides any recommendations as to feasible modifications to the alignment or design of the Project that would offer improved outcomes relevant to my area of expertise;
   c) provides any recommendations or specific measures (including any changes to the proposed Environmental Performance Requirements) that I consider necessary and appropriate to prevent, mitigate or offset adverse environmental effects having regard to my area of expertise;
   d) identifies any areas where I consider there to be insufficient information to make an assessment of the environmental effects of the Project, having regard to the current stage of the Project as a 'reference design' with any 'detailed design' to follow the EES process; and
   e) responds appropriately to Planning Panels Victoria's recently updated guide to expert evidence.

Documents and materials considered

2. The following is a list of the documents and materials that I have considered or otherwise used in preparing this report.

Environmental Effects Statement

3. The EES documentation relevant to the ecological values and impacts, including:
    a) Main Report:
        i) Volume 1:
            – Chapter 1: Introduction
            – Chapter 2: Project Rationale
            – Chapter 3: Legislative Framework
            – Chapter 4: EES assessment framework
            – Chapter 6: Project development
            – Chapter 8: Project description
        ii) Volume 3:
            – Chapter 3: Arboriculture
        iii) Volume 4:
            – Chapter 25: Ecology
            – Chapter 27: Environmental management framework
            – Chapter 28: Conclusion
    b) Attachment III Risk Report
    c) Map Book
    d) Technical Reports:
        i) Technical report G Arboriculture; and
        ii) Technical report Q Ecology.

Additional Documents

4. Additional documents included:
    a) final scoping requirements for the EES (June 2018);
    b) IAC terms of reference (11 April 2019);
    c) IAC member biographies;
    d) Council's public submission to the IAC (5 June 2019);
    e) IAC preliminary matters and further information request (20 June 2019), particularly section 9 - ecology;

f) the assessment process for the Project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) described at: https://northeastlink.vic.gov.au/environment/Environment-Protection-Biodiversity-Conservation-Act;

g) Manningham City Council's public submission on the draft Public Environment Report in respect of the EPBC Act referral;

h) Planning Panels Victoria's guide to expert evidence (April 2019).

Other reports, documents and publications

5. BL&A 2019. *North East Link: Peer Review of Ecology Technical Report*. Prepared for North East Link Project. Brett Lane and Associates, Hawthorn. Report No. 18140(5.5). (In: Appendix M of the NELP EES.)
6. Carter O. 2010. *National Recovery Plan for the Matted Flax-lily* Dianella amoena. Victorian Government Department of Sustainability and Environment, Melbourne.
7. Commander L.E., Coates D., Broadhurst L., Offord C.A., Makinson R.O. and Matthes M. 2018. *Guidelines for the translocation of threatened plants in Australia. Third Edition.* Australian Network for Plant Conservation, Canberra.
8. Commonwealth of Australia 2012a. Environment Protection and Biodiversity Conservation Act 1999: *Environmental Offsets Policy*. Australian Government Department of Sustainability, Environment, Water, Population and Communities, Canberra.
9. Commonwealth of Australia 2012b. *Offsets Assessment Guide: For Use in Determining Offsets under the* Environment Protection and Biodiversity Conservation Act 1999. Australian Government Department of Sustainability, Environment, Water, Population and Communities, Canberra.
10. DELWP 2017. *Guidelines for the removal, destruction or lopping of native vegetation*. Victorian Government Department of Environment, Land, Water and Planning, Melbourne.
11. DELWP 2018. *Assessor's Handbook: Applications to Remove, Destroy or Lop Native Vegetation*. Victorian Government Department of Environment, Land, Water and Planning, Melbourne.
12. DSE 2004. *Native Vegetation: Sustaining a Living Landscape. Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectare Scoring Method*. Victorian Government Department of Sustainability and Environment, Melbourne.
13. Vallee L., Hogbin T., Monks L., Makinson B., Matthes M. and Rossetto M. 2004. *Guidelines for the Translocation of Threatened Plants in Australia - Second Edition*. Australian Network for Plant Conservation, Canberra.

Summary of expert opinion

14. North East Link Project (NELP) has collected the basic information required to assess the footprint for the reference design project.
15. While the project appears to have avoided and minimised its impact on native vegetation, NELP has not identified where offsets prescribed under the Victorian Guidelines for the Removal, Destruction or Lopping of Native Vegetation (DELWP 2017) are to be sourced. This is inconsistent with the requirements of these clearing guidelines.
16. Offsets for Grey-headed Flying-fox and Yarra Pygmy Perch are not identified in sufficient quantity from any existing offset providers identified by DELWP. The provision of prescribed offsets for these species is therefore unconfirmed and is likely to be difficult. At my meeting with the relevant NELP experts on 10 June 2019, it was indicated that NELP was seeking to identify these offsets prior to the approval of the project.
17. The potential for offsets to be secured from existing habitat on land owned and managed by Manningham City Council does not appear to have been investigated.
18. The potential impacts to Matted Flax-lily *Dianella amoena*, as a matter of national environmental significance, are considered to be understated.
19. No offsets are proposed for Matted Flax-lily under the assumption that translocation will mitigate all significant impacts on the species. This is considered inconsistent with the EPBC Act Environmental Offsets Policy and the impact assessment provided in the Public Environment Report (PER). The EES assumes that the Department of the Environment and Energy (DoEE) will approve translocation as a complete mitigation measure.
20. The Matted Flax-lily translocation plan does not identify any suitable recipient site and the plan itself requires considerable revision to bring it up to an appropriate standard.
21. If offsets under the EPBC Act Environmental Offsets Policy are required for Matted Flax-lily, which is considered likely, this will pose a significant difficulty for the project.

Expert opinion

Offset requirements for the removal of native vegetation

22. The basic information for any ecological assessment is the data collected to describe the existing conditions of the area likely to be impacted. This information is provided by Technical Report Q: Ecology, prepared by GHD (Melbourne) and subsequently reviewed by BL&A (2019), as provided in the Technical Report Q: Appendices Ecology.

23. Technical Report Q addresses the scoping requirements of the EES and provides the relevant information to assess the direct and indirect impacts of the project reference design. While this is generally done in a manner consistent with relevant State and Commonwealth policies, not all of these requirements are adequately outlined.

24. The primary policy/strategy defining native vegetation and the permit requirements for the clearing of native vegetation under the Victorian *Planning and Environment Act 1987* is the Guidelines for the Removal, Destruction or Lopping of Native Vegetation (DELWP 2017) (the Clearing Guidelines). At the Commonwealth level, offsets are typically defined using the EPBC Act Environmental Offsets Policy (Commonwealth of Australia 2012a) and utilising the EPBC Act offset calculator as a guiding tool (Commonwealth of Australia 2012b).

25. The assessments used to prepare Technical Report Q utilised all the relevant protocols to identify the location, extent and condition of native vegetation including patches of native vegetation and scattered trees. This includes the presence of large trees (LTs) (both within patches and as scattered trees), allocation of patches of native vegetation to a defined ecological vegetation class (EVC) and the application of the habitat hectare assessment protocols (DSE 2004) to assess the condition of patches of native vegetation. As indicated in the BL&A (2019) peer review provided in the appendices for Technical Report Q, the technical report appears to appropriately, accurately and comprehensively describe the native vegetation and threatened species habitat potentially impacted by the project in a manner prescribed by the Clearing Guidelines.

26. The habitat hectare scores collected for this vegetation appear to be correct and consistent with the prescribed protocols (DSE 2004). The only way to confirm this information would be to conduct a field assessment of the relevant patches and repeat the scoring assessment. However, the scores provided appear to be consistent with my experience in this region and no aberrant scores were noted in the information provided (i.e. Table 28 in Technical Report Q).

27. The assessment also identified 92 LTs within patches, 55 scattered LTs and 115 small trees within the project reference design. An additional 32 scattered LTs were assessed as likely to be lost through indirect impacts (ground water changes) and were correctly added to the impact assessment.

28. This information provides the foundation spatial and attribute data for the project's reference design. Any subsequent design changes that would reduce the impact on native vegetation can draw on this data to refine the project's impact assessment and offset prescription.

29. While Technical Report Q Appendix J provides a DELWP-generated Native Vegetation Removal Report for the reference design (dated 8 February 2019), it does not provide an offset statement providing evidence that an offset or offsets that meet(s) the offset

requirements for the native vegetation to be removed has been identified and can be secured in accordance with the Clearing Guidelines.

30. An offset statement is a requirement of the Clearing Guidelines (see Number 9 in Table 4 of the Clearing Guidelines) and without it, there is no assurance that the project can achieve the State Planning Policy Framework (SPPF) objective of 'no net loss' of biodiversity values. While the report clearly indicates that the offset requirements are not final and may change, the provision of an offset statement for the reference design would provide a clear indication that the project offsets could be met.

31. Instead of providing an offset statement, the EES outlines a process whereby an offset strategy will be defined and the offsets would only be confirmed once the project design is finalised. This suggests that suitable offset sites would only be identified once the design is confirmed after the approval of the project. This is contrary to the normal approvals process and does not represent a good assessment and approvals procedure at either the State or Commonwealth level.

32. The EES indicates that there is a degree of confidence that the project's footprint will be reduced during the detailed design process. However, this does not absolve the proponent of the need to prepare an offset statement before planning approval is sought. DELWP, in their role as a referral authority for planning permit applications to clear native vegetation, routinely requests further information from a proponent if the source of a prescribed offset is not supplied. Subsequently, the normal process for a council permit to clear native vegetation will include a permit condition that offsets need to be secured **prior** to the commencement of works.

33. An offset strategy demonstrating an ability to meet the offset requirements of the reference design would both be consistent with existing policy requirements and provide a clear indication that any project design that reduces the footprint of the reference design would result in an achievable offset prescription and therefore be consistent with existing policy requirements.

34. Section 28.2 of the EES (Main Report, Chapter 28) indicates that the reference design was developed to demonstrate a technically feasible means by which the project could be designed, constructed and operated. In that context, the project should be able to show that the offset requirements for the reference design can feasibly be met so that it is clear that the project is capable of meeting the evaluation objective relevant to the ecological assessment and be consistent with relevant State and Commonwealth policies. Pushing this process into one or more plans prepared post-approval raises the possibility/risk that the offset requirements cannot be met.

35. While the project identifies a number of risk pathways, a scenario where the project's offsets cannot be sourced is not included in any risk assessment. I would therefore disagree that none of the risk pathways relating to ecology are considered to be high risk as indicated by GHD.

36. While the offset plan discusses alternative offset possibilities, it also indicates that an alternative offset must generate direct habitat improvements for the relevant species that provides equivalent compensation for the removal of their habitat. Defining any such outcome can be a time consuming process and pushing this into a post approvals environment is not considered to be part of a sound assessment and approvals process.

37. The current proposed project footprint, which would result in the loss of over 52 hectares of native vegetation, is a significant ecological impact. The offset prescription identified in the native vegetation removal report is substantial and provides a significant challenge for the project. Even a 20% reduction in this impact by a refined design, which is highly unlikely, would still impact over 40 hectares of native vegetation and likely result in a challenging offset prescription.

38. Of the species offsets prescribed, only offsets for Small Golden Moths *Diuris basaltica* are considered likely to be eligible for exclusion under the protocols identified by DELWP in Appendix 5 of the Assessor's Handbook (DELWP 2018). The known distribution of this species is restricted to the Victorian Volcanic Plains and, while part of the project is in this bioregion, no patches of native vegetation impacted by the project occur within this bioregion.

39. In their peer review, BL&A (2019) suggest that discussions have commenced with DELWP in relation to which of these species offsets are actually required given habitat conditions and likely impacts within the project boundary. However, any suggestion that these species, other than Small Golden Moths, are likely to be excluded from consideration by the project is not credible. It is highly likely the species offsets prescribed (excluding offsets for Small golden Moths) will need to be provided before the project can commence.

40. While a refined project footprint could result in a reduced list of species offsets, it is highly unlikely that the provision of species offsets would be avoidable.

41. Most of the species offsets are considered problematic in relation to both the number of units required and the habitat models associated with these species. In that context, securing any or all of the species offsets is considered difficult and, for some species, may be impossible.

42. If they are impossible, then identifying alternatives in consultation with DELWP is a process that needs to begin quickly or compliance is likely to impinge on the project's timelines. This contradicts the peer review of BL&A (2019), which indicates a high level of assurance that the offsets will be identified and secured in a timely manner.

43. The lack of a clear offset statement providing evidence of the availability of offsets is in clear contradiction to the requirements of the Clearing Guidelines.

44. Comments made in the project's Public Environment Report (PER) (Chapter 11: Offsets: Section 11.3 pg. 11-2) state that residual impacts relating to state listed matters (i.e. the clearing of native vegetation) on Commonwealth land can be offset using the State offsets policies but must also meet the principles of the EPBC Act Environmental Offsets Policy.

45. However, the State offsets are represented by either general habitat units or species habitat units related to five species of fauna. Therefore, none of these offsets are likely to relate to the ecological values associated with the native vegetation on Commonwealth land (primarily Simpson Barracks) as these values relate to Matted Flax-lily and its habitat and the endangered EVC Plains Grassy Woodland. The likelihood of State prescribed offsets meeting the principles of the EPBC Act Environmental Offsets Policy is therefore low to negligible. This therefore provides an inherent conflict in the assurances provided by the EES and the PER.

46. In line with the EPBC Act Environmental Offsets Policy, Chapter 12 of the PER indicates that offsets for vegetation removed from Commonwealth land would be secured to the satisfaction of the DoEE and DELWP before vegetation removal on Commonwealth land starts.

47. While this commitment is absent from the EES documentation, it is the prescribed practice that offsets (State and Federal) be identified and secured prior to any approved clearing.

48. Interrogation of the DELWP species offset database indicates that 0.310 species habitat units (SHU) are currently available for Grey-headed Flying-fox while the project requires 22.945 SHU. This is a significant deficit.

49. The DELWP species offset database indicates that 0.480 SHU are currently available for Yarra Pygmy Perch while the project requires 9.490 SHU. This is a significant deficit.

50. The DELWP species offset database indicates that 0.302 SHU are currently available for Small Golden Moths while the project requires 17.269 SHU. This is a significant deficit although this species may be deleted from the offset prescription due to an erroneous habitat model.

51. Offsets for the remaining two species (Australian Grayling and Melbourne Yellow-gum) appear to be available.

52. While the project's offset broker may be aware of potential sites supporting the required offsets not identified within the DELWP database, the availability of these offsets should be determined prior to any approvals. Securing these offsets from an as yet unknown site(s) is likely to require significant time and resources likely to exceed the project's construction scheduling.

53. Some of these offsets could potentially be secured from existing habitat on land owned and managed by Manningham Council. However there is no documentation to indicate that such options have not been considered by NELP.

Likely impact of the Project on the Matted Flax-lily and the proposed mitigation measure

54. A total of 83 Matted Flax-lily (MFL) were recorded from the reference footprint within Simpson Barracks. This area includes 10.976 hectares of Plains Grassy Woodland, representing high quality MFL habitat, which the PER (Chapter 9) indicates is a significant residual impact for which an offset is recommended.

55. The PER (Chapter 9) indicates that enquiries have been made with offset brokers and NELP has received assurance that sites are currently available on the market to offset the removal of the 10.976 hectares of Plains Grassy Woodland. However no formal documentation to this effect, as is accepted practice and as required by State and Commonwealth planning/offset policy, is provided. As such, there is no indication of what this offset actually represents.

56. An additional minimum of 200 plants are reported from the eastern side of Simpson Barracks (about 800 metres east of the western portion of this population), bringing the total estimated population for the Barracks to 283 individuals.

57. The reference footprint also supported 12 other individuals from the M80 Ring Road (4 plants) and the Hurstbridge rail line (8 plants).

58. The project considers that translocation of these plants provides an adequate mitigation measure to result in no significant impact to this endangered species. To support this, the project has prepared a translocation plan (NELP EES Technical Report Appendix K) and highlights the success of previous translocations of this species and that the recovery plan

identifies translocation as a recovery action to bolster existing populations or establish new populations.

59. The translocation plan indicates that translocation plans must follow the translocation guidelines prepared by the Australian Network for Plant Conservation (Vallee et al. 2004). More recently these translocation guidelines have been revised as a third edition (Commander et al. 2018; the 'Translocation Guidelines'). The Translocation Guidelines would identify the NELP translocation as a mitigation translocation. The Translocation Guidelines also indicate that mitigation translocations are often done as 'offsets' and can have an important role in the conservation of populations and species.
'However, irrespective of the reason behind implementing a translocation program, or the type of translocation being implemented, the objective of all translocation programs should be to directly support the conservation of the target species, and to establish or maintain one or more self-sustaining populations capable of surviving in both the short and long term.'

60. The Translocation Guidelines state (Commander et al. 2018 p. 18):
'Despite the potential benefits of translocation, there are possible risks associated with the technique that need to be considered when deciding whether to translocate. For example:

    a) *The translocated plants may not survive, resulting in wasted resources (i.e. risk of failure). This risk will be site and species specific.*

    b) *It may not be possible to eliminate the major threats to the species and hence, ongoing persistence is compromised and resources may be wasted.'*

61. Additional risks outlined by the Translocation Guidelines include (Commander et al. 2018 p. 19):

    a) *'As losses virtually always precede potential actions for benefits or compensation, extinction risk for the species will increase, and should the translocation fail, there is no effective compensation for the loss of the original habitat and individuals of the species.'*

    b) *'The success of a translocation cannot be guaranteed as an offset due to the uncertainty of species' establishment and persistence. Many translocations have now established populations of species on secure sites that are flowering and fruiting, but most have not yet recruited.'*

62. To my knowledge, there is no documented evidence or published examples that translocation of MFL has produced a self-sustaining population. To date, therefore, while translocation has been able to move MFL plants and get them to survive in a new location, there is no evidence that this provides an overall conservation benefit to the species that would offset impacts to the species elsewhere.

63. Translocation is the only mitigation measure provided by NELP for MFL. A draft translocation plan is provided in the appendices of the EES. The Salvage and Translocation Plan states (Salvage and Translocation Plan pg. 17):
'When considered as part of a development proposal, translocation may be proposed as a mitigation measure, particularly for Matted Flax-lily. DoEE ([Commonwealth of Australia] 2016) states "The rhizomatous nature of Matted Flax-lilies allows plants to be translocated. Translocation has occurred at a number of sites". Translocation plans/strategies are factored into the approval decisions under section 133 of the EPBC Act to address any residual impacts [on] MNES (DSEWPaC [Commonwealth of Australia], 2013). Given that translocation measures are recognised to reduce residual impacts, ultimately this can lead to a reduction in required offsets. All offsets for residual impacts to this MNES would be

assessed under the EPBC Act offsets policy (DSEWPaC [Commonwealth of Australia], 2012).

64. Note that, as outlined above in paragraph 62, this mitigation measure does not eliminate the need for offsets but may allow for a reduction in offsets. Despite this, the Salvage and Translocation Plan (Appendix K) is the only strategy proposed by the project. Section 2.1.2 of the Salvage and Translocation Plan (pg. 18) indicates:
'Given that translocation measures for Matted Flax-lily are recognised as a successful and viable method to reduce residual impacts to negligible levels, and given that recent nearby projects comprising substantial removal of this species have not required offsets, it is proposed that offsets are not necessary for this project.'

65. This proposal was put on the basis that this response has been accepted for other infrastructure projects. Despite any such previous approvals, this may or may not be acceptable to DoEE. As this population is noted by DoEE as an important population (Commonwealth of Australia 2016), it is plausible that DoEE will not accept translocation of a significant proportion of this important population as a means of mitigating all significant impacts.

66. The classification of the Simpson Barracks population of MFL as a significant population recognised by the species recovery plan (Carter 2010) is noted in the EES Technical Report Q (ecology) but not in the EES Ecology Chapter 25 nor in the Risk Report. A more detailed impact assessment is only provided in Chapter 7 of the PER.

67. The PER (Chapter 7) includes an assessment of the action against significant impact criteria for MFL. Under the assessment for the criterion assessing if the action would lead to a long-term decrease in the size of a population, the assessment indicates that a decrease is unlikely with translocation. The assessment concludes that providing more individuals in a translocated population remote from the Simpson Barracks produces the net effect of a population increase. However, this is a clear misinterpretation of the criterion as the population at Simpson Barracks will clearly decline as a result of the action regardless of the translocation. I would contend that the assessment of this criterion as unlikely (with translocation) is false and misleading.

68. The population at Simpson Barracks, as possibly the largest known population of this species (PER Chapter 7 p.7-7), is considered likely to be associated with habitat critical to the survival of this species. This is evident from the size of the population present and the quality of the habitat. This population is therefore likely to be a self-sustaining population.

69. Translocation of a significant portion of this population (about 30%) to as yet undetermined locations is likely to establish an increased number of plants remote from Simpson Barracks. However, no assessment of any translocated population that I am aware of has identified that the population has expanded beyond the planted individuals. Translocation has therefore yet to be shown to establish new self-sustaining populations. The application of translocation as the only mitigation measure for this species is therefore not considered to provide a net conservation benefit for this MNES and translocation in itself cannot provide for the requirements of the EPBC Act offset policy.

70. The impact of the loss of over 10 hectares of high quality habitat has also been overlooked.

71. The relevant significant impact guidelines state that *you should not conclude that a significant impact is not likely to occur because of management or mitigation unless the effectiveness of those measures is well-established and there is a high degree of certainty about the avoidance of impacts or the extent to which impacts will be reduced* (Commonwealth of Australia 2013, p.5).

72. While the translocation of MFL has occurred a number of times and that process has generally resulted in the establishment of translocated plants, there remains no evidence that such translocations result in self-sustaining populations. The loss or significant impact to a listed important population, the size of that proposed to be impacted at Simpson Barracks, the relatively high quality of that habitat and its context as a relatively large area of native vegetation suggests that translocation of itself is unlikely to provide a satisfactory offset under the EPBC Act.

73. In addition, the Salvage and Translocation Plan does not identify any appropriate recipient sites. Although it provides a list of potential sites, its own assessment of many of these suggests they are inappropriate. While it indicates that securing a recipient site for active ecological management in perpetuity would provide a strong ecological benefit for the species, no such site is identifiable at this point in time and that benefit has not been described. The small areas of potential habitat identified as potential recipient sites are not considered to provide a strong ecological benefit for the species in comparison to their current context as a greater area of high quality habitat, which is proposed to be lost without any offset for that habitat. Simpson Barracks is also Commonwealth land and the criteria for a significant impact and offset requirements are more stringent in this context.

74. The EES fails to consider that, in addition to potential loss of an estimated 95 MFL individuals, the project would also have a significant impact on habitat for the species. While the Salvage and Translocation Plan proposes mitigation measures for impacts on MFL individuals, it does not provide any measures that would avoid, mitigate or offset impacts on the important high quality MFL habitat at Simpson Barracks. An estimated offset prescription for the impact to about 10 hectares of MFL habitat at Simpson Barracks using the EPBC Act offset calculator (Commonwealth of Australia 2012b) amounts to an offset requirement for management and protection in perpetuity of about 33 hectares of existing occupied habitat elsewhere. This is a significant area which would be difficult to secure. Any such offset for MFL, which may be required by DoEE and is over and above the proposed translocation, would therefore provide a significant additional offset burden for the project which would need to be identified prior to project commencement.

75. Overall, the requirement to provide direct offsets for MFL which deliver a measurable conservation gain have not been clearly identified. The EES (Salvage and Translocation Plan) suggests that translocation of MFL would remove the need for any EPBC Act offsets for this species. However, the translocation proposal would not mitigate all significant impacts on MFL and the plan still requires approval from DoEE. The Salvage and Translocation Plan outlines targets for success that are ambiguous and poorly written and the plan does not identify a suitable recipient site for the large number of plants proposed for translocation. These are significant issues and the plan is unlikely to be approved without revision. Therefore, measures to mitigate impacts on MFL and to offset residual significant impacts on the species are still considerable risks to the project.

76. Overall, the proposed mitigation measures for the impact to MFL are considered inadequate and far from precautionary. The ability of translocation to completely mitigate an existing significant impact to MFL is doubtful at best and the translocation plan provided is not consistent with current translocation guidelines. The PER assessment that the NELP would not lead to a long term decrease in the size of a population, that it would be unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline and that it would not interfere substantially with the recovery of the species (with translocation) are not supported. Indeed, the PER indicates that NELP would possibly adversely affect habitat critical to the survival of the species.

77. If DoEE require the provision of an offset for MFL beyond translocation, a suitable offset area will require a significant effort to identify, document and secure.

Likely impact of modifying parts of Koonung Creek to a covered channel and shading of parts of Koonung Creek by noise walls.

78. Assessment in the EES of the ecological impact of NELP associated with the conversion of parts of Koonung Creek to a covered channel and the shading of parts of the creek with noise walls is restricted to the loss of patches of native vegetation associated with these works. These impacts are subject to offsets defined under the state Clearing Guidelines.

79. While these impacts likely extend to impacts to habitat continuity for fish, other aquatic species and the movement of terrestrial species, assessment of these impacts is largely beyond the scope of my expertise.

Recommendations as to feasible modifications to the alignment or design of the Project that would offer improved outcomes relevant to your area of expertise

80. Identifying feasible modifications to the alignment or design of the North East Link are beyond the scope of my expertise. As a general rule, however, as prescribed under the clearing guidelines, a project is required to avoid and minimise its potential impact on native vegetation.

81. On face value, it appears that NELP has appropriately dealt with these components (avoid and minimise) of the Clearing Guidelines although it has failed to demonstrate its ability to provide prescribed offsets.

Recommendations or specific measures (including any changes to the proposed Environmental Performance Requirements) that you consider necessary and appropriate to prevent, mitigate or offset adverse environmental effects having regard to your area of expertise

82. As outlined above it is considered essential that the offsets prescribed under Victoria's Clearing Guidelines for the Removal, Destruction or Lopping of Native Vegetation (DELP 2017) be identified prior to the loss of any native vegetation associated with this project. While this is implied by the EPR FF2 (EES Chapter 27: pg. 27-35) it should be stated explicitly to ensure compliance with this component of the offset guidelines.

83. Offsets provided under the Victorian Clearing Guidelines are unlikely to satisfy the requirements of the EPBC Act Environmental Offsets Policy. Suitable offsets addressing the requirements of EPBC Environmental Offsets Policy and the impacts to the State endangered EVC Plains Grassy Woodland should be identified and secured prior to any impact to Simpson Barracks.

84. Offsets for the loss of MFL habitat, in line with the EPBC Act Environmental Offsets Policy, are also considered essential to provide adequate offsets to mitigate impacts to this federally listed endangered species. The implementation of a translocation plan in isolation is not considered precautionary or in line with the current policy settings.

85. The existing MFL translocation plan needs to be revised to an adequate standard and one or more suitable recipient sites needs to be confirmed as available prior to any impact to this species.

Identify any areas where you consider there to be insufficient information to make an assessment of the environmental effects of the Project, having regard to the current stage of the Project as a 'reference design' with any 'detailed design' to follow the EES process

86. The available information appears to be adequate to assess the impact and offset requirements of the current reference design and subsequent design alterations which reduce the extent of impact within this design.

Limitations and qualifications

Provisional opinions

In relation to my review, I have not provided any provisional opinions that have not been fully researched as described.

Questions

In relation to the assessments associated with determining the impacts to the ecological values associated with the reference design of the NELP and the proposed mitigation measures, I have no questions that fall outside my area of expertise beyond those identified in this statement.

Inaccuracies

To the best of my knowledge, this report is complete and accurate.

Declaration

I have read the Planning Panels Victoria Guide to Expert Witnesses and confirm that I understand it and agree to be bound by it.

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

Stephen Mueck

15 July 2019

Appendices

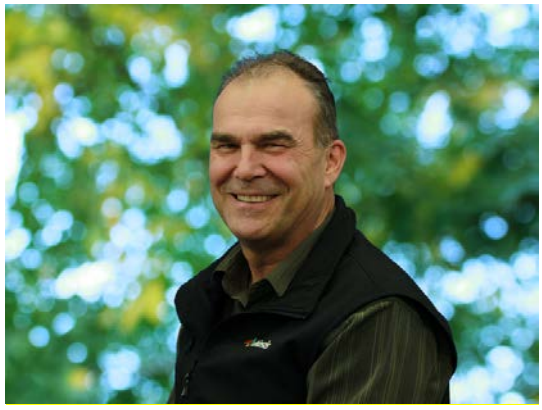
Appendix 1: Curriculum Vitae for Stephen Mueck

Curriculum vitae

Stephen Mueck

Position

Senior Consultant Botanist



Qualifications

BSc (Hons), MEnvSc

Vegetation Quality Assessments (Habitat Hectares): HH173

Professional experience

Stephen has over 35 years experience in vegetation assessment, management and research and an extensive knowledge of the vegetation of south eastern Australia. Since becoming a senior botanist with Biosis in 1995, Stephen has been senior scientist and project manager on a number of major investigations. He has prepared numerous flora surveys, undertaken conservation value assessments, worked on nature reserve design and management, prepared ecological design guidelines for developments, and has supervised and participated in both large and small scale mapping exercises.

Stephen also has experience in preparing and implementing pest plant and animal management plans, is DELWP certified for vegetation quality assessments and has produced numerous plans and assessments for clients to achieve compliance with state and federal biodiversity legislation and policy.

He has helped develop novel techniques for assessing and mitigating impacts to threatened flora and fauna. He possesses strong project management skills. He has assisted in calculating and identifying the offset requirements for a number of larger Victorian projects including Melbourne's Wholesale Market, Esso's Longford pipeline, the upgrade of the Western Highway (Ararat to Stawell) for VicRoads and MAB's Alliance Business Park at Epping.

Key project experience

Project Manager / Botanist	Offset Strategy for the Longford Pipeline. Report for Esso Australia, prepared in consultation with Advisian (four offset sites assessed and registered).
Project Manager / Botanist	Assessment of the ecological values and offset requirements for the Deer Park Bypass including assessment of impacts to private landowners, interactions with Victoria's Valuer General, defining prescribed offsets and sourcing the offsets to ensure project compliance for VicRoads.
Expert witness	Statement prepared and evidence provided in the Supreme Court of Victoria regarding the influence of biodiversity legislation and policy on the purchasing decision making of an informed developer in relation to compensation for the compulsory acquisition of land for the Melbourne Wholesale Market (S CI 2006 08035).

Other project experience

Project Manager / Botanist	Post-construction (2006/2007) audit of strategic firebreaks for Melbourne's water catchments: Flora and terrestrial fauna values. Report for Department of Sustainability and Environment.
Ecologist	EPA (Victoria) forest management audit team assessing the operations of the Department of Sustainability and Environment in state forest according to the Code of Forest Practices with GHD.
Senior Botanist/ Site Manager	Biosis Research managed three grassland reserves (totaling about 60 hectares) for four years (1999-2002). The reserves were established within an industrial subdivision for Cedar Woods Properties and AMP. Tasks included vegetation and rare species monitoring and the planning and coordination of pest plant and animal control works.
Team Leader/Botanist	describing and assessing the vegetation of the Twelve Mile Mineral Sands Project, at Garnpang and Birdwood Stations, Pooncarie, New South Wales, and identifying impact mitigation options for this proposed development of over 160 km2 (2000 for RZM).
Expert Witness Testimony:	provided expert witness statements for numerous clients and appeared before both panels and VCAT to provide evidence. This has involved proposal to develop residential and industrial subdivisions, quarries, mines, roads, powerlines and, power stations. He has also prepared evidence statements for the Department of the Environment, (DoE) for compliance actions under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
Senior Botanist	Description and mapping of the past and present vegetation communities within the South West Regional Forest Area (2.7 million hectares) (1999 for the Department of Natural Resources and Environment, Victoria).
Project Manager / Botanist	Flora and fauna assessment and reporting to inform the approvals process for the industrial subdivision of Ajax Road Altona for Axxcel Management Services.
Project Manager / Botanist	Site assessments, project management and preparation of documentation for the preparation of a Precinct Structure Plans at Lindum Vale for the Metropolitan Planning Authority (PSP 1202).
Project Manager / Botanist	Management of compliance conditions associated with the EPBC Act approval and Planning Permit requirements for an industrial subdivision at Maidstone Street Altona. This included sourcing and registration of offsets, onsite reserve management and the translocation of threatened flora.
Project Manager / Botanist	Site assessments, project management and preparation of documentation for the preparation of a planning permit application and preliminary information documentation under the EPBC Act for the rezoning of land for Shell at Kalkallo.

Other qualifications and training

Construction Induction (OH&S) Red/White Card

Rail Industry Safety Induction Card

First Aid (CPR) training

Publications

Stephen has written over 800 consultant's reports and published 15 other published reports and journal papers:

Mueck S. 2012. Forest Ecology – A Victorian Perspective: Abstract from a paper presented to the FNCV Biodiversity Symposium 2011. **Vic. Nat**. 129(5): 180.

John Turner, Marcia Lambert, David Flinn, **Steve Mueck**, Glen Kile 2005. An analysis of Australian research on indicators of sustainable forest management. Research Paper presented by John Turner at the International Union of Forestry Research Organisations (IUFRO) World Congress, 2005. Session 154: 'Research demonstration: Evaluation of sustainable forest management'.

Mueck S G 2000. Translocation of Plains Rice-flower Pimelea spinescens, Laverton, Victoria. *Ecological Management & Restoration* **1(2)**: 122-127.

Peel W 1999. Rainforest and Cool Temperate Mixed Forests of Victoria. DNRE, Melbourne. (Stephen has made significant contributions to this document i.e. he is the author of all the two-way tables).

Mueck S, Ough K & Banks J C G 1996. How old are Wet Forest understories? *Australian Journal of Ecology* **21(3)**: 345-348.

Loyn R, **Mueck S** & Ough K 1994. Vertebrate Pest Animals and Pest Plants. In: Joint ANZECC-MCFFA National Forest Policy Statement Implementation Sub-committee, The development of consistent nationwide baseline environmental standards for native forests, Draft Report.

Mueck S, Loyn R H, Ough K & Murphy A 1994. Research and development of ecologically sustainable systems of silviculture in Victoria's Mountain Ash forests. International Forest Biodiversity Conference, Canberra.

Turner L A & **Mueck S** 1992. The vegetation of the Sardine, Rich and Ellery Forest Blocks, Orbost Region, Victoria. DCE, VSP Technical Report No.9.

Mueck S & Peacock R J 1992. Impacts of intensive timber harvesting on the forests of East Gippsland, Victoria. DCE, VSP Technical Report No.15.

Mueck S 1990a. The Floristic Composition of Mountain Ash and Alpine Ash Forests in Victoria. Silvicultural Systems Project, Technical Report No. 4, Department of Conservation and Environment, Kew.

Mueck S 1990b. The Floristic Composition of Dry, Damp and Lowland Sclerophyll Forests in East Gippsland. Timber Industry Stratagy, Department of Conservation, Forests and Lands, Kew.

Gillespie G R, Henry S R, **Mueck S**, Scotts D & Westaway J 1990. Flora and Fauna of the Pheasant Creek and Upper Buenba Forest Blocks, Alpine Area, Victoria. Department of Conservation, Forests and Lands, Ecological Survey Report No. 29.

Westaway J, Henry S R, Gillespie G R, Lobert B O, Scotts D & **Mueck S** 1990. Flora and Fauna of the West Errinundra and Delegate Forest Blocks, East Gippsland, Victoria. Department of Conservation, Forests and Lands, Ecological Survey Report No. 31.

Westaway J, Cherry K, Duncan P E, Gillespie G R, Henry S R, & **Mueck S G** 1990. Flora and Fauna of the Lower Wilkinson and Fainting Range Forest Blocks, Gippsland, Victoria. Department of Conservation, Forests and Lands, Ecological Survey Report No. 27.

Gell P A & **Mueck S G** 1987. Applications of Isolate Biogeographic Theory to the Delineation and Management of Mallee Nature Reserves. Proceedings of 21st Congress, Institute of Australian Geographers, University of Western Australia. May 1986.

Professional affiliations and memberships

Australian Network for Plant Conservation (Current member)

Native Fish Australia (Member 1990 –1995)

Pimelea spinescens Recovery Team (Current member)