UNDER The Resource Management Act 1991 (RMA)

IN THE MATTER of a draft national policy statement for indigenous biodiversity (NPSIB)

STATEMENT OF EVIDENCE OF JEROME WYETH ON BEHALF OF OCEANA GOLD (NEW ZEALAND) LIMITED

13 MARCH 2020
1: INTRODUCTION

Qualifications

1 My name is Jerome Geoffrey Wyeth.

2 I have a Bachelor and Masters of Science (Geography) from the University of Auckland completed in 2003 and 2005 respectively. I have over 15 years’ experience in planning and resource management through various roles in central government, local government and as a planning consultant. I am an Associate Member of the New Zealand Planning Institute.

3 I have been based in Wellington for the majority of my planning career. Since January 2012, I have been employed at 4Sight Consulting (formally Andrew Stewart Limited) and now hold a position as a Principal Planning and Policy Consultant. My primary area of work is policy planning for local and central government clients. I have worked on a number of district and regional plans at various stages of the Schedule 1 Resource Management Act 1991 (RMA) process and I have provided planning evidence and appeared at council and Environment Court hearings. I have also been closely involved in the development and implementation of national policy statements and national environmental standards and have undertaken section 32 evaluations for national and local planning instruments.

4 I am presenting this planning evidence of behalf of Oceana Gold (New Zealand) Limited (OGNZL) to inform OGNZL’s submission on the Proposed National Policy Statement for Indigenous Biodiversity (NPSIB).

Code of conduct

5 I have read the Environment Court’s Code of Conduct for Expert Witnesses in the Environment Court of New Zealand Practice Note 2014, and I agree to comply with it. My qualifications and experience as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.
Scope of evidence

6 The focus of my evidence is the NPSIB provisions that manage the adverse effects of mineral and aggregate extraction within Significant Natural Areas (SNAs),\(^1\) based on a more detailed assessment of the likely impacts of these provisions on OGNZL’s operations. My evidence also considers the limits to the use of biodiversity offsetting and biodiversity compensation in Appendix 3 and Appendix 4 of the NPSIB. Specifically, my evidence provides:

a. An assessment of the potential implications of the NPSIB for OGNZL’s future operations at its Macraes and Waihi mines;

b. An assessment of efficiency and effectiveness of the NPSIB provisions relating to managing the adverse effects of mineral extraction within SNAs in achieving Objective 1 and 6 of the NPSIB\(^2\); and

c. An assessment of other reasonably practicable options to manage mineral extraction under the NPSIB and achieve Objective 1 and Objective 6 in a more efficient and effective way.

7 This assessment does not assess or question the intent and appropriateness of the NPSIB objectives. It is widely accepted that there has been ongoing decline of indigenous biodiversity in New Zealand and there is a need to maintain indigenous biodiversity. In my opinion, a national policy statement prepared under the RMA is a key instrument to achieve this.

8 Rather, the purpose of this assessment is to help ensure the NPSIB provisions that relate to mineral extraction achieve the NPSIB objectives in the most effective and efficient way. A key consideration as part of this assessment is ensuring the NPSIB enables appropriate actions to maintain indigenous biodiversity to be considered when there are unavoidable adverse effects from mineral development on SNAs and the positive effects of mining (economic, employment, conservation) are not inappropriately or unnecessarily precluded by a strict avoid adverse effects approach.

9 My evidence is structured as follows:

a. **Section 2**: overview of relevant NPSIB provisions and intent;

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\(^1\) Specifically Part 3.9(2)(a), Part 3.9(2)(d)(ii) and Appendix 2 of the NPSIB.

\(^2\) Objective 1 relates to the maintenance of indigenous biodiversity and Objective 6 relates to people and partnerships and allowing people and communities to provide for their social, economic and cultural well-being. These objectives are most relevant to the provisions relating to mineral extraction in Part 3.9(2), as reflected in the draft evaluation, and therefore form the basis of the evaluation of the effectiveness of these provisions.
b. **Section 3**: potential impacts of NPSIB on mineral extraction;

c. **Section 4**: assessment of efficiency and effectiveness of the NPSIB provisions relating to mineral extraction in achieving the NPSIB objectives; and

d. **Section 5**: identification of reasonably practicable options to manage mineral extraction under the NPSIB in a more efficient and effective way.

**Background**

10 I was engaged by the Department of Conservation (DOC) and Ministry for the Environment (MfE) to prepare the draft section 32 evaluation for the NPSIB (draft evaluation). This was prepared in collaboration with Market Economics who led the cost benefit analysis (CBA) component of the draft evaluation. While my role preparing the draft evaluation involved feedback and analysis of the NPSIB provisions, I was not directly involved in the development of the NPSIB. A more detailed overview of the methodology used in the draft evaluation is provided in section 3 of my evidence.

11 Importantly, I emphasised in the draft evaluation that there were still some large uncertainties and information gaps on the actual impacts, benefits and costs of certain NPSIB provisions at the local, regional and national level. One of the more critical gaps was the extent to which areas of indigenous vegetation and habitats would be identified as SNAs under the NPSIB and classified as ‘High’ or ‘Medium’. The expectation outlined in the draft evaluation was that more detailed information and feedback on the likely impacts, benefits and costs of the NPSIB provisions will be collected and analysed through public consultation to address these (and other) uncertainties and potential implementation risks.

12 The purpose of this evidence is to provide that more detailed assessment of the benefits and costs of the NPSIB provisions on OGNZL’s operations. The evidence draws on more detailed case studies and ecological advice on the application of the NPSIB criteria to assess and classify SNAs as High or Medium. This is intended to illustrate if the “more flexible and pragmatic” approach intended by the specific recognition of mineral extraction in Part 3.9(2)(d)(ii) is actually going to achieve that stated intent and, if not, identify reasonably practicable alternatives to better achieve the policy intent.

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2: RELEVANT NPSIB PROVISIONS AND INTENT

Relevant NPSIB provisions

13 The NPSIB includes specific recognition of and provision for mineral and aggregate extraction in Part 3.9(2)(d)(ii). This recognises that mineral extraction is an activity that is important to New Zealand’s overall well-being, which has an operational and functional need to be undertaken at particular locations (i.e. where the mineral resource is located) that may coincide with the presence of SNAs. However, it is necessary to understand how this specific recognition of mineral extraction interacts with other NPSIB policies and implementation requirements, particularly those relating to the identification of SNAs (Part 3.8 and Appendix 1) and the classification of SNAs as High and Medium (Appendix 2), to understand how this specific recognition of mineral extraction is likely to operate in practice.

14 The key NPSIB objectives for the purpose of this assessment are as follows:

a. **Objective 1** – maintain indigenous biodiversity; and

b. **Objective 2** – recognise the relationship of people with indigenous biodiversity and allow people and communities to provide for social, economic and cultural well-being.

15 The key NPSIB policies for the purpose of this assessment are as follows:

a. **Policy 6**: identify and protect SNAs; and

b. **Policy 8**: recognise the locational constraints that apply to specific subdivisions, uses and developments.

16 The key provisions in Part 3 (implementation requirements) for the purpose of this assessment are as follows:

a. **Part 3.7**: social, economic and cultural wellbeing;

b. **Part 3.8**: identifying significant natural areas; and

c. **Part 3.9**: managing adverse effects on SNAs.

17 The following appendices to the NPSIB are also of particular relevance to this assessment:

a. **Appendix 1**: Criteria for identifying significant indigenous vegetation and significant habitat of indigenous fauna;

b. **Appendix 2**: Tool for managing effects on significant natural areas;
c. **Appendix 3**: Principles for biodiversity offsetting; and

d. **Appendix 4**: Principles for biodiversity compensation.

18 The draft evaluation provides a more detailed overview of these objectives and provisions and the policy intent. The key tension these provisions seek to resolve is the need to maintain indigenous biodiversity (including protecting SNAs) while also ensuring the NPSIB enables people and communities to provide for their economic, social and cultural well-being.

**Summary of approach and intent**

19 As articulated in the NPSIB discussion document\(^4\), Policy 8 and Part 3.9(2) are intended to recognise and provide for the importance of certain activities to New Zealand’s social, cultural and economic well-being by providing a “more flexible and pragmatic approach” to managing the adverse effects of activities listed in Part 3.9(2)(d). This more flexible management approach applies when these activities are:

a. Located in SNAs classified as Medium in accordance with Appendix 2;

b. Able to demonstrate that they have a functional and operational need to be located at that particular location; and

c. There are no practicable alternative locations.

20 When these requirements are met, adverse effects on medium SNAs are to be managed in accordance with the ‘effects management hierarchy’ (as defined in the NPSIB) rather than under Part 3.9(1), which requires adverse effects on SNAs to be avoided. The extent to which SNAs are classified as High or Medium under Appendix 2 is therefore critical to the management of, and constraints on, the activities recognised in Part 3.9(2)(d) of the NPSIB.

21 The NPSIB discussion document summarises the intent of this more flexible and pragmatic management approach as follows (emphasis added):

> Part 3.9(2) and (3) set out a more flexible and pragmatic management approach for some specified new activities. This management approach relies on Appendix 2 of the proposed NPSIB which determines whether an identified SNA is of medium or high value, an approach recommended by the BCG and discussed in Section B: Identifying important biodiversity and taonga of this

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This ensures protection where needed for indigenous biodiversity maintenance (for high-value SNAs), while also recognising the need for a more flexible management approach in some cases to provide for social, economic and cultural outcomes (for medium-value SNAs). If these specified activities cannot feasibly occur at another location, they may occur within medium-value SNAs, with adverse effects managed using the effects management hierarchy.

Finding an appropriate balance between providing for locationally-constrained activities with particular importance to New Zealand’s social, cultural and economic well-being and ensuring an appropriate level of protection of SNA’s has been a key focus and contentious issue in the development of the NPSIB. These challenges are acknowledged in the NPSIB discussion document as follows (emphasis added):

This high and/or medium distinction may either weaken the ability to protect SNAs or create uncertainty about what can be done within SNAs. We have considered other options to the high- and medium-value SNA split, of providing for nationally important activities while still protecting and maintaining indigenous biodiversity, but have not found another solution that achieves this balance. We welcome feedback and alternatives to this approach.

3: POTENTIAL IMPLICATIONS OF NPSIB ON MINERAL EXTRACTION

This section provides an assessment of the potential implications of the NPSIB on mineral extraction with particular reference to OGNZL’s operations. It firstly provides a summary of the methodology used in the draft evaluation and preliminary findings in relation to potential impacts of the NPSIB on mineral extraction. It then provides a more detailed assessment of the potential impacts of the NPSIB on OGNZL’s operations at the project level, drawing on more detailed information on how future mining areas are likely to coincide with the presence of SNAs. This more detailed assessment focuses on some of the key uncertainties highlighted in the draft evaluation – specifically the extent to which areas of indigenous vegetation and habitat are identified as SNAs and classified as High or Medium – as this has substantial implications for the significant activities listed in Part 3.9(2).

Ultimately the purpose of this section is to provide a more fine-grained evaluation of likely costs and benefits of the NPSIB than was possible in the draft evaluation, based on the likely impacts on one of New Zealand’s largest mining companies. This will inform decisions on how to strike an appropriate balance between
avoiding adverse effects in SNAs and providing for nationally important, locationally-constrained activities where these are able to manage their impacts in a way that maintains indigenous biodiversity.

Draft section 32 evaluation

Overview of methodology

25 The draft evaluation was informed by a number of key considerations, complexities and uncertainties\(^5\) and was largely based on:

a. A qualitative assessment of benefits and costs of the NPSIB provisions;

b. A case study approach to illustrate the potential impacts, benefits and costs within six districts\(^6\);

c. An assessment of certain monetised and quantitative costs where possible – this was focused on indicative implementation cost ranges for councils and a spatial analysis of SNA coverage (actual and indicative) on different land uses in the selected case studies.

26 A number of key benefits and costs (e.g. opportunity costs) were not quantified or monetised in the draft evaluation and the preliminary findings included a number of caveats and uncertainties. The draft evaluation therefore set a clear expectation that these gaps and uncertainties would be assessed in more detail through public consultation drawing on more detailed data on the impacts, benefits and costs of the NPSIB.

27 The draft evaluation involved a spatial analysis within six districts to assess the extent to which different land uses intersect with the presence of actual (mapped) SNAs or ‘Indicative’ SNAs where SNA’s have not yet been mapped. Where SNA mapping had not been undertaken, a proxy was used to identify indicative SNAs based on indigenous land cover (using the landcovers in the Landcover Database (LCDB)). While it has its limitations, this approach was confirmed with officials as suitable for the purposes of the draft evaluation.

28 The spatial analysis also categorised SNAs as ‘Indicative High’ or ‘Indicative Medium’ to capture this distinction under Appendix 2 of the NPSIB. The approach taken was to categorise all SNAs that fall within the <20% indigenous biodiversity coverage area of the Threatened Environments Classification (TEC) dataset as ‘Indicative High’ SNAs, which is consistent with the ‘rarity and distinctiveness’

\(^5\) Refer section 2 of the draft evaluation for more details.

\(^6\) Far North, Auckland, Waikato, Tasman, Westland, Southland.
attribute in the NPSIB. The balance of SNA areas (i.e. where the TEC indicated >20% indigenous biodiversity coverage) defaulted to ‘Indicative Medium’ SNAs. Again, this is a simplified approach with some limitations and does not capture all of the indicators that would result in an SNA being classified as High in accordance with Appendix 2 of the NPSIB. As such, it is likely that more SNAs will be classified as High with better desktop data and physical inspections.

**Draft evaluation – key findings in relation to mineral extraction**

29 The draft evaluation provided a high-level assessment of the impacts of the NPSIB on mineral extraction. This assessment was based on the spatial analysis which examined the incidence of SNAs within mapped quarry or mining areas in the case study districts. The mapped quarry and mining areas within each district were based on either mineral or aggregate overlays within the relevant plan or LINZ data on mining permit areas. The key findings can be summarised as follows:

a. The incidence of SNAs within mining or quarry areas ranged between 1% and 42% in the case study districts.

b. The overlap of mining or quarry areas with SNAs was almost entirely with Indicative Medium SNAs.

c. The overlap of mining or quarrying areas with Indicative High SNAs equated to between 0-2% coverage of the overall mining or quarry area. As a consequence, the draft evaluation stated that “…this low coverage indicates that High SNA are unlikely to materially impacting on existing mining or quarry operations under Part 3.9 of the NPSIB in the six case study councils”.

d. However, the draft evaluation also noted that “…the potential impact of estimated High SNA coverage on those business has not been investigated and is an area where further feedback is needed through public consultation. Every site is however unique, and this will make it difficult to quantify or monetise effects on this industry with any certainty”.

30 Importantly, these findings are specific to the six case study districts and existing mapped mining and quarry areas. There was no separate analysis undertaken of the potential impact of the NPSIB on districts or areas with the most potential

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7 Refer section 7.9.2 of the draft evaluation.
8 Ibid, pg. 83.
9 Ibid, pg. 97.
(current or future) for mineral development, or any specific analysis of the impact of the NPSIB on mineral extraction at the project level.

**Draft evaluation – key uncertainties**

31 Section 32 of the RMA requires an assessment of the risks of acting or not acting when there is insufficient or uncertain information. The draft evaluation emphasised that there were some large uncertainties in the draft findings and set a clear expectation that these uncertainties would be addressed through consultation. This was articulated in the draft evaluation as follows\(^\text{10}\):

…there are still some large uncertainties and information gaps on the actual impacts, benefits and costs of certain NPSIB provisions at the local, regional and national level. In particular…:

**Identification and extent of SNAs** - there is uncertainty (and potential risks) in terms of the extent of indigenous vegetation and habitats that will be identified as SNAs. Ecological advice has been that NPSIB criteria are consistent with more recent plans and policy statements and are not unduly restrictive. It is important that this assumption is thoroughly tested through public consultation to better understand the likely benefits and costs.

**Effects to be avoided in SNAs** – there is a degree of uncertainty on what the requirement to “avoid” certain adverse effects within SNAs will mean in practice for new subdivision, use and development. Ecological advice suggests only very small-scale activities will be able to occur within the ‘environmental bottom lines’ provided for in Part 3.9(1) and most new subdivision, use and development managed under this provision will be heavily restricted (or effectively precluded).

**Impacts on specific subdivisions, uses and development** – there is a degree of uncertainty in the extent of SNAs that will be ranked ‘High (H)’ and ‘Medium (M)’ in accordance with Appendix 2 of the NPSIB. This has significant implications and potential costs for certain subdivision, use and development provided for in Part 3.9 of the NPSIB in terms of whether certain adverse must be avoided and/or managed in accordance with the effects management hierarchy.

**Assessment of NPSIL on OGNZL’s operations**

32 This section provides an assessment of the potential impact of the NPSIB on OGNZL’s operations at its Macraes and Waihi mines. This assessment draws on information provided by OGNZL on their proposed future extraction and ecological

\(^\text{10}\) Ibid, pg 4.
advice on the presence of SNAs within these areas when assessed in accordance with Appendix 1 and 2 of the NPSIB.

**Macraes Mine**

33 To assess the potential impact of the NPSIB at OGNZL's Macraes Mine, Mr Gavin Lee has outlined the prospective areas at the mine, which are shown as 'Potential Future Activity' within his evidence.

34 The evidence of Dr Mike Thorsen provides an assessment of how the terrestrial ecology at Macraes Mine would be assessed under Appendix 1 and 2 of the NPSIB. Dr Thorsen's assessment concludes that it is likely that all areas of vegetation containing a component of indigenous species (i.e. including some predominantly exotic vegetation communities) will meet the criteria to be a SNA under Appendix 1 of the NPSIB, and the spatial extent of SNA is likely to comprise of approximately half of the area of interest at Macraes. Dr Thorsen also concludes that the majority of SNAs will be classified as High under one or more of the attributes in Appendix 2 of the NPSIB - at least 46.8% of the area of interest at Macraes and 60.8% of the area outside the current mine workings. In his opinion, it is likely that a similar result would be obtained if this exercise was performed for the entire Macraes Ecological District.

35 The evidence of Mr Lee provides information about two significant mine development projects at the Macraes Mine. Coronation North is a project for which resource consents have been granted, and the authorised mining activities are taking place at present. Deepdell North is another project for which resource consent applications have been lodged but not yet determined by the relevant councils. As Mr Lee explains, both projects involve unavoidable impacts on biodiversity values but are associated with offsets and other actions in accordance with the effects management hierarchy so that the end result of both projects is a no-net-loss or net gain in biodiversity values. Dr Thorsen's evidence explains that both project areas contain biodiversity that would be classified as High under Appendix 2 of the NPSIB, with the result that neither project would be able to proceed if adverse effects were to be avoided under Part 3.9(1) of the NPSIB.

36 The implication of these findings is that OGNZL's plans for future mineral extraction within the area of interest at Macraes would need to be managed under Part 3.9(1) of the NPSIB, which requires certain adverse effects to be avoided. Given the scale and nature of the proposed mineral extraction at Macraes, it is not possible to avoid the adverse effects listed in Part 3.9(1) of the NPSIB. It is therefore likely that future mineral extraction at Macraes will be effectively
precluded under the current NPSIB, regardless of whether OGNZL can demonstrate that their future projects will maintain indigenous biodiversity (through no-net-loss or a net gain). Not only does this preclude the potential for improved biodiversity outcomes, it will limit the ability for OGNZL to deliver economic and social benefits to the community. As outlined in the evidence of Mr Lee, the Macraes Mine currently has 577 full time employees and expended $58m in salaries in 2019. This is unlikely to be sustained (or increased) if future mineral extraction at the mine is precluded or significantly restricted.

**Waihi Mine (Hauraki District)**

37 As part of the further development of the Waihi Mine, OGNZL has identified a key piece of land near the mine as suitable for the storage of surplus rock and tailings. This piece of land includes an area identified as a SNA (SNA166) in the Hauraki District Plan\(^{11}\), for which an effects management programme is being developed by OGNZL to deliver a net gain for indigenous biodiversity. This existing SNA would be captured as a SNA under the NPSIB as the definition includes any SNAs identified in a policy statement or plan prior to the commencement date.

38 The evidence of Dr Keesing provides an assessment of SNA166 in accordance with Appendix 2 of the NPSIB. Dr Keesing concludes that the SNA will meet at least four, and possibility six, of the ‘High’ attributes in Appendix 2 of the NPSIB. As such, Dr Keesing concludes that is highly likely that the SNA would be classified as High under Appendix 2 and therefore adverse effects on the SNA would need to be avoided under Part 3.9(1). Dr Keesing notes that this classification would occur despite:

a. Many of the features within the SNA having no higher than moderate values; and

b. The consensus of ecologists who have studied the site concluding that it will be possible to manage impacts of OGNZL’s proposed development on the SNA and achieve no-net-loss in indigenous biodiversity.

39 The likely impact of the NPSIB for OGNZL’s further mine development at Waihi is therefore consistent with the findings at Macraes mine - adverse effects must be avoided under Part 3.9(1) and there would be no ability to manage adverse effects in accordance with the effects management hierarchy to achieve no-net-loss in indigenous biodiversity (and preferably a net gain).

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\(^{11}\) SNA166 (Hauraki District SNA T13U166, Kessels and Associates, 2010).
4: ASSESSMENT OF EFFICIENCY AND EFFECTIVENESS OF NPSIB PROVISIONS

40 Section 32(1)(b)(ii) of the RMA requires an assessment of the efficiency and effectiveness of the provisions in achieving the objectives of the proposal. Section 32(2) of the RMA requires that this assessment of provisions:

(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—

(i) economic growth that are anticipated to be provided or reduced; and

(ii) employment that are anticipated to be provided or reduced; and

(b) if practicable, quantify the benefits and costs referred to in paragraph (a);

41 This section provides an assessment of the effectiveness and efficiency of the NPSIB provisions relating to mineral extraction to achieve Objective 1 and 6 based on the likely impacts on OGNZL’s operations. While this assessment is specific to OGNZL’s operations, the findings are likely to be relevant to other mineral extraction projects where these coincide with the presence of SNAs.

Assessment of effectiveness

42 The assessment of effectiveness under 32(1)(b)(ii) of the RMA involves an assessment of how successful the provisions are likely to be to achieve the objectives.

43 Based on the assessment of the potential impacts of the NPSIB on OGNZL’s operations, the provisions in Part 3.9(2)(a), Part 3.9(2)(b)(ii) and Appendix 2 of the NPSIB may be viewed as being effective in achieving Objective 1 to maintain indigenous biodiversity, based on the premise that the best way to maintain biodiversity values is to avoid adverse effects on those values. The current provisions would protect the indigenous vegetation and habitats at the sites classified as High SNAs under the NPSIB by effectively precluding any mineral extraction within these areas. This approach provides a high level of certainty that adverse effects on High SNAs will be avoided.

44 However, the provisions would also preclude the potential for improved biodiversity outcomes through a well-designed proposal and effective effects mitigation, offsetting and compensation package where activities are located in, or affect, a High SNA. Importantly, the principles for biodiversity offsetting in the NPSIB require a no-net-loss and preferably a net gain in biodiversity to be achieved, and the principles for biodiversity compensation also require positive
effects on biodiversity to be proportionate to the residual adverse effects of the proposal. Providing these principles are adhered to, including limits on the values that can be offset or compensated, indigenous biodiversity should be maintained (or potentially improved). On this basis, a strict avoidance approach for mineral extraction within High SNAs can be seen as unnecessary with the potential to preclude improved biodiversity outcomes.

45 This is particularly relevant for OGNZL who has proven experience developing and implementing large scale mining projects that include comprehensive mitigation, offsetting and compensation actions in order to achieve a no-net-loss in indigenous biodiversity outcomes. This is discussed in more detail in evidence of Mr Lee and Dr Thorsen.

46 Further, the provisions in Part 3.9(2)(b)(ii) of the NPSIB (and Appendix 2) as currently drafted will be ineffective (and potentially contrary) in achieving Objective 6 to allow people and communities to provide for their social, economic and cultural wellbeing now and in the future. The current provisions will effectively prevent OGNZL’s planned development at Macraes and Waihi and the associated economic and social benefits for the community.

Assessment of efficiency

47 The assessment of efficiency under 32(1)(b)(ii) of the RMA involves an assessment of whether the provisions will achieve the objectives at the lowest cost or achieve the highest net benefit. The sections below provide a summary of the main environmental, economic, social and cultural benefits and costs anticipated from the NPSIB provisions relating to mineral extraction, based on the likely impacts on OGNZL’s operations.

Environmental benefits and costs

48 **Benefits** - SNAs are protected as most will be classified as High SNAs and therefore avoidance of adverse effects is required. Provides high level of certainty that adverse effects on High SNAs will be avoided

49 **Costs** - Not allowing adverse effects of mineral extraction to be managed in accordance with the effects management hierarchy may prevent positive (net gain) indigenous biodiversity outcomes through well-designed proposals and effective mitigation, offset and compensation packages. This is particularly the case for larger mining operations such as OGNZL who are highly regulated through the resource consent process and have proven experience offsetting and compensating the residual adverse effects of their proposals.
**Economic benefits and costs**

50 **Benefits** - Economic benefits associated with mineral extraction will be recognised by not precluding these activities within SNAs classified as Medium, while still ensuring adverse effects are managed in accordance with the effects management hierarchy. However, the ecological evidence of Dr Keesing and Dr Thorsen indicates that most SNAs will be classified as High meaning this outcome may be limited in practice.

51 **Costs** - Opportunity costs for new mineral extraction where this has a functional or operational need to be located in a SNA classified as High as there are no practicable alternative locations. Where SNA coverage on the property is classified as High, mineral extraction activities are likely to be at least severely restricted or more likely precluded by the strict avoidance regime in Part 3.9(1). Severely constraining and precluding future mineral extraction will have a number of economic and employment costs. As outlined in the evidence of Mr Lee, the Macraes Mine currently has 577 full time employees and expended $58m in salaries in 2019. These economic benefits will not be sustained if future mineral extraction at the mine is precluded or effectively constrained.

**Social benefits and costs**

52 **Benefits** - Social benefits associated with mineral extraction located in Medium SNA as adverse effects can be managed in accordance with the effects management hierarchy. However, the ecological evidence of Dr Thorsen and Dr Keesing indicates that most SNAs will be classified as High under Appendix 2 meaning this outcome may be limited in practice.

53 **Costs** - There may be costs to the community where new mineral extraction has a functional or operational need to be located in a ‘High’ SNA and there are no practicable alternative locations. This may have flow on effects to the community in terms of reduced employment and economic opportunities.

**Cultural benefits and costs**

54 **Benefits** - Better protection of taonga species and ecosystems that are identified as SNAs from the adverse effects of mineral extraction, particularly where these are classified as High SNAs.

55 **Costs** - Effectively precluding mineral extraction in High SNAs may limit the potential for future mineral projects to provide cultural benefits.
Overall assessment

56 The practical impact of Part 3.9(2)(a), Part 3.9(2)(d)(ii) and Appendix 2 of the NPSIB is likely to mean that OGNZL’s future mining projects will be heavily restricted or effectively precluded. As discussed in section 3 of this evidence, the location of OGNZL’s future mineral development projects coincides with the presence of SNAs and the ecological advice is that these are highly likely to classified as High SNAs under Appendix 2. This may be viewed as an effective approach to maintain indigenous biodiversity by effectively avoiding adverse effects on High SNAs. It provides a high level of certainty that adverse effects on SNAs will be avoided and reduced the risk of compliance issues associated with securing good biodiversity outcomes through the resource consent process.

57 However, it is also likely to prevent good biodiversity outcomes where (typically larger scale) projects can provide well-designed mitigation, offset and compensation actions designed to achieve a net-net-loss in indigenous biodiversity, and preferably a net gain. This is particularly relevant for OGNZL who have proven experience delivering successful biodiversity outcomes as part of their projects, consistent with the effects management hierarchy and principles for offsetting and compensation proposed in the NPSIB.

58 Part 3.9(2)(a), Part 3.9(2)(d)(ii) and Appendix 2 of the NPSIB are also likely to prevent OGNZL from providing economic, social and cultural benefits to people and communities through future mineral development at its Macraes and Waiahi mines. In the case of OGNZL’s future operations, these lost opportunity costs could be significant. This appears to be inconsistent with the policy intent to provide “a more flexible and pragmatic” approach for mineral extraction in Part 3.9 and the direction in Objective 6 and Part 3.6 of the NPSIB to provide for social, economic and cultural well-being. Overall, this assessment of the impacts of the NPSIB mineral extraction provisions on OGNZL’s operations concludes that the approach as currently drafted may not be the most efficient and effective to achieve the NPSIB objectives and therefore other reasonably practicable options should be identified and assessed in accordance with section 32 of the RMA.

5: REASONABLY PRACTICABLE OPTIONS FOR ACHIEVING THE OBJECTIVES

59 Feedback and alternative approaches to manage the activities recognised in Part 3.9(2) of the NPSIB is being sought by the Government through public consultation. This part of my evidence responds to that request by identifying reasonably practicable options to manage mineral extraction under the NPSIB and achieve the key NPSIB objectives (1 and 6 in a more efficient and effective way).
Ultimately, the aim of this assessment is to ensure that the specific recognition of mineral extraction in Part 3.9(2)(d)(ii) of the NPSIB as an important, locationally-constrained activity is actually supported by a workable effects management regime. This is consistent with the policy intent of the NPSIB - to enable mineral extraction to continue to provide significant economic, social and cultural benefits to New Zealand while also ensuring the overall objective of maintaining indigenous biodiversity is achieved.

60 The following reasonably practicable options have been identified:

a. **Option 1**: Refine the thresholds that classify SNA’s as High or Medium in Appendix 2 of the NPSIB;

b. **Option 2**: Delete Part 3.8(1)(b), Part 3.9(2)(a) and Appendix 2; and

c. **Option 3**: As per Option 2 with amendments to refine and improve the limitations to the use of biodiversity offsetting and biodiversity compensation.

**Option 1 – refine Appendix 2**

61 The draft evaluation identified large uncertainties in the extent to which SNA’s would be classified as High or Medium and the significant implications this has for the activities recognised in Part 3.9(2). As outlined in section 3 of my evidence, the ecological assessments undertaken by Dr Thorsen and Dr Keesing at OGNZL’s Macraes and Waihi mines respectively indicate that most SNAs within the area of interest for future development at the two mines are likely to meet (at least) one of the high attributes in Appendix 2 and be classified as a High SNA.

62 The evidence of Dr Keesing identifies a number of specific interpretation issues with the attributes in Appendix 2 of the NPSIB that are likely to generate significant uncertainty and debate. In his opinion, the 16 high attributes in Appendix 2 are defined so broadly that any assessment of indigenous vegetation and habitats of indigenous fauna is likely result in at least one of the high attributes being met, and the entire area being classified as a High SNA under the NPSIB. This will remove the ability to consider the full effects management hierarchy regardless of whether ecological experts agree that the ‘High SNA’ contains no values that are incapable of being maintained through appropriate remediation, mitigation, offset and/or compensation actions. Accordingly, Dr Keesing is of the opinion that Appendix 2 does not foster the best biodiversity outcome and is likely to generate issues as ecologists assign SNA status based on a debatable, “untested ranking system”.
My understanding is that the policy intent is not for Appendix 2 to result in nearly all SNAs being classified as High (and therefore a strict avoid adverse effects regime apply to activities in Part 3.9(2), but rather a more balanced approach was envisaged. Accordingly, one option to better provide the more “flexible and pragmatic approach” intended through Part 3.9(2) is to refine the attributes in Appendix 2 so that less SNAs are classified as High and the attributes would be less subjective and debatable. This option is considered in the evidence of Dr Keesing who provides some suggestions as to how attributes for each SNA criteria could be reframed to capture only those aspects of biodiversity which are inappropriate, and unable, to be offset.

This option could potentially make Part 3.9(2)(a) and Part 3.9(2)(d)(ii) more workable by allowing adverse effects of mineral extraction to be managed in accordance with the effects management hierarchy in more circumstances. However, I envisage that it will be very difficult to get an acceptable level of consensus between experts on the appropriate settings to classify SNA as High or Medium across the four SNA criteria. A high level of subjective interpretation is also likely to remain, and this is likely to result uncertainty, debate and litigation in the classification of SNAs as High or Medium under the NPSIB, particularly in its early implementation phase.

The function of Appendix 2 is essentially to set limits on when the effects management hierarchy can be used for the activities listed in Part 3.9(2). Therefore, then it may be more efficient and effective to achieve this through the limits to the use of biodiversity offsetting and biodiversity compensation already contained in Appendix 3 and 4 of the NPSIB. This is discussed further in relation to Option 3 below.

Option 2 – Remove Appendix 2

This option would involve the deletion of Part 3.8(1)(b), Part 3.9(2)(a) and Appendix 2 so that the different effects management regime for mineral extraction in High and Medium SNAs would no longer apply. Instead, all mineral extraction that takes place in, or affects, a SNA would be managed under Part 3.9(2) which requires all proposals to:

a. Demonstrate that the activity has a functional or operational need to be in that particular location;

b. Demonstrate that there are no practicable alternative locations for the activity;
c. Manage adverse effects in accordance with the effects management hierarchy; and

d. Comply with the principles for biodiversity offsetting and biodiversity compensation (when these actions are proposed to redress residual adverse effects).

67 In my opinion, the above provisions provide a robust management framework to manage the adverse effects of mineral extraction and achieve good biodiversity outcomes – at least a no-net-loss and preferably a net gain. Importantly, OGNZL’s projects are of a scale which means that they are highly regulated through the resource consent process. This provides a means to ensure the effects management hierarchy is adhered to and appropriate biodiversity outcomes can be secured through robust consent conditions (where the adverse effects are capable of being managed).

68 As noted in the NPSIB discussion document, the effects management hierarchy in the NPSIB aligns with best practice and will ensure biodiversity offsetting and compensation are used appropriately (i.e. only after it has been demonstrated that avoidance, remediation and mitigation is not possible). The principles in Appendix 3 and 4 provide clear direction on the use of offsetting and compensation based on internationally and nationally accepted principles and good practice, including recognition of the fact that it is not always going to be appropriate to offset and appropriately compensate (i.e. there are limits). The principles are intended to provide clarity on the use of offsetting and compensation and ensure these are used appropriately.

69 I accept that this option does not provide the same level of certainty as the strict avoid adverse effects on High SNAs approach proposed in the NPSIB. However, in my opinion, this is a more efficient and effective option to manage mineral extraction under the NPSIB and achieve Objective 1 and 6, compared to the different management approach for High and Medium SNAs currently proposed. It provides a suitably robust framework to ensure indigenous biodiversity is maintained through the resource consent process while ensuring the positive effects of mineral extraction are not inappropriately precluded through an unnecessary strict avoidance regime. This approach also recognises that there will be situations when mineral extraction has unacceptable adverse effects and it will not be appropriate to offset or compensate those adverse effects (i.e. the limits in Appendix 3 and 4). Removing the High and Medium SNA split in Appendix
2 from the NPSIB places additional importance on ensuring that these limits are clear and fit-for-purpose.

Option 3 – remove Appendix 2 and refine limits to offsetting and compensation

70 While I consider that Option 2 above provides a sufficiently robust assessment framework to manage the adverse effects of mineral extraction under the NPSIB, there may also be an opportunity to refine and improve the limitations on when biodiversity offsetting and biodiversity compensation can be used to redress residual adverse effects. Appendix 3 and 4 include ‘limits to offsetting’ and ‘limits to compensation’ which are outlined below. These limits must be met for an action to qualify as a biodiversity offset or compensation under the NPSIB:

**Limits to offsetting:** Many biodiversity values cannot be offset and if they are adversely affected then they will be permanently lost. These situations include where:

i) residual adverse effects cannot be offset because of the irreplaceability or vulnerability of the indigenous biodiversity affected

ii) there are no technically feasible or socially acceptable options by which to secure gains within acceptable timeframes

iii) effects on indigenous biodiversity are uncertain, unknown or little understood, but potential effects are significantly adverse.

In these situations, an offset would be inappropriate. This principle reflects a standard of acceptability for offsetting and a proposed offset must provide an assessment of these limits that supports its success.

**Limits to biodiversity compensation:** In deciding whether biodiversity compensation is appropriate, a decision-maker must consider the principle that many indigenous biodiversity values are not able to be compensated for because:

a) the indigenous biodiversity affected is irreplaceable or vulnerable

b) there are no technically feasible or socially acceptable options by which to secure proposed gains within acceptable timeframes

c) effects on indigenous biodiversity are uncertain, unknown or little understood, but potential effects are significantly adverse.
The limits to offsetting in the NPSIB (and other principles) have been adapted directly from the Local Government New Zealand (LGNZ) guidance on ‘Biodiversity Offsetting under the Resource Management Act – A Guidance Document’ and are consistent with DOC’s guidance on offsetting and the Business and Biodiversity Offsets Programme (BBOP) principles. Dr Keesing also notes in his evidence that these limits to offsetting are well understood in the ecological community and are accounted for in the models used by ecologists to assess proposed offset actions.

It is recognised that the limits the use of offsetting and compensation in Appendix 3 and 4 of the NPSIB are consistent with widely accepted principles and best practice guidance – both nationally and internationally – and are generally accepted in the ecological community. However, in undertaking a more detailed review of these limits than was possible in the draft evaluation, I have identified some potential interpretation and implementation issues with the current wording and noted opportunities to refine the principles to achieve the desired outcomes. This also draws on some of the ecological limitations with the proposed limits identified by Dr Keesing in his evidence.

In particular:

a. **Clause i) and a)** – ‘vulnerable’ is a subjective and debatable term and maybe more objectively identified and captured by other means. For example, one alternative is to use the New Zealand Threat Classification System (NZTCS), which effectively identifies vulnerable species within New Zealand. I also understand from the evidence of Dr Keesing the vulnerability of biodiversity is a factor that is considered in assessing whether a particular offset is realistic, and in the design of the scale of offset needed. Therefore, in his opinion, it is unhelpful and uncertain to limit the use of offsetting or compensation when vulnerable indigenous biodiversity may be affected.

b. **Clause ii) and b)** – similarly ‘socially acceptable’ is a subjective and debatable term. In my opinion, the focus should be on whether the offset or compensation is technically feasible, as opposed to someone’s opinion on what is socially acceptable.

c. **Clause iii) and c)** – it is unclear why the precautionary approach needs to be repeated in these limits when this approach is clearly required under the NPSIB

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under Policy 2 and Part 3.6. I also understand that risk and uncertainty are already factored into offsetting models, which identify where an action is too experimental or risky to be an offset. I note that the precautionary approach is not specifically referred to in the limits to offsetting in the LGNZ, DOC or BBOP guidance.

74 In my opinion, the key test within the limits to offsetting and compensation relates to when the indigenous biodiversity is “irreplaceable” and there may be benefit in defining this with greater precision and certainty to avoid (or at least reduce) debates around what constitutes “irreplaceable”. This is considered by Dr Keesing in his evidence as he suggests that what constitutes “irreplaceable indigenous biodiversity” could be defined as:

a. Any species listed as Nationally critical, Nationally endangered or Nationally vulnerable in the NZTCS. This is based on the closeness of these species to extinction meaning that, although it may be possible to offset these species, the risk of their loss is too great that there should be no opportunity to offset.

b. A pristine habitat which Dr Keesing defines as “one that is unmodified (largely) by anthropomorphic actions and is highly representative of a pre-human condition, devoid of weeds and pests and challenges of structure, assemblage and function. This is a function of age (maturity), complexity and an absence of modification and pressures”. Dr Keesing is of the view that these truly unmodified communities are so rare and complex, and the uncertainties associated with effectively replicating them so great, that there should be no opportunity to offset for their loss.

75 In my opinion, these are helpful suggestions to define irreplaceable indigenous biodiversity with greater clarity and therefore provide greater certainty on when biodiversity offsetting or compensation is not appropriate and cannot be proposed by applicants. This will help ensure that there are clear limits in place to maintain indigenous biodiversity while also not inappropriately or unnecessarily precluding projects that can achieve good biodiversity outcomes through compliance with the effects management hierarchy and principles for offsetting and compensation in the NPSIB.

76 Overall, I consider that Option 2 and Option 3 above will provide a more efficient and effective approach to manage mineral extraction under the NPSIB compared

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14 Evidence of Dr Keesing, paragraph 6.11.2
to the different management approach for High and Medium SNAs currently proposed.

Jerome Wyeth
13 March 2020
CONSULTATION BEFORE THE MINISTRY FOR THE ENVIRONMENT AND
THE DEPARTMENT OF CONSERVATION FOR THE PROPOSED NATIONAL
POLICY STATEMENT FOR INDIGENOUS BIODIVERSITY

IN THE MATTER OF of the Resource Management Act 1991 (RMA)

AND

IN THE MATTER OF The Proposed National Policy Statement for Indigenous
Biodiversity (NPSIB)

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EVIDENCE OF MICHAEL JAMES THORSEN

2020
1. QUALIFICATIONS AND EXPERIENCE

My name is Michael James Thorsen.

1.1 I am a Director and Principal Ecologist with Ahika Consulting Ltd.

1.2 I have been working professionally in the biodiversity management field since 1990 for a number of organisations including the Department of Conservation (17 years), Mauritian Wildlife Foundation, United States Fish and Wildlife Service, St Helena National Trust, Landcare Research, Birdlife International, and as a freelance ecologist on a wide variety of flora and fauna restoration and protection projects throughout New Zealand, in Hawaii, Mauritius, Seychelles, Marquesas, St Helena and Kiribati. I have a PhD in Ecology from the University of Otago.

1.3 I have been providing support on biodiversity issues to Oceana Gold (New Zealand) Limited (OGNZL) at Macraes Mine since 2013. I am familiar with the area of the Macraes Mine and the general surrounds, having worked on vegetation and reptile studies in nearby areas for the Department of Conservation since 2005.

1.4 I am familiar with many of the Macraes Ecological District’s terrestrial and freshwater ecological values, having undertaken various detailed surveys in parts of the district since 2005. While I am generally familiar with the whole Macraes Ecological District (Macraes E.D.) there are large parts of it that I have not surveyed in detail.

1.5 Whilst this matter is not before the Environment Court, I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. This affidavit has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

1.6 I have visited the Macraes E.D. on at least 200 occasions for the purposes of documenting the flora of the area for conservation management purposes, research, assessing mining impacts and implementing mitigation...
programmes while in the employ of the Department of Conservation and as a contractor for OGNZL. This work has resulted in a database of 24,445 plant location records for the Macraes E.D.

1.7 This work has given me a high degree of familiarity with the terrestrial ecology and wetlands that are present in the Macraes E.D., the types, distribution, range in their ecological condition, the impacts that are affecting them, and their management.

2. SCOPE OF EVIDENCE

2.1 I have been engaged by OGNZL to review and comment on aspects of the November 2019 proposed National Policy Statement for Indigenous Biodiversity (Proposed NPSIB) as it relates to terrestrial indigenous biodiversity in the Macraes E.D. and to provide expert evidence on the distribution and characteristics of terrestrial indigenous biodiversity in the Macraes E.D., the threats to their persistence, how effects arising from mining have been managed in the past and the potential consequence of applying the proposed significance criteria over OGNZL’s area of interest (AOI) using the best available information.

2.2 In this evidence I:

2.2.1 Describe the distribution and character of terrestrial indigenous biodiversity in the Macraes E.D.;

2.2.2 Describe the threats that are currently causing their degradation;

2.2.3 Demonstrate how the NPSIB would classify terrestrial ecology at Macraes Mine using the proposed significance criteria;

2.2.4 Discuss previous terrestrial ecology conservation that has occurred in the Macraes E.D., including by OGNZL, and the potential benefit of this work to maintaining indigenous biodiversity values;
3. **SUMMARY OF EVIDENCE**

3.1 In general, I support the intent of the Proposed NPSIB, but with some concerns around how it will apply.

3.2 Terrestrial indigenous biodiversity is of considerable extent in the Macraes E.D., but is patchily distributed as a result of past land use.

3.3 Many of the sites where indigenous biodiversity is to be found are of good to moderate ecological quality but are being degraded primarily through land use changes, weed invasion and (to a lesser extent) from browsing by pest animals and stock (though there is also a beneficial aspect to this through reducing weed competition). Most of the wetlands have been degraded, some severely, mainly through invasion by exotic weed species.

3.4 There is little active conservation of wetlands or significant indigenous biodiversity occurring in the Macraes E.D., excepting that being undertaken by OGNZL and the Department of Conservation (DOC).

3.5 Under the Proposed NPSIB it is likely that all areas of vegetation containing a component of indigenous species (i.e. including some predominantly exotic vegetation communities) will be considered Significant under the criteria in Appendix 1. It is estimated that this is likely to be about half of the AOI. The majority of the significant areas would be considered of High Significance under one or more of the criteria in Appendix 2. It is assessed that at least 46.8% of the AOI (60.8% of the area outside of current mine workings) would be of High Significance and that the High Significance area would have included the site of the recent Coronation North project and includes parts of the near future Deepdell North III project. It is likely that a similar percentage would be obtained if this exercise was performed for the entire Macraes E.D.

3.6 The recent biodiversity project work for OGNZL’s Coronation North resource consent application is considered through expert consensus between the ecologists representing OGNZL, Department of Conservation, Dunedin City Council and Waitaki District Council to be sufficient that there will be no net
loss of biodiversity (NNL). In fact, the overall position could be better than NNL because more biodiversity has been salvaged than the consents require.

3.7 OGNZL’s near-future projects are being designed using an offsetting and compensation approach and this is likely to give greater certainty around the achievement (or exceedance) of a NNL of biodiversity.

3.8 These projects represent a real opportunity to achieve well founded and supported conservation gains in an area that has high biodiversity values but where degradation of biodiversity is ongoing. These gains are unlikely to be achieved through other means.

4. DISTRIBUTION AND CHARACTER OF INDIGENOUS BIODIVERSITY AT THE MACRAES MINE IN THE MACRAES E.D.

4.1 The indigenous vegetation communities currently present within the Macraes mine area are botanically diverse and are habitat for 589 indigenous plant species. It is an important area for the conservation of rare plants and 15 Data Deficient, 61 At Risk and 27 Threatened species (as defined in the New Zealand Threat Classification System – NZTCS) are known to inhabit the area. There is also a high diversity of exotic plant species and 226 exotic species are known from the area.

4.2 Of the fauna, fifty-four species of birds have been recorded from the Macraes E.D., of which thirty-four are indigenous and twenty are introduced. The area is noted for its high diversity of seven lizard species, including the last known wild populations of grand skink *Oligosoma grande* and Otago skink *Oligosoma otagense*, which are a focus of a Department of Conservation managed Ecological Management Unit. The invertebrate communities are diverse (for a region at moderate altitude) and contain some species that are rare or of biogeographic interest. Some catchments within the Macraes area provide habitat for populations of non-migratory galaxiids, freshwater crayfish and longfin eel.

4.3 Within the mine AOI (6,837.17 ha) is 1,575.01 ha (23%) of current mine workings and roads and 3,191.42 ha (46.7%) of indigenous vegetation.
(including vegetation that is dominated by exotic species, but that still contains at least a moderate diversity of indigenous species). The remaining 2,070.74 ha (30.3%) is high producing grasslands, crops or forestry.

4.4 The indigenous vegetation within the AOI consists of narrow-leaved tussock grassland, regenerating matagouri-dominated shrubland, low producing grassland communities and with scattered representation of wetlands and riparian vegetation. These communities have developed through a complex interplay between pre-human vegetation communities and a number of land use activities employed by Maori and more recently by Pakeha farmers. Because of this interplay much of the existing vegetation, though of indigenous character, is not largely representative of the original vegetation cover.

5. THREATS TO INDIGENOUS BIODIVERSITY COMPOSITION AND FUNCTION

5.1 The ecological quality in terms of species diversity, intactness and extent varies greatly within the vegetation communities and nearly all are degraded to some extent.

5.2 The main agents of degradation of the indigenous biodiversity in the AOI and surrounding area are (in order of severity of impact) changes to land use (mainly through ploughing of tussockland and burning of shrubland, but also through mine activities in the AOI), competition with exotic plants, invasion by exotic shrub species (primarily gorse and broom), predation from exotic mammals, invertebrates and fish, and browsing by both stock and exotic herbivores (including invertebrates). It is important to note that some of these can also have beneficial effects, for example browsing by stock and exotic herbivores is at times beneficial through removing exotic plant biomass allowing smaller indigenous herbs and grasses to survive.
5.3 The impact on indigenous biodiversity from mining is the only activity in the Macraes E.D. where the effects have been required to be managed so that losses are balanced against associated gains in quality and/or extent of the area’s biodiversity.

6. **HOW THE NPSIB WOULD CLASSIFY INDIGENOUS BIODIVERSITY AT THE MACRAES MINE**

6.1 To assess the outcome of applying the proposed significance criteria in Appendix 1 of the Proposed NPSIB within the AOI I used the best available information to determine the spatial extent of land that would be assessed as containing significant vegetation or habitats.

6.2 The best available information differs depending on the criteria being used. Some of the datasets that are commonly available (and used in this sort of exercise) were found to have considerable errors that made their use problematic over the scale of the AOI.

6.3 The following is my assessment of applying each of the significance criteria within the AOI.

6.4 **Representativeness** criteria:

6.4.1 I originally tried to assess this using the vegetation communities in the Land Cover Database\(^1\), however the difference between both the mapped boundaries and designation of vegetation community within the database and that visible through inspection of aerial imagery and my experience of the vegetation in the area was too large for confident use of this information source.

6.4.2 Instead I mapped the areas that contain indigenous vegetation using visual inspection of aerial imagery. The mapped areas were classified into either high or low ecological intactness.

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6.4.3  This mapping shows 3,191.42 ha (46.7%) of the Area of Interest as being vegetation that could be considered significant under the Representativeness criteria (Map 1). This is all the vegetation mapped as indigenous in the AOI².

Map 1. Potentially significant vegetation with the AOI when applying the Representativeness criteria.

6.5  Diversity and Pattern criteria:

6.5.1  It is difficult to make an evaluation of significance using the criteria in B5. This is because measuring the diversity of units such as vegetation communities or habitats of fauna that are usually of larger scale (and therefore few examples within an

² Note, because of the inclusion of ‘commonplace’, ‘degraded’ and ‘seral’ components in the Key Assessment Criteria, this has the effect of making ALL areas containing a component of natural vegetation qualify as significant under the Representativeness criteria.
area being evaluated) means that there is little clarity of what is meant by “diversity” (i.e. are two examples diverse?).

6.5.2 Diversity of species is one metric that can be used, though with caution. In the Macraes E.D. this metric for indigenous plant species varies between 0.4 and 3.1 indigenous species per hectare. However, these figures vary with area and larger areas generally have a lower number of indigenous species per hectare\(^3\), even though the total number of indigenous species is higher.

6.5.3 Species diversity for Macraes E.D. overall is unknown and so this evaluation was undertaken using expert opinion in the absence of alternative objective information. The areas mapped as being of high ecological intactness are considered to have high botanical diversity for the Macraes E.D.

6.5.4 With respect to Criteria b), no ecotones are present in the AOI. It is hard to interpret what is meant by ‘partial gradients or sequences’ (my emphasis) and this is not considered further.

6.5.5 This mapping shows 1,211 ha (17.7%) of the Area of Interest as being vegetation that could be considered significant under the Diversity criteria (Map 2). This is all the vegetation mapped as indigenous in the AOI.

\(^3\) Because they contain larger proportions of areas of homogenous habitat.
6.6 **Rarity and Distinctiveness** criteria:

6.6.1 These criteria were evaluated using my database containing 24,445 plant location records for the Macraes E.D.\(^4\) plus my locality records of ecosystems that are classified as Naturally Uncommon and the mapped indigenous vegetation that occurs on a LENZ where indigenous vegetation that has been reduced to less than 30% of its former extent.

6.6.2 This mapping shows that Threatened plants have been recorded from 49 locations within the AOI, At Risk plants at 365 locations and rare plants at 89 locations. One type of Naturally Uncommon ecosystem (Ephemeral Wetlands) is present within the AOI and

\(^4\) However, there are extensive areas of the AOI that have not been surveyed.
has been mapped as occurring at 54 locations in the AOI. Areas of indigenous vegetation mapped on LENZ with less than 30% of their original vegetation remaining covers 2,543.11 ha (36.7%) of the AOI. These elements are shown in Map 3.

Map 3. Potentially significant vegetation with the AOI when applying the Rarity and Distinctiveness criteria.

6.7 Ecological context criteria:

6.7.1 These criteria are difficult to evaluate as they are mostly subjective assessments (‘well-buffered’, ‘important for the natural function’, ‘supports large numbers’, ‘provides critical habitat’) and likely to be a matter for expert opinion. I am not aware of much objective information for the communities and habitats in the Macraes E.D. that could help inform this expert opinion.
6.8 **Overall,** it is likely that all vegetation that contains an element of indigenous character is likely to be considered significant under the proposed criteria. This vegetation is likely to cover at least 46.7% of the AOI, but there will also be sites that will trigger significance criteria because of application of other criteria that could not be evaluated in the current exercise as well as additional locations that have not yet been surveyed for biodiversity.

6.9 **High and Medium Significance:**

6.9.1 The sites that were assessed as being potentially significant were also evaluated using the management framework in Appendix 2 to decide whether they were likely to be considered of High or Medium significance.

6.9.2 This mapping shows 3,199.41 ha (46.8%) of the Area of Interest as being of High Significance using the criteria in Appendix 2 (Map 4). Much of the area qualifies under two or more criteria. This represents much (60.8%) of the area outside of current mine workings.

6.9.3 The area classified as High Significance would have included the site of the recent Coronation North project and includes the parts of the near future Deepdell North III project where indigenous vegetation is present.

6.9.4 It is likely that a similar proportion (c. 50%) of the Macraes E.D. would be assessed as of High Significance.
7. CONSERVATION OF INDIGENOUS BIODIVERSITY IN THE MACRAES E.D. – PAST AND PRESENT

7.1 The preservation of the current indigenous biodiversity in the Macraes E.D. has been primarily through several local factors – early Maori use of the area including burning the original vegetation which produced extensive tussock grasslands, the long history of traditional farming practices and the predominance of rocky areas and incised gullies that protect the species that occur at these sites.

7.2 Conservation of the area has traditionally centred on protecting populations of grand and Otago skinks through creating a protected area network, predator fencing of some areas and extensive predator control.
7.3 The effects of recent OGNZL mine projects have been managed so that effects have been balanced with conservation actions that achieve the overall maintenance of biodiversity. This balance between impact and remediation of effect has been primarily through expert evaluation by ecologists for OGNZL, the Councils (Waitaki District and Dunedin City), and DOC during the consenting process.

7.4 During the consenting process OGNZL adopts a high quality approach in the assessment of both the evaluation of project effects on local biodiversity and in planning the management of these effects. Assessment documents for the recent Coronation North and the near-future Deepdell North III projects are evidence of this approach. The quality of the information in these documents have been acknowledged by DOC.

7.5 Currently mine projects are managed against the effects management hierarchy of first Avoid then Remedy then Mitigate before options to Offset or Compensate residual non-trivial effects are considered.

7.6 The impacts of the near-future Deepdell North project are planned to be addressed through use of this effects management hierarchy, with residual non-trivial ecological effects after the Mitigate phase being addressed through an Offset approach in which the aim is at least No Net Loss (NNL), and preferably a net gain, in biodiversity. The progress to and achievement of NNL will be measured giving greater confidence in outcomes.

7.7 It is noteworthy that attention is given that the conservation actions undertaken by OGNZL are well considered and adequately resourced to achieve their planned outcomes.

7.8 OGNZL currently manages six ecological covenant areas covering a total of 655 ha. Other protected lands in the vicinity include the 590 ha Deighton Creek Nature Reserve, the 1,452 ha Redbank Scenic Reserve and the 332 ha Manuka Stream Conservation Area, giving a total of 3,029 ha of legally protected land in the Macraes Ecological District. This
equates to 2.4% of the Ecological District’s land area and is similar to the proportion protected of the ecologically similar nearby Manorburn Ecological District.

7.9 These covenant areas have been found to be important reservoirs of local biodiversity and ongoing inventory has shown that they protect around 1/3 more species than originally thought present.

7.10 OGNZL also supports a number of other conservation actions such as removal of pines, weed control, translocation of rare plants from within mine footprints to secure sites elsewhere, fencing of Critically Endangered ephemeral wetlands, installation of trout barriers to protect freshwater fish, translocation of koura and creation of new lizard habitats.

7.11 OGNZL has also commissioned social science to further understand the community attitudes to conservation measures in the Macraes E.D.

7.12 In these conservation initiatives, OGNZL has taken the approach of exceeding targets. An example of this is including additional plant species in rescue packages (i.e. above and beyond what consent conditions require) and focussing on those species with the highest conservation need in this programme.

7.13 The majority of the indigenous biodiversity gains achieved by OGNZL would not have occurred without their involvement.

Michael Thorsen
13 March 2020
CONSULTATION BEFORE THE MINISTRY FOR THE ENVIRONMENT AND THE DEPARTMENT OF CONSERVATION FOR THE PROPOSED NATIONAL POLICY STATEMENT FOR INDIGENOUS BIODIVERSITY

IN THE MATTER OF of the Resource Management Act 1991

AND

IN THE MATTER OF The Proposed National Policy Statement for Indigenous Biodiversity

EVIDENCE OF GAVIN JAMES LEE

13 MARCH 2020
1. QUALIFICATIONS AND EXPERIENCE

1.1 My name is Gavin James Lee. I am the Community and Environment Manager at the Macraes Mine, owned and operated by Oceana Gold (New Zealand) Limited (OGNZL).

1.2 I have worked at Macraes Mine since November 2016. In my Environment capacity I am responsible for site environmental related matters including heritage, ecology, consent monitoring, rehabilitation, regulatory reporting and management plans. In my Community capacity I am responsible for facilitating ongoing community and stakeholder engagement.

1.3 I have a Bachelor of Engineering (Mechanical) from the University of Western Australia and a Graduate Diploma of Energy Studies from Murdoch University, Australia.

1.4 For the 24 years prior to joining OGNZL I have worked in Environmental and Social Management in the extractives industry. My experience includes all phases of the mining cycle (Development, Construction, Operations and Closure) in precious metals and base metals. My career has taken me from Perth to Queensland (7 years), and to Indonesia (15 years).

2. SCOPE OF EVIDENCE

2.1 In my evidence I will provide a background of the Macraes Mine and factors influencing the operation of the mine and its efficiencies. I will explain the limitations that could be imposed by the 2019 proposed National Policy Statement for Biodiversity (NPSIB) and the opportunities that could arise from the proposed NPSIB as a result of the continuation of the Macraes Mine.

2.2 My evidence will cover:

2.2.1 A summary of the history of mining in the Macraes area and the recent history associated with Macraes Mine and a description of the environmental setting.
2.2.2 An explanation of the mining process at Macraes, some of the constraints and challenges faced and the efficiencies that have been driven by those challenges.

2.2.3 An explanation of how the proposed NPSIB will affect the Macraes Mine.

2.2.4 Examples of recent and current mine developments, the application of the effects management hierarchy, and conservation benefits derived as a result of the Macraes Mine.

2.2.5 A brief description of overall sustainability performance at the Macraes Mine.

3. BACKGROUND TO THE HISTORY OF MACRAES MINE & THE ENVIRONMENTAL SETTING - OVERVIEW

3.1 The Macraes Mine is located about 30 kilometres (km) to the northwest of Palmerston, in East Otago. The mining operation is located 1 to 2 km to the east of the Macraes village and is predominantly surrounded by farmland. All mining takes place on land OGNZL owns.

3.2 Gold was first discovered in the Macraes Flat locale in 1862. Since then there has been a series of gold rushes in the area between 1870s and 1930s, from both hard rock and alluvial mining. In the years leading up to World War II, Macraes became an important source of tungsten (sheelite) for the war effort.

3.3 In addition to mining operations, large parts of the area had been designated as pastoral runs in the 1850s. As mining declined in the first half of the 20th Century land was given over to farming which was the dominant activity in the later part of the century.

3.4 Today mining operations at Macraes Mine continue using open pit methods, combined with an Underground Mine which has been operating since 2006. Annualised gold production is around 160,000 ounces split between about 75% open pit production and about 25% production from underground
mining. While OGNZL continues to explore both open pit and underground potential at Macraes, it is unlikely that Macraes will ever be exclusively an underground mine. The location and form of the gold deposits at Macraes mean the mine is, and is expected to continue as, primarily an open pit operation.

3.5 Like the Waihi mine, the combined gold production to date and known remaining resources at Macraes place the mine in the category of a “world class” gold deposit, of which there are comparatively few in production worldwide. In July 2019 OGNZL poured the fifth millionth ounce of gold from the Macraes operation. Remaining known gold resources stood at over 4 million ounces as at 31st December 2018. As OGNZL’s single biggest producing mine, Macraes is expected to continue operating within its known “line-of-strike” for decades to come, if resource consenting allows.

3.6 OGNZL currently provides about 577 jobs for employees and contractors at the Macraes operation, and a further 25 staff are engaged in the Dunedin office.

4. OVERVIEW OF THE MACRAES MINE ACTIVITIES

4.1 The almost 30 years of mine life of the Macraes Mine has been an extraordinary journey of efficiency, innovation and adaptation. Due to the low grade and shallow mineralization associated with the geology, the Mine can only exist as an open pit operation that is supplemented by underground operations. The most recent Aurum Analytics Australasian gold mine survey ranked Macraes as 40th highest gold-grade out of the 46 operations in the survey\(^1\). Of the six operations with lower gold grades, three had copper as a by-product\(^2\), one consisted mostly of low-grade stockpiles\(^3\), and the other two


\(^2\) Boddington, Telfer and Ernest Henry all process significant quantities of copper. In the survey, copper revenues are credited against gold production costs to report a gold cost/oz. This means the equivalent gold grade is higher than the pure gold grade.

\(^3\) Edna May, UG grades at 3.72g/t blended with low grade stockpiles to give a milled grade of 0.71g/t
were low grade open pits. Macraes was the lowest grade gold-only operation which includes an underground mine as a primary ore source. The average grade over the life of the mine has been between one and two grams per tonne of ore.

4.2 The low grade has driven investment in new and innovative technology and engineering combined with efficiencies in mining operations which sets Macraes apart from many other mines globally. When ranked in comparison with the S & P Global Market Intelligence Metals and Mining Property database for 231 international mining operation, Macraes Mine was in the top 14% of mines for the lowest unit cost for open pit mining.

4.3 The low unit costs remain essential for Macraes Mine as the ratio between the amount of ore dug to the amount of rock dug which is not ore is one to ten (also known as the stripping ratio). So, to put this in perspective, in order to obtain one to two grams of gold, the open pit mining operation must move 11 tonnes of rock.

4.4 The geology has also added complexity to the processing of the low grade ore. Gold at Macraes is known as 'refractory ore', which means that it is ultra-fine and resistant to the typical cyanide leach process, typical of most gold processing plants. This refractory nature of the ore led to inefficiencies in recovering the gold from ore. A series of innovations in late 1990s and early 2000s involving significant capital expenditure and significant risk (including the installation of an autoclave and a series of floatation cells) managed to achieve an increase in gold recovery of 15%. In addition to the innovation associated with improving the recovery of gold, the amount of ore processed has increased from 1.5 million tonnes per year to 6 million tonnes per year through a series of upgrades to the processing plant.

4.5 Possibly the most amazing part of the Macraes story is that the Mine has remained operating continuously for the last 29 years. Beyond the low grade,

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4 Ravenswood and Dalgaranga are both low grade open pit only operations.

5 Source: S&P Global Market Intelligence – Metals & Mining Property Database

6 Gold recovery at Macraes is now between 83 – 86%
the stripping ratio and the metallurgical complexity of the ore, the Mine has successfully manage its operation with a fluctuating gold price (between US$252/oz and US$1,880/oz), while many other richer mines have faulted. The longevity of the Macraes Mine is a true celebration of Kiwi ingenuity and resilience.

4.6 The mine is set to continue its long history of continuous improvement, innovation and significant capital investment off the back of $100s millions of investment to date in existing infrastructure and exploration if conditions, including the regulatory environment, allow.

4.7 The Orebody at Macraes is constrained to a fault in which the gold has been deposited by geothermal processes over 200 million years ago. The fault known as the Hyde Macraes Shear Zone stretches approximately 35 kilometers south east to north west. Thus mining activities are restricted to within close proximity to the Hyde Macraes Shear Zone.

4.8 Figure 1 presents an aerial image of mining activities and overlay locations of prospective future mining activities and is the Macraes Mine’s future Area of Interest (AOI) for future mining activities. It is noted that for scaling purposes the orientation of the map is approximately 45 degrees to the east of true north. This gives the impression that mining activities, and consequently the Hyde Macraes Shear Zone, are north south.

5. **NPSIB AND THE MACRAES MINE**

5.1 The NPSIB being proposed would almost certainly lead to the cessation of future development of much of the unmined gold resources at Macraes and be very constraining for current operations. The impact could be the early closure of the mine, with resulting employment and economic consequences at local, regional and national levels; and the foregoing of opportunities for the mining company to continue to invest in conservation projects in the Macraes area. The aspect of the reform that is of particular concern is the inability to use the effects management hierarchy (including biodiversity offsetting and compensation) to address residual adverse effects on
significant biodiversity values that are inevitably impacted by mine development.

Figure 1 Macraes Mine Site and Potential Future Mining Locations
5.2 Although the NPSIB has on the face of things made allowance for the extractives industries, the bar set for the identifying Significant Natural Areas (SNA) has been set so low so as to render almost all potential future mining location sterile as they overlap with what would be assessed as high value SNAs under the proposed criteria. This is discussed in greater detail in Dr Thorsen’s evidence. OGNZL recognizes the importance of the biodiversity of the Macraes Ecological District, and I would now like to provide recent examples of how net positive impacts on biodiversity can be achieved through the application of the Effects Management Hierarchy (EMH).

6. **RECENT MINE DEVELOPMENTS AT MACRAES**

6.1 The following description provides examples of mine developments and the conservation outcomes associated with those developments. My description focuses on the process undertaken and the outcomes. In both instances the land associated with the development would have been assessed as a High Value SNA and as such would not have gone ahead if they had been proposed under the regime now being promoted in the NPSIB.

**CORONATION NORTH – POSITIVE MINING & CONSERVATION OUTCOMES**

6.2 In 2016, OceanaGold lodged a consent application for the Coronation North Project. The Project involved a new open cast mine, a cut back of an existing pit in close proximity to the new pit, associated waste rock storage and ancillary facilities such as a workshop, fuel storage and heavy vehicle park up area. The total area of disturbance for the Coronation North Project was 315ha of which 265ha contained indigenous vegetation communities. The biodiversity values associated with the impacted area are contained in the Area of Interest identified in Dr Thorsen’s evidence
and would certainly be assessed as High significance using the criteria in Appendices 1 and 2 of the NPSIB.

6.3 Following the assessment of biodiversity values OGNZL, working with Dr Thorsen, developed a package of actions to mitigate the effects of the mining activities on those values. Following the Effects Management Hierarchy, a redesign of the waste rock stack was undertaken to avoid certain values pertaining to the bluff habitat. Land clearing of the Waste Rock Stack was also staged in the event that not all the waste rock stack footprint would be needed – which eventually was the case, as I will explain later – thus creating an opportunity for further avoidance.

6.4 The mitigation package included the salvaging of target of 12 of 18 threatened plant species7 and relocating to OGNZL established covenants. To date 11 species have been salvaged, with 166 specimens being relocated to 20 separate sites. Specimens from a further five species have been salvaged in a nursery but not yet relocated to the wild. In addition, aquatic values were mitigated through relocation of Taieri Flat Head Galaxiids and Koura from streams impacted by the development and working with DoC on the establishment of a Trout Barrier primarily for protection of Galaxiid populations.

6.5 Remediation, by way of rehabilitation of waste rock stacks, which is currently underway includes returning sections of the disturbed area to Tussock grassland.

6.6 Compensation actions included:

6.6.1 Conducting a three year research program investigating the establishment of constructed lizard habitat to understand the biodiversity gains associated with such habitats. A researcher from the University of Otago has been engaged to conduct this research which is now in its second year.

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7 Based on the New Zealand Threat Classification list, 2008.
6.6.2 Establishment of two ecological covenants – Highlay Hill (99ha) and Island Block (298ha) – with a total area of 397ha. These covenants have been entered into with DoC and registered on land title and although not true offsets Highlay Hill was identified as a ‘Like for like’ exchange for tussock habitat, and the Island Block was seen as adding considerable additionality. Management and monitoring of these covenants remain ongoing.

6.6.3 Establishment of Habitat Enhancement Fund to be administered by the Dunedin City Council (DCC) based on the clearance associated with the staged Waste Rock Stack. Despite not all the Waste Rock Stack footprint being disturbed, a payment of $250,000 has be made to the DCC.

6.7 In 2019, following confirmation of additional gold resources to the east of the Coronation North Pit, OceanaGold undertook a further redesign of the Coronation North/Coronation development. The redesign, which included significant changes to the waste rock stack and backfilling of the open pit, ultimately led to avoiding disturbance of approximately 52.9ha that had earlier been authorised for incorporation into the mine footprint. Thus recognising the avoidance opportunity originally forecast during the consenting of the Coronation North Project.

6.8 During both the Coronation North Project in 2016 and the subsequent redesign in 2019, the process of developing an appropriate mitigation package was undertaken in conjunction with the DoC. In the case of Coronation North the mitigation package was decided during the hearing, whilst agreement was reached before the hearing for the redesign.

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8 Brian Rance (DoC Ecologist) and Kelvin Lloyd (WDC/DCC Consultant Ecologist) both provided support for the covenants as mitigation as described in ‘The hearing of applications for resource consents RM16.138.01-20, LUC-2016-230 & LUC-2013-225/A and 201.2016.779 & 201.2013.360-1 associated with the proposed Coronation North Project, Macraes Flat.’
6.9 In total the Coronation North Project will generate approximate 649,000 oz of gold over its life. The development underpins the employment of all the Mine’s 577 staff and contractors. Further information of economic and social benefits is contained in section 8.

DEEPDELL NORTH STAGE III – STEPPING UP CONSERVATION EFFORTS

6.10 With an increasing gold price and advances in technology, a cut-back of the previously mined Deepdell North Pit (which had been mined and backfilled in 2002) became part of the Macraes life of mine plan in 2018. The development (also known as DDNIII) includes digging up the backfill and then extending the Pit to access further ore at a deeper location. DDNIII requires waste rock storage and other ancillary mining facilities.

6.11 Design of DDNIII commenced at the end of 2017 and included a number of options for waste rock storage. The most obvious option for storage was an existing mined out Pit (Deepdell South) which had the capacity to store 13.0 Million Tonnes of waste rock or approximately 23% of the total quantity of waste rock from DDNIII. During the early part of 2018 a number of additional options for waste rock storage were explored and included detailed studies in ecology, heritage, stability and amenity effects. Although a preferred option was identified based on a wide range of mining-related factors it was considered that effects on water, terrestrial and aquatic ecology and heritage were unacceptable. Towards the end of 2018, another waste rock stack storage option was designed (this design used a location had been identified during scoping of the mine design in 2017, but was discounted at that time due to landscape effects). Subsequent studies conducted throughout 2019 found that the new location had reduced impacts on heritage values, terrestrial and aquatic biodiversity values and improved outcomes for water. Ultimately this new location is being advanced in the consenting process. The design process
for DDNIII highlighted the benefit of a comprehensive Alternatives Assessment and the balancing of values as required under the RMA.

6.12 The DDNIII detailed design includes one continuous Waste Rock Stack that backfills the Deepdell South Pit, and requires an additional 57.6ha of undisturbed land. The total area of land clearing for DDNIII is 109.0ha, of which 54.9ha is assessed as being indigenous habitat.

6.13 Integral to the detailed design is the commitment to a biodiversity offset for loss of indigenous habitat. The biodiversity offset designed includes identification of like for like habitat within the Macraes Ecological District and provides for additionality through enrichment planting of the offset areas and a monitoring program to show biodiversity gains over time. Additional to the biodiversity offset design is a research program targeting greater understanding of the form, function, threats and management of ephemeral wetlands (one of the habitats impacted and subsequently part of the offset design).

6.14 It is important to note that other mitigation is planned for DDNIII prior to the offsetting design however the commitment to a biodiversity offset shows a continued improvement in how OceanaGold is managing its effects to biodiversity.

6.15 The resource consent application for DDNIII was lodged in December 2019. As with previous applications, OceanaGold has endeavoured to engage DoC early to get feedback on the application.

6.16 DDNIII will extend the mine life an additional year and produce 119,975 oz of gold, once again providing a range of economic and social benefits.

6.17 As discussed in Dr Thorsen’s evidence, the overall mitigation package for DDNIII has been assessed as providing No Net Loss of Biodiversity. However, as Dr Thorsen points out, the indigenous habitats found in DDNIII would be assessed as High significance using the criteria in
Appendices 1 and 2 of the NPSIB, resulting in the biodiversity, social and economic benefits of the Project not being realized.

7. CONSERVATION, MINING AND FARMING

7.1 In addition to the implementation of the Effects Management Hierarchy, OGNZL has also recognised that not all sectors of society understand the importance of undertaking measures to preserve the natural environment and to maintain biodiversity. In 2017, representatives of the Macraes community appealed against the decision granting consents for the Coronation North Project. High amongst their concerns was the ongoing establishment of compensation for effects to ecology in the form of restrictive covenants designed to avert the risk of future ecological losses in the covenant areas through mining or more intensive farming. While the land over which the covenants are registered is owned by OGNZL, once the mine is closed it will revert to farmland, and in the meantime the company tries to lease out land that is not immediately required for mine purposes to farmers in the area to be used for grazing and other agricultural purposes. Although agreement with the local community representatives was reached through mediation and their appeal was withdrawn, they remain concerned about ongoing efforts to preserve remnant ecological values in the Macraes Ecological District, and the effect this will have on the viability of farming activities in the future.

7.2 In order to better understand and explore these concerns and the expectations of other stakeholders in relation to the underlying values associated with different land uses in the Macraes area, OGNZL commissioned the University of Otago to undertake a stakeholder study in 2018. The Common Ground Study undertook interviews with the various stakeholders (including the local authorities, DoC, Iwi, the Macraes Community and OGNZL). The study found that although three distinct value states exist (i.e. producing value from the land, regulating value from the land, and managing the land), stakeholders were not necessarily fixed to one value state, and this becomes the opportunity to
work towards establishing common ground. Although further work is required to establish understanding and consensus on issues of conservation and land use, OGNZL is committed to progressing this amongst the various stakeholders.

7.3  As part of OGNZL’s stakeholder plan for 2020, a farmers’ forum is being arranged for May to focus on how government legislation will change land use (i.e. water, biodiversity and carbon) and where opportunities may exist either between the mining company and farmers or between the farmers.

8.  MACRAES MINE SUSTAINABILITY PERFORMANCE

8.1  In its 29 years of continuous operations, Macraes Mine has been at the forefront of responsible mining and sustainability issues. OGNZL produced its first publicly available Sustainability Report covering governance, the environment, community engagement, and health and safety in December 2009. Ten years on, the Sustainability Report has evolved and now also includes specific sections on Responsible Mining, and People and Diversity. Data is now presented in accordance with the Global Reporting Index, a standard international format, to allow OGNZL to be compared with other mining companies and industries.

8.2  Some of the highlights in sustainability performance include:

8.2.1  Safety: Creating a safe and healthy working environment for all employees is a priority. In 2017, Macraes launched a behavioral-based safety programme which has played a significant role in reducing the number of injuries to employees and contractors. Between 2013 and 2019 the total recordable injury frequency rate (TRIFR) has dropped from 14.15 to 5.4.9

8.2.2 Employment: Between 2013 and 2019, employee numbers increased from 470 to 577 full-time employees. In addition, Macraes utilizes contractors for specialized tasks, and can have up to 200 contractors on site at any one time. Total expenditure on salaries in 2019 was $58,450,850.

8.2.3 Diversity: 2018 saw Macraes set a target to achieve 20% female representation in the workforce by 2023. A Women In Mining committee was established to better understand the barriers to women entering the mining workforce and leadership roles within Macraes. In order to assist in creating actions and procedures to remove those barriers in 2019 we are piloting a flexible workhours programme and are developing a ‘lunch roster’ for the Open Pit operations to facilitate the (re)entry of mothers into the workforce.

8.2.4 Community: In the period between 2013 and 2019 total contributions towards community sponsorship and donations were $1,538,531. The sponsorship programme focuses on community resilience, health, education and conservation. In addition, in 2015 the company made a payment to the Macraes Community Development Trust of $1,558,393 to support development of the Macraes Village beyond mining.

8.2.5 Partnerships: Macraes Mine has developed a number of important partnerships with local organisations such as Fish & Game in connection with the operations of the Macraes Trout Hatchery which liberates over 8,000 rainbow trout fingerlings to DoC-approved reservoirs around Otago, and University of Otago in conducting research on aspects associated with the mine including biodiversity, social and geological research. In addition, OGNZL has recently signed a Protocol of Engagement with the tangata whenua in the Macraes area.
8.2.6 Revenue: For 2019 alone, Macraes made $25,463,754 in payments to local, regional and central government (i.e. taxes, royalties and rates) and $188,388,933 to local and national suppliers.

9. CONCLUSION

9.1.1 OGNZL recognises the importance of the biodiversity measures being proposed by the Government. The company also understands that impacts to biodiversity are not fungible. Effects to biodiversity cannot be traded for financial or social benefits. However, as I have shown above, we believe that mining at Macraes has the technical and financial capability to ensure that net positive impacts can be achieved for the environment and for broader society if given the opportunity.

9.1.2 It is particularly gratifying to know that the work we are doing ensures the developments the mine undertakes are creating net positive outcomes for biodiversity values; creating well paid jobs and worthwhile opportunities for our staff and contractors; and delivering significant economic and social benefits at local, regional and national levels.

9.1.3 The positive outcomes we are achieving for biodiversity are recognised and supported by key stakeholders including DoC and Iwi and is reflected in the encouragement we receive from our independent ecological advisors.

9.1.4 Perhaps most gratifying of all is the fact that you can see the difference our actions in mitigating, offsetting and compensating have made, and are continuing to make, to ecological values. Particularly in the case of habitat loss, many of the areas impacted by mine development have contained habitats of low ecological value due to the effects of weed infestation and farming impacts. While these low value habitats have been lost,
we have been able to invest in protection and enhancement of other similar habitats in the area that have greater existing value, and much greater potential for improvement. I am excited by the material active role we are playing in finding the balance between development and conservation and I am hopeful that the new regime in the proposed NPSIB will provide us with the ability to continue this great work.

Gavin James Lee

13 March 2020
CONSULTATION BEFORE THE MINISTRY FOR THE ENVIRONMENT AND THE DEPARTMENT OF CONSERVATION FOR THE PROPOSED NATIONAL POLICY STATEMENT FOR INDIGENOUS BIODIVERSITY

IN THE MATTER OF of the Resource Management Act 1991 (RMA)

AND

IN THE MATTER OF The Proposed National Policy Statement for Indigenous Biodiversity (NPSIB)

____________________________________________

EVIDENCE OF VAUGHAN FRANCIS KEESSING

2020
1. QUALIFICATIONS AND EXPERIENCE

1.1 My name is Vaughan Francis Keesing.

1.2 I am a Senior Ecologist and Partner with the consulting firm of Boffa Miskell Ltd. I have been a consulting ecologist for the last 22 years. I hold the qualifications of Doctor of Philosophy (PhD) in Ecology, BSc zoology (Hons 1st class), and a Diploma in Research Statistics.

1.3 My skills lie in community ecology and the RMA. I have specialist skills in the areas of limnology, entomology, zoology and botany and have worked extensively in freshwater and terrestrial habitats throughout most of New Zealand.

1.4 I have worked in a variety of locations including the West Coast, Canterbury, Central North Island, Lower North Island, the Far North, Auckland Region and the Bay of Plenty.

1.5 During that time I have undertaken a wide range of ecological surveys of natural and semi-natural sites, incorporating both botanical and wildlife values. I have provided assessments of values and significance of sites for many Councils and private clients and ecological effects of a range of activities on those sites.

1.6 I have also undertaken assessments and work around developing SNA criteria, riparian buffers, offsetting, impact assessments, and other RMA focused reviews and material to assist Councils, MfE and clients.

1.7 Examples of my work include:

1.7.1 determining significant wetlands of the West Coast Region; Ashburton SNA, Rangitikei PNAP, along with bush significance assessments (e.g. over 150 Franklin District Conservation lots, 50 Western Bay of Plenty lots, and many more across New Zealand).
1.7.2 Large scale roading: McKays to Peka peka, Transmission gully, SH16-18 (North Shore, Auckland).

1.7.3 Windfarms and Hydroelectric schemes: Westwind wind farm, Hurunui windfarm, Mill Creek wind farm, Hauāuru mā raki wind farm, Arnold hydro-electric power scheme, Wairau hydro-electric power scheme, Coleridge HEP.

1.7.4 over 20 subdivisions (e.g. Omaha South (Darby Partners), Long Bay (Landco) Pegasus Bay (Infinity Co), Ravenswood (at Woodend)) and a number of plan changes (e.g. Porters Ski field expansion).

1.7.5 assessments of wetland, riparian systems and rivers: Hurunui irrigation project, Waitohi irrigation dams; Rakai WCO amendment, Hurunui WCO, Lake summer dam proposal, Ngaruroro WCO, Conway minimum flow regime, North Christchurch stream minimum flow assessments (macrophyte), Taramakau River riparian wetland assessment, The Wairau HEP scheme.

1.8 Whilst this matter is not before the Environment Court, I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. This evidence has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

2. SCOPE OF EVIDENCE

2.1 The purpose of my evidence is to provide evidence in support of some of the changes to the Draft National Policy Statement for Indigenous Biodiversity (NPSIB) being sought in Oceana Gold (New Zealand) Limited’s (OGNZL) submission.
2.2 The particular areas I have been asked to focus on are:

2.2.1 Whether the division of areas assessed to be significant in accordance with the criteria in Appendix 1 (SNAs) into “High” and “Medium” significance in Appendix 2, can be justified on ecological grounds over an entire feature;

2.2.2 What the current Appendix 2 division would likely mean in the context of future development at OGNZL’s Waihi mine;

2.2.3 Whether, if the division in Appendix 2 was removed from the NPSIB there is any need to amend the principles applying to biodiversity offsetting and biodiversity compensation in Appendices 3 and 4;

2.2.4 Whether some amendment to the definition of SNAs in the NPSIB should be made to address situations where areas identified in existing planning documents as being significant do not in fact contain values that warrant that classification.

2.3 I understand the exclusive purpose of the division in Appendix 2 is to identify those SNAs containing values of such importance that all effects on them need to be avoided in order to maintain those values, and that no exceptions should be made, even for nationally important activities that are locationally constrained and cannot always avoid impacting significant biodiversity values.

2.4 In preparing this evidence I have placed particular reliance on:

2.4.1 the evidence of Kathy Mason for OGNZL which discusses the importance of mine-related development within SNA166 in the Hauraki District Plan;

2.4.2 the ecological assessments of SNA166 that have been undertaken by Kessels and Associates (2010) and Bioresearches (2012, and 2018-2019).

2.5 I use the Waihi Gold site as an example in my evidence. I have not undertaken my own detailed ecological assessment of SNA166 at Waihi, but I have visited the area and its surrounds on several occasions and am
generally familiar with it. I have no reason to doubt the identification of species, ecosystems, and their condition that has been undertaken by other experienced ecologists, and in particular the recent work undertaken by Bioresearches.

3. SUMMARY OF CONCLUSIONS

3.1 In my opinion the division of SNAs into “High” and “Medium” for the purpose of identifying those areas of such biodiversity importance that all effects must be avoided should be removed from the NPSIB.

3.2 I am of this opinion as, having tested some SNA using Appendix 2, I consider it more than likely that most SNA so tested will test “high” and therefore the ability for the selected activities listed in clause 3.9(2) to consider the full effects management hierarchy will not be enabled.

3.3 A workshop held at DoC (with MfE) on the NPSIB (2nd March 2020) of nationally distributed ecologists heard from Ms Myers (an ecologist) who also had been testing Appendix 2 (for the authors of the NPSIB) on existing SNA and who stated at that meeting that most she tested has resulted in a “High” ranking.

3.4 In my opinion the division is unnecessary if the effects management hierarchy and in particular the principles applying to biodiversity offsetting and biodiversity compensation (Appendices 3 and 4 respectively) are properly applied, as described in clause 3.9(2).

3.5 In my opinion greater clarity could be achieved in relation to the circumstances when offsetting and compensation are unlikely to be successful, and I recommend some amendments to the “Limits to offsetting” (Appendix 3, principle 2) and “Limits to compensation” (Appendix 4, principle 2) for this purpose.

3.6 I also consider that the definition of an SNA at clause 1.8(1) of the NPSIB should be amended to account for situations where an area identified as significant in an existing plan is shown by subsequent detailed assessment (with the new criteria) not to contain values that warrant that classification,
or is shown to have inaccurate boundaries. I propose an amendment to the definition to address this issue.

4. IMPLEMENTATION REQUIREMENTS, SECTION 3.9.2.D(II) - THE EXEMPTION FOR NATIONALLY IMPORTANT AND LOCATIONALLY CONSTRAINED ACTIVITIES

4.1 Activities associated with mineral and aggregate extraction are identified in clause 3.9(2) as coming within the category of activities that are “exempt” from the need to simply avoid adverse effects to an SNA as required in clause 3.9(1)(a) where the functional operation of that activity necessarily means that the SNA cannot be avoided. However, clause 3.9(2)(a) provides that this exemption only applies where the SNA to be affected is classified as medium (not high) using the criteria established in Appendix 2.

4.2 If an SNA is assessed under Appendix 2 as being “high” significance then avoidance of adverse effects is required.

4.3 It is worth noting that under clause 3.9(1)(a) there are four adverse effects that all activities in SNAs must avoid, and clause 3.9(1)(b) says that other adverse effects (i.e. effects other than the four listed effects) must be managed in accordance with the effects management hierarchy. In my opinion the four listed effects in clause 3.9(1)(a) are extremely broad, and include the sorts of effects that would be expected as a result of practically any activity of scale that is likely to take place in an SNA. I have been advised by OGNZL that it is almost certain that the activities they need to undertake in areas with indigenous biodiversity will be captured by one or more of the four listed effects. For practical purposes my opinion is that so far as activities associated with mineral and aggregate extraction are concerned avoiding the four listed adverse effects is effectively the same as simply saying “avoid all adverse effects”.

4.4 If an SNA is assessed to be of “Medium” significance, then for activities that qualify under clause 3.9(2) effects on the SNA's values do not
necessarily need to be avoided, and the full effects management hierarchy (including offsetting and compensation such that no net loss or a net gain should occur) can be considered.

4.5 The classification of the SNA as “high” or “medium” becomes the critical aspect (more so than the criteria of significance in Appendix 1) and is made by an ecologist’s application of the criteria in Appendix 2.

Appendix 2

4.6 In my opinion the way Appendix 2 is written will result in a High SNA ranking in most cases. Sixteen different “High” significance criteria are listed, and if any one or more of those criteria are met the whole SNA is “high”, and the ability to consider the full effects management hierarchy is denied.

4.7 In the application of Appendix 1 an identified feature, although potentially (and often) a mosaic of types and ages and conditions, and even spatial distributions (fragments not well connected or not making a unified featured), will be treated as one unit, and even where “values” are only present in one area of a fragment of the whole, the “value” will apply to the whole. It is not generally accepted that an SNA can be assessed in its parts, or as several SNAs in a loose matrix, and therefore a single value “score” is given rather than assigning several “scores” – say for each fragment.

4.8 What this means in practice is that criteria for significance such as those set out in Appendix 1 usually result in a binary outcome for an entire SNA – either it is significant or it isn’t – with the result that particular fragments within that broader SNA that may not themselves hold or contribute in a meaningful way to significant biodiversity values are included within the identified SNA.

4.9 I set out below a brief discussion of the Appendix 2 criteria explaining why in my opinion its application will result in nearly all SNAs being classed
“high”. I then go on to provide a case study using the Appendix 2 criteria on a real-life example at Waihi – SNA166 as discussed in Kathy Mason’s evidence.

**Representativeness in Appendix 2**

4.10 In terms of representativeness a feature is high if it has “typical indigenous character” and a “high level” of ecological integrity (a measure of the “viability” of the habitat - i.e. is it able to support and maintain its composition, structure and functioning?). This is different to the representativeness attribute recognised in Appendix 1. It is perhaps what Appendix 1 attribute should have been.

4.11 That said “typical” character (which I take to mean composition and structure) of the ED as it is currently is sufficient to make a significant value. This is a low bar. The difference between a high and medium ranked significant area is not however based on its character / representativeness (the composition / structure) but on the ecological integrity (“viability”) i.e. the extent to which the area can support and maintain its current character, which can be synonymous with the current level of modification and challenge. This is confusing.

4.12 In my opinion the assessment for flora / habitat that Appendix 2 requires is not really one of representativeness at all. Rather, it is an assessment of viability.

4.13 The measure of the ability of a feature to maintain (not increase or recover) its composition, structure and function, is an ambiguous and relatively subjective determinate of integrity, and in my opinion will largely fall to a perception of size, pest infestation level, canopy cover and observed regeneration. It will be possible for most relatively typical features to be considered as of at least Moderate integrity.

4.14 It therefore seems reasonable to assume that a typical indigenous character which has “high” integrity will be well above average and
subject a more difficult “test” - but the next sub-criterion is that the feature has a typical suite of indigenous fauna (why this is not part of sub-criterion 1 is not clear) and only a moderate integrity level accompanied by a ‘typical’ suite of fauna will confer a “high” classification. This test will, in my opinion, be likely to be met on most occasions within an SNA (it is after all a “Significant natural area”), but will require costly, timely in-depth faunal surveys (including invertebrates) to supply sufficient data to allow an ecologist to make a conclusion as to whether the faunal suite is “typical”.

**Diversity and pattern in Appendix 2**

4.15 To rate “high” the feature must have a high diversity of indigenous species / vegetation (why is vegetation stated separately and not incorporated in species?) / habitats of indigenous fauna / or communities, within the context of the ED. I assume that “within the context of the ED” means that only features with unusually high diversity relative to the diversity that is found elsewhere within an ED’s SNAs pass this assessment? If that is what is intended, then this is appropriately recognised as a high value.

4.16 The other “high” assessment attribute under “diversity and pattern” is to have an important ecotone and/or complete gradients or sequences. This is problematic. Ecotones, gradients and sequences are present in every community. What constitutes an “important” ecotone is highly subjective and really must be defined to avoid uncertainty and debate, as must the difference between partial and complete gradients and sequences. There is a real problem here in my opinion. Given that at one level every community is unique for one reason or another it is likely this criterion will apply to virtually all and any indigenous feature/area/ habitat.

**Rarity and distinctiveness in Appendix 2**

4.17 The first criterion refers to habitat of 2 or more at risk taxa or a nationally threatened taxa. As written, these will imply that if even individual specimens that qualify are present, the SNA will be classified as “high”
significance, regardless of whether the taxa are in populations (rather
than just isolated individuals), and regardless of the distribution of the
taxa within the relevant ED. In my opinion there may be ecological
justification for classifying an area "high" significance for rarity and
distinctiveness if it contains populations of threatened and at risk taxa
that are not otherwise well represented in an ED, but that is not what
Appendix 2 says.

4.18 There is no ecological justification for a type locality conferring a “high”
significance rating. Type locality is a cultural value, not an ecological one.

4.19 The attribute addressing sand dunes is redundant as these will be covered
by naturally uncommon ecosystems.

4.20 Distribution limits are not fixed and are fluid in time as climate and abiotic
factors change, nor are distribution limits for most/all species tightly
defined and well mapped. This criterion will be imprecise, and subject to
speculation and argument amongst ecologists. There is no indication as
to the time datum from which the distribution limit should be assessed.

Ecological context in Appendix 2

4.21 A large size and compact shape in the context of the ED makes an SNA
“high” for ecological context. In my opinion this too is fraught with
difficulty. Whether or not this requirement is met becomes a matter of
comparison or relativity within the broader context of an ED, rather than
a viability and context attribute. In my opinion a consideration of size
and shape should reflect the spatial importance as an area of habitat, the
likely quality of habitat and viability of the habitat and sizes related to
ecosystem types, not some kind of uncertain comparison to what else
remains in the ED. To give certainty, and to avoid disagreements between
ecologists some size guidance should be given (based on some science)
- perhaps a 1ha wetland is large but a 1 ha forest isn’t? Perhaps a 20 ha
forest does justify being considered large, but a similar sized scrubland
isn’t? If the NPSIB is going to effectively say that satisfying this criteria
may in some cases be the determining factor in whether or not the effects management hierarchy is able to be considered then in my opinion such an uncertain criterion is particularly unhelpful.

4.22 If a feature provides a full buffer, is it not actually part of the large feature, and if it provides a full link is it not part of the entire feature (assuming a canopy cover and integrated ground flora)? This criterion is problematic as I cannot imagine several separate SNA in one unit, and it makes little sense.

4.23 If features are considered separate then just being a buffer should not confer “high” significance, and this criterion could be dropped in favour of the next –“very important” for the natural functioning of an ecosystem – irrespective of other remaining habitats in the ED -i.e. not relative to the situation in the ED but as related to the specific role and the feature supported.

4.24 The attribute “supports large numbers of fauna” is meaningless without better clarity as to what is meant by “large” and “fauna”. If fauna includes invertebrates, then the number may well appear “large” but in fact may be typical or less. In its present form this criterion is very likely to lead to ecologists finding themselves “ticking” this box and thereby giving “high” significance classification to SNAs that contain values that can readily be addressed through the effects management hierarchy to achieve no net loss or better.

Conclusion on Appendix 2

4.25 The criteria are quite subjective and uncertain in their meaning. It is highly likely that at least one of the 16 “high” criteria in Appendix 2 will be met in any assessment of any indigenous habitat / feature /area that has been identified already as significant under the Appendix 1 criteria. The result is that SNAs will then be classified as “high” significance, even though an ecologist might be quite satisfied the SNA contains no values
that are incapable of being maintained through appropriate remediation, mitigation and offset/compensation actions.

4.26 To test this proposition I assessed SNA166 at Waihi (an area OGNZL’s mine development plans will impact) against the criteria Appendix 2.

5. WAIHI CASE STUDY UTILISING THE DRAFT NPS IB APPENDIX 2 CRITERIA.

5.1 The following is an assessment against the Appendix 2 criteria of SNA166 (Hauraki District SNA T13U166 (Kessels and Associates 2010)) which is likely to be affected as part of OGNZL’s mine activities and for which an effects management programme is being developed to deliver a net gain for indigenous biodiversity. While that programme is still under development it is the view of all ecologists working on it (I am acting in a peer review capacity in relation to that work) that achieving no net loss or better will be achievable.

5.2 SNA166 comes in two distinct parts, on farmland, adjacent to a large area of the Waihi mine’s operations.
5.3 The SNA documentation (Kessels 2010) lists the feature/s as unprotected SNA containing: “Broadleaved indigenous Harwoods: Indigenous forest; manuka and or kanuka (LCBD2) and small-leaved scrub (exotic pines) Scrub” (RIVI_landcare_veg_descriptions”). There are no site specific assessment data presented, including what makes the features significant and so no detailed site values examination.

5.4 OGNZL commissioned Bioresearches Ltd in 2011-2012 to study the SNA’s features in terms of botany and fauna, and to assess the features for significance (as per the SNA criteria) and ecological values. In 2012 Bioresearches published: “Ecological Assessment of SNA 166”. They describe 4 kinds of vegetation and areas of bared/waste ground/pasture as comprising SNA166 and produced a map (below).
5.5 In assessing significance, Bioresearches used a three level system for ranking significance (high, medium, low). They concluded that some areas (kinds) of vegetation / habitat were significant, the northern fragment at large, and areas 1 and 2 in the larger southern fragment. They found some vegetation kinds were not significant (areas 4 and 5 in the southern fragment).

5.6 Of the areas they assessed as being significant, the southern feature had “high” significance for size and shape, and medium significance for most other aspects (representativeness, rarity, diversity, viability etc).
5.7 The northern fragment had no high rankings, only medium and low rankings. But this assessment was before the Moko skink was found (in both fragments). The Moko skink is an "at risk" – relict species and its presence raises the significance of the SNA to a degree. It is important to note however that the part of the SNA likely to be affected by the mine development contains no moko skink, and the ecologists agree the habitat in that part of the SNA is generally unsuitable for them.

5.8 Bioresearches concluded that areas 4 and 5 (map 1 above) were not significant and should be excluded from the SNA. The reason for exclusion of area 4 was its young seral state and heavy weed infestation. Area 5 was largely bare earths and/or pasture/weeds. As the 1982 aerial photograph (below) clearly shows, the SNA feature at that time was largely scattered diffuse young and remnant patches amongst what looks to be exotic forestry activity-related clearance.

Figure 6. Large parts of the southern block of SNA 166 were bare or early seral in 1982. (Image courtesy RetroLens.nz).

5.9 More recent investigations by Bioresearches (2019) have used more detailed site examination methods including vegetation plots, transects and more skink, bird, and frog surveys, show a greater level of
understanding of flora and fauna present. The SNA has been assessed historically as of local and of regional significance, with parts (the northern fragment) have been assessed as of High Significance (Bioresearches 2019). Regionally significant sites are considered to be good quality examples of regionally under-represented habitat types or areas containing populations of sparse species (Waikato Regional Council, 2011).

5.10 Threatened and at risk taxa located within SNA166 (both fragments) include:

5.10.1 mānuka (*Leptospermum scoparium*),

5.10.2 kānuka (*Kunzea robusta*),

5.10.3 northern rata (*Metrosideros robusta*),

5.10.4 pohutukawa (*Metrosideros excelsa*) (Nationally vulnerable),

5.10.5 kauri (*Agathis australis*). and

5.10.6 Moko Skink.

5.11 Importantly, “populations” of these taxa do not exist in SNA166. Sometimes just a few individual specimens are present.

5.12 The initial approach undertaken by Bioresearches in assessing significance is now a controversial approach whereby bits of an otherwise largely intact single feature are assessed separately and treated separately - and the whole is not considered and treated as an averaged or even a consolidated unit in terms of being “significant”. There is merit to that approach and the approach can account for the peculiarities of a particular site. In this case the larger southern figure does appear to be scattered seral forest loosely connected by young weed infested scrubland, and the “unit” has only been as a whole for a short time after forestry activities ceased. There is some ecological justification in treating the various
identifiable units separately in this case, but that is not how most biodiversity regulatory agents (including DOC) will allow such an assessment to be conducted.

5.13 How does the site (given the large difference in vegetation unit conditions) fare under Appendix 2 and should the site be treated as a single unit (with one overall significance ‘ranking’ applied, or as a mosaic of features in a seral matrix with several significance ranking assessments that account for the different attributes in a more granular way?

5.14 As I noted above, most assessments these days adopt the more aggregated approach, and for the purpose of my analysis of the application of Appendix 2 of the NPSIB I have adopted that approach, assuming that the site will be treated as a whole, or at least the two largely coherent fragments (the north and the southern) will be treated each as a single unit and not further broken down into vegetation types within each fragment. My assessment follows:

**Southern SNA fragment – Appendix 2**

<table>
<thead>
<tr>
<th>Test</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representativeness</td>
<td></td>
</tr>
<tr>
<td>Ecological unit/s typical of indigenous character of the ED</td>
<td>Seral rewarewa broadleaf hardwood forest is typical of the seral forests after kauri harvest in the 1980s in the ED. The extent to which the rewarewa forest ecosystems are able to support and maintain their composition and structure and function is probably high in those forest areas, but less so in pine/rewarewa and the younger seral scrub systems in between (area 4 in the Map 1 vegetation plan) because of the weed invasiveness and dominance. But two large areas of the rewarewa will</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>Suite of typical fauna and moderate integrity</td>
<td>Given size and diversity of vegetation types it is likely true that the fauna assemblage is typical relative to the condition of other seral mixed forest in the ED (noting Moko skink presence), and the integrity of the whole (accepting difference between the units) is moderate.</td>
</tr>
<tr>
<td>Diversity and pattern</td>
<td>Presence of “important” ecotones or a high diversity of species, vegetation, habitats etc</td>
</tr>
<tr>
<td>Rarity &amp; distinctiveness</td>
<td>Species or plant community at distribution limits</td>
</tr>
<tr>
<td></td>
<td>Two or more At risk taxa</td>
</tr>
<tr>
<td>Context</td>
<td>Large and relatively compact shape</td>
</tr>
</tbody>
</table>
Supports large numbers of indigenous fauna | Given the ambiguity of this criterion the answer (i.e. the number of individuals in the whole SNA) is possibly yes? | High ?
--- | --- | ---
Provides critical habitat for indigenous fauna | Provides critical habitat for the Moko skink, although the species is restricted in the SNA and large parts contain no suitable habitat | High ?

5.15 I conclude that there are at least 4 and possibly 6 “High” value determinants in this Appendix 2 assessment. The outcome is highly likely to be High and this classification is likely to be applied to the entire site rather than specific vegetation communities within the site. This is despite the feature being described in general as having values generally no higher than moderate and associated with young (15-20 year old), planted or naturally regenerating vegetation, and despite the consensus of the ecologists who have studied the site that it will be realistic to manage the likely impacts on biodiversity from OGNZL’s proposed development so as to achieve no net loss or better.

5.16 It is significant also to note that SNA166 is fragmented and has extensive and abundant weeds and pests which are throughout as a result of historical fragmentation and use of the area. The weeds/pests include: pine (wilding), barberry, Japanese honey suckle, pampas, woolly night shade, blackberry, possum, deer, pigs, goats, mustelids, rats, and hedgehog. Left unmanaged the feature could remain a pine canopy dominated feature with reduced ground tier and the absence of native palatable species. It its current unmanaged state it is unlikely that the extent and condition of the indigenous biodiversity present could get much better, and it is realistic to think it could get worse.
6. **SOLUTIONS TO ENABLE THE BEST IB OUTCOME**

6.1 In essence to enable remediation, mitigation offsetting and compensation to attain better biodiversity outcomes in this SNA than are likely to result by requiring adverse effects to be avoided (which in turn means at best the status quo will remain, but existing values might reduce over time as a result of weed invasion and pest actions) it is a matter of asking what attributes or values are going to be affected in the SNA and if:

6.1.1 those value/s will be lost such that the feature’s significance status changes; or

6.1.2 irreplaceable or pristine taxa/habitat/values will be lost.

6.2 In my opinion if either of those outcomes was being contemplated then avoidance may be warranted. Provided those outcomes do not result it is in theory possible to affect “High” SNA and not adversely affect high value/important attributes or result in a poorer outcome than the status quo after the effects management hierarchy has been applied. It is possible to attain no net loss or even gain in High SNA.

6.3 Therefore, to remove the ability to consider the full mitigation hierarchy (or worse, avoid) does not foster the best biodiversity outcome. In my opinion therefore the removal of the “high” significance threshold in Appendix 2 is an important amendment to the NPSIB. To do so would allow the consideration of remediation, mitigation, and offset, and perhaps other compensation if necessary, based on the attributes and values actually affected, and not based on a debatable assignment of the degree of significance of the overall SNA using an untested ranking system.

6.4 I fully understand and appreciate the argument around risk of success because of compliance monitoring and management issues of such
methods and plans and actions, but that is a matter of compliance not one of the mechanism to get the biodiversity gains.

6.5 Therefore, in my opinion a good way forward is to remove Appendix 2 in its entirely and to rely upon the principles in Appendix 3 and the limitations around the technical ability to achieve offsets in particular circumstances, such that the purpose of the process involving Appendix 2 (avoiding loses to those values that really are incapable of being satisfactorily addressed) is better facilitated but under the offset provisions.

Appendix 3

6.6 The current principles for offsetting include “limits to offsetting” under item 2. Limits apply where the nature of the biodiversity affected means that whatever you might do, the biodiversity values just cannot be offset and will be permanently lost. Those limits (from principle 2) are:

6.6.1 Where the affected biodiversity is irreplaceable or vulnerable;

6.6.2 Where there are no technically feasible or socially acceptable options by which to secure gains within a reasonable timeframe;

6.6.3 Where the effects are uncertain or poorly understood, but the net effect is significantly adverse. I understand this to be a type of technical limit – if an action is considered too risky or experimental we consider it is not an offset.

6.7 These limitations to when an offset is capable of addressing residual loses to biodiversity are understood amongst the ecological community in my experience, and are accounted for in the models used by practising ecologists to assess proposed offset actions.

6.8 There are however a couple of issues with the limitations as expressed which in my opinion need to be addressed.
6.9 There is no general agreement on what is meant by ‘vulnerable’ biodiversity and in my opinion this reference should be removed from the offsetting and compensation principles. In reality, vulnerability is reflected in a number of ways that are more easily understood. Firstly, through the application of the New Zealand Threat Classification System (NZTCS) taxa that are ‘vulnerable’ are assigned an appropriate threat classification, with corresponding levels of conservation funding, and protection able to be allocated. Secondly, in assessing whether or not an offset is feasible and will in fact achieve no net loss or better, ecologists consider issues such as the risk to the success of an offset where (for example) palatable species are concerned, or where propagation success is low. In my opinion therefore, it is unhelpful and uncertain to say that an offset cannot be made to work if ‘vulnerable’ biodiversity is in the mix. Rather, the vulnerability of biodiversity is a factor that is considered in assessing whether a particular offset is realistic, and in the design of the scale of offset needed.

6.10 Social acceptability is not an ecological concept and should not be included as principle for when an offset can be considered. Firstly, it is an uncertain term, but more importantly, the question of whether a particular offset proposal will achieve no net loss or better is a technical matter that ecologists can advise on. Whether on behalf of a community a decision maker considers that outcome is an acceptable one is in my opinion a different question. It goes to the ultimate balancing exercise that is made under the RMA and is not about whether or not a particular offset proposal achieves no net loss or better.

6.11 In addition, I consider the following should be added to the principle 2 limitations around the management (offset) hierarchy in Appendix 3 (they assist in defining ‘irreplaceable’):

6.11.1 To avoid debates around what constitutes irreplaceable biodiversity it could be specified that this means any species listed as Nationally critical, Nationally endangered or Nationally
vulnerable in the NZTCS. That is, one cannot propose an offset for these taxa and this acknowledges a risk framework whereby it might be theoretically possible to grow more of species X, but given their closeness to extinction the risk associated with the abundance loss to be offset is too great. Of course, some of these species will continue to go extinct without considerable assistance anyway.

6.11.2 The loss of a pristine habitat cannot be offset. A ‘pristine’ habitat is one that is unmodified (largely) by anthropomorphic actions and is highly representative of a pre-human condition, devoid of weeds and pests and challenges of structure, assemblage and function. This is a function of age (maturity), complexity and an absence of modification and pressures. These truly unmodified communities are so rare and complex, and the uncertainties associated with effectively replicating them are so great that they can be regarded as not being offsettable.

6.12 In my opinion therefore the existing principle noting the technical limits to offsets, with the changes I have recommended, will enable effects on truly high value SNA to be avoided.

7. THE OTHER OPTION IS TO CHANGE THE APPENDIX 2 CRITERIA AND PROCESS.

7.1 An alternative to deleting Appendix 2 is to significantly re-write it so that it is not subjective and ambiguous, and so that only those aspects of biodiversity that are truly not able to be offset are classed as ‘high’ significance. For that, as I understand it, is the sole purpose of Appendix 2.

7.2 Representative criterion would need reframing to reflect a structure and composition reflective of a good, largely unmodified state (which is often a pre 1840 state).
7.3 Diversity and pattern would not refer to the presence of ecotones, gradients and sequences, and diversity would be couched in terms of reflecting a similar condition as representativeness (a good example of the expected diversity of a system as it would be in the absence of much modification).

7.4 Rarity would still reflect the ED depauperate condition and still capture “poor” condition features because of rarity, but type localities and special science features are cultural not ecological, and would be excluded.

7.5 Lastly SNA are rarely homogeneous in their condition and values, invariably there are poorer and better values and conditions throughout an SNA (the Waihi Case study above is proof of that). The current system takes no account of that and does not enable activities which can target the poorer bits but in so doing cause enhancements and management that will greatly improve the most important values of the wider SNA thereby resulting in a net gain in indigenous biodiversity.

7.6 On balance I prefer the deletion of Appendix 2 in its entirety. Even with the sorts of improvements that I suggest could be made to the Appendix, we are still left with the requirement to properly apply the effects management hierarchy, including the requirement to recognise when offsetting is just not going to be an option. That, in my opinion, is sufficient, and the retention of Appendix 2 creates an unnecessary and unhelpful layer of assessment.

7.7 Finally, counsel has drawn my attention to the definition of SNA on page 14 of the NPSIB. As the Waihi example demonstrates, it may be the case that from time to time existing significant areas identified in plans are not quite right, and with the advantage of more detailed ecological assessment we may then be in a position to say that, for example, an SNA boundary really should be adjusted. The current definition of SNA in the NPSIB does not seem to allow for this to happen.
7.8 It seems to me that as a matter of good practice the NPSIB should be even-handed about this. On one hand it is recognised that there will be areas that are ecologically significant, but are not noted as such in existing plans. These are still able to be managed as SNAs because they will be identified as part of an assessment of environmental effects.

7.9 On the other hand it seems that once an area has been recognised in a plan as an SNA, a subsequent assessment of environmental effects that concludes it (or part of it) is not in fact significant will not result in an effective ‘downgrading’ of the area for the purposes of the NPSIB.

7.10 In my opinion the recognition of an area as an SNA in an existing plan is a good place to start, but the presumption that the entire area is in fact significant, or that it contains the values that gave rise to it being noted as significant in the first place should be rebuttable.

…………………………………………..

Vaughan Keesing

13 March 2020
CONSULTATION BEFORE THE MINISTRY FOR THE ENVIRONMENT AND THE DEPARTMENT OF CONSERVATION FOR THE PROPOSED NATIONAL POLICY STATEMENT FOR INDIGENOUS BIODIVERSITY

IN THE MATTER OF of the Resource Management Act 1991 (RMA)

AND

IN THE MATTER OF The Proposed National Policy Statement for Indigenous Biodiversity (NPSIB)

______________________________

STATEMENT OF EVIDENCE OF KATHY ANNE MASON

2020
1. QUALIFICATIONS AND EXPERIENCE

1.1 My name is Kathy Anne Mason.

1.2 I have a Masters Degree in Horticultural Science from Massey University.

1.3 I am employed by Oceana Gold (New Zealand) Limited (OGNZL) as Senior Environmental Advisor – Consenting based in Waihi.

1.4 I have been in this and other roles at the Waihi Operation since 1990. During this time I have either been part of, or worked closely with the Environmental Department. I am familiar with the progressive rehabilitation of disturbed land and the closure plans for the site. I am also familiar with the biodiversity programmes that OGNZL and its predecessor companies have been, and continue to be involved in.

1.5 Whilst this matter is not before the Environment Court, I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. This affidavit has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

2. SCOPE OF EVIDENCE

2.1 My evidence will describe the mining operations at Waihi within the context of the surrounding environment and how the draft NPSIB will impact on business, now and in the future, if the current wording is retained. My colleague Gavin Lee is providing similar evidence relating to the Macraes Mine, with which he is familiar.

3. WAIHI OPERATIONS

3.1 OGNZL is a wholly owned subsidiary of OceanaGold Corporation (OceanaGold). OceanaGold is a Canadian corporation with its head office in Melbourne, Australia. OceanaGold is a publicly listed company on the Australian and Toronto stock exchanges. In addition to the New
Zealand mines owned and operated by OGNZL as discussed below, OceanaGold owns and operates major mines in the Philippines (Didipio) and United States (Haile), and holds development rights in other parts of the world, including Central America and Australia.

3.2 OGNZL’s New Zealand mines are centered on Waihi in the Hauraki District/Waikato Region, and Macraes in the Waitaki and Dunedin City Districts/Otago Region. OGNZL also operated another successful mine on public conservation land near Reefton in the Buller District/West Coast Region. That mine (Globe Progress) has now been completed and is in the closure phase.

3.3 Figure 1 shows the current mining infrastructure at Waihi. This includes:

- An open pit mining operation located more-or-less in the middle of Waihi township (“Martha Pit”);
- A series of underground mines to the east and southeast of the Martha Pit (being the Favona Underground Mine, Trio Underground Mine, Correnso Underground Mine, Slevin Underground Mine and the Martha Underground Mine). On Figure 1 the underground mines are shown in yellow.
- An overland conveyor, ore processing plant, Water Treatment Plant and Tailings Storage Facilities (TSF).
Figure 1 – OGNZL Waihi Site Plan
3.4 Mining has been a major part of the development of Waihi, with the town’s fortunes closely tied to the fortunes of the generations of gold miners who worked the resource of the Hauraki Goldfield.

3.5 The Martha deposit was discovered in 1878 and mined by underground methods from 1879 to 1952 when it closed for several reasons, including the fixing of the gold price and a shortage of labour following the Second World War. Between 1879 and 1952, around 4.5 million ounces of gold and 31 million ounces of silver (nearly 1100 tonnes of bullion) was recovered from 11 million tonnes of ore.

3.6 Mining of the Martha deposit in the centre of Waihi by open pit methods commenced in 1987 and operated more or less continuously until April 2015 when a series of small rockfalls undercut the main haul road into the pit, making mining impractical. There has been no further mining of the pit since then, however as well as authorising underground mining beneath the pit floor (Martha Underground), the Project Martha resource consents that were granted in 2019 authorise new earthworks along the North Wall of the open pit to restore access to the remaining ore reserve, and to assist the Company to leave the pit walls in a stable and safe condition at the completion of mining.

3.7 All of the current mining related work takes place underground. This involves small scale, hand held mining (air legging) in the Correnso Mine, and the development of tunnels to access the ore in the Martha Underground Mine. The existing consented ore reserve within Correnso will soon be exhausted, and the Martha Underground Mine will become the ore supply, with Project Martha extending the life of mining in Waihi by approximately 12 years.
4. **ECONOMIC BENEFITS**

4.1 Waihi currently has a population of approximately 5,200 and has a relatively large local economy. OGNZL employs people from Waihi and the surrounding area and provides work for many local contractors. While there are always those that would prefer the mine to close, the Waihi mine enjoys the support of the vast majority of the local community who can see the employment, economic, social and environmental benefits the mine brings to the town and surrounding area.

4.2 As part of the recent Project Martha resource consent process OGNZL commissioned an independent economic analysis by Shamubeel Eaqub of Sense Partners of the effects extending the mine by another 12 years would have. The employment and economic benefits that will follow from the Project Martha extension are significant – estimated to be around 300 FTEs per year and an additional $72 million to the New Zealand economy per year.

4.3 The mining sector is highly productive. For each employee, it creates economic activity of around $534,000 per year (compared to around $43,000 in the retail sector and $95,500 across the whole economy)\(^1\).

4.4 The economy of Waihi was worth approximately $229M in 2017. This compares with an official estimate of New Zealand Gross Domestic Product (GDP) of $269B, and the estimate by Sense Partners (2018) of the GDP of the Waikato Region as $22B and the GDP of the Hauraki District as $498M.

4.5 Figure 2 below outlines the composition of the Waihi economy.

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\(^1\) Sense Partners (4 May 2018) Project Martha Economic Impact
4.6 Because mining is a high value activity with a high return per area of mined land compared to other forms of primary production such as farming, mining is able to invest in comprehensive solutions to address unavoidable adverse effects. To give an example of the relative value of using land for mining purposes compared to other primary production I refer to a recent successful application OGNZL made to purchase rural land near Waihi under the Overseas Investment Act. That application compared the value of the existing use of the land for dairying versus the value of its proposed use for mining related purposes (in this case for storage of tailings and surplus rock). The relative figures which have been accepted by the decision makers under the Overseas Investment Act (Ministers Parker and Robertson) are the retention of about 340 full-time jobs over nine years and exports valued at $2 billion over nine years.
4.7 The Waihi mine (including the Martha Pit and the various existing underground mines) sits within the wider Waihi Epithermal District, an area rich with mineral deposits. OGNZL holds extensive minerals permits granted by the Crown over various parts of the wider District and maintains an active mineral exploration programme with a view to discovering and adding new economic ore sources to extend the life of the mine.

4.8 Since the reopening of the Martha Mine in the late 1980s, up to and including the Trio Underground Mine, OGNZL and the previous owners invested in excess of $1 billion of capital (in 2019 dollars) into its mining projects. Capital investment in the ongoing Correnso mine is expected to add a further $200 million to $300 million (excluding exploration) to the total. OGNZL is also continuing to explore and is currently assessing the viability of additional projects that would see considerable investment in the district. OGNZL understandably wishes to ensure that in the future, mining can continue to be carried out subject to reasonable controls and conditions in a certain regulatory framework.

4.9 In my experience, OGNZL and its predecessor companies have always strived to effectively manage environmental effects and to work with the Waihi community, tangata whenua and iwi to achieve good environmental outcomes. An excellent level of compliance with the resource consent conditions has been achieved over a period of over thirty years and OGNZL and its predecessor companies have an admirable record of performing well beyond compliance in terms of both its environmental performance and contributions to the social and cultural wellbeing of the Waihi area and its residents. This includes the voluntary fencing and planting of riparian areas and wetlands, and a number of other biodiversity initiatives as discussed further in section 6 of my evidence.
5. **LOCATIONAL CONSTRAINTS**

5.1 Unlike many other industries, metalliferous mining is constrained by location, i.e. OGNZL can only mine where the minerals have been laid down via geological processes. The method of mining suitable for each deposit will be dictated by a number of factors including the size and grade (mineral concentration – in the case of gold measured in grams of gold per tonne of rock) of a deposit, depth beneath surface, and geotechnical considerations. Looking at this combination of factors will dictate whether a particular deposit is able to be economically mined, and if so, whether by open pit or underground methods.

5.2 In addition, there are a number of constraints relating to the siting of infrastructure associated with mining. This is particularly the case for the siting of surplus rock and tailings storage facilities, which are a necessary part of the mining process and which may be constrained by:

- Land ownership,
- The zoning of the land and any overlays,
- The location of District Plan annotations including SNAs, heritage features, flood zones and ponding areas,
- The location of the mine and other infrastructure (e.g. Water Treatment Plant)
- Cultural effects,
- The location of the nearest privately owned residences,
- The location of other sensitive properties, roads etc,
- Visual effects and shading,
- Foundation conditions,
- Hydrogeology,
- SNAs, and,
- The location of wetlands, streams and springs.
5.3 The siting of rock and tailings storage facilities needs to consider all of the above. I will return to this matter later in my evidence.

6. DEMONSTRATED POTENTIAL FOR BIODIVERSITY GAINS

6.1 While the nature of the impacts of mining to date at Waihi has not required ecological offsetting or compensation to be used to address residual adverse effects, I note that OGNZL and its predecessor companies have nevertheless carried out “beyond compliance” environmental enhancement that has resulted in environmental outcomes that may otherwise have not occurred without the resourcing that OGNZL and its predecessor companies can commit to. These are described below.

Native Plantings

6.2 During 1994/1995 Waihi Gold Company hosted a one year Royal Society of NZ Science and Technology Fellowship. This fellowship consolidated a number of educational programmes operated by the Company within the local primary and secondary schools and culminated in the launching of the Habitat Enhancement and Landcare Partnership (HELP) centered on the Waihi Basin. This project received an award from Environment Waikato in the two years they offered these i.e. 1995 and 1996.

6.3 A programme of fencing and riparian planting referred to as the bridge-to-bridge Ohinemuri riverbank project between Coronation Bridge and Golden Valley bridge took ten years to complete and involved hundreds of Waihi school students. The project saw over 200,000 trees, shrubs, flaxes and grasses used to stabilize the banks on land now owned by OGNZL, and also on land owned by others (primarily land owned or managed by local authorities or central government bodies, including along connected tributaries).

6.4 The result, as shown in Figure 3, is a mature riparian vegetation that contributes greatly to the ecological values of the Ohinemuri River (as well
as natural character and amenity values), and this has been acknowledged in the context of resource consent hearings.

Figure 3 – Ohinemuri River Riparian Planting

6.5 In 1997, HELP established a base and native plant nursery in the Waihi College Farm Unit. The core aim was to improve the local natural environment of Waihi and the wider Hauraki district, particularly along riverbanks, involving community volunteers and schools in the activities.

6.6 More recently HELP has evolved to manage its own well equipped work team, as well as undertaking or supporting other projects using volunteers. Aside from site works, OGNZL provides $15,000/annum funding for enhancement projects that continue to use this work team and the volunteers where their skills and enthusiasm provide real benefits. OGNZL also funds a local contractor (Kauri Gold), with four full-time staff, to carry out planting and maintenance on its own land, as well as other areas in Waihi.

6.7 OGNZL and its predecessor companies have also undertaken planting on many other areas around the tailings storage facilities including the TSF embankments, Ruahorehore Stream, gullies, springs/wetlands and stream tributaries, steep and weedy areas. The planting along the
Ohinemuri River can be seen in Figure 4, along with the planting around the West Silt Pond and also on steeper areas of the TSF 2 embankment.

Figure 4 – Planting along Ohinemuri River and tributaries (centre) and on TSF2 embankment (right) with TSF2 Pond/wetland (far right)

6.8 OGNZL has also provided plants to community groups e.g. for native planting at the Athenree wetland and Waihi Golf Club.

6.9 Over the years, 55.53 ha has been restored to native species. This represents a total of around 457,000 plants or over 475,000 plants if replacement plants are taken into account.

6.10 The cost associated with these plantings, based on an estimated $7 per plant to establish, plant and maintain for five years is $3,325,000\(^2\). It does not include the cost of fencing, which can be as much as the planting for narrow riparian strips. None of these plantings is dictated by consent conditions. I note that of the plantings listed in Attachment 1, 279,492 plants are annotated as riparian, gully, or swamp. In other words, over half of the plantings carried out were associated with, and will be benefitting fresh water bodies and their associated habitats.

\(^2\) This includes the cost of the 200,000 trees referred to in paragraph 6.3.
6.11 OGNZL is currently spending $11,000 per year to maintain the riparian planting, mostly in invasive weed control and following flooding in the area. Again this work and expenditure is not required by any consent condition.

6.12 OGNZL recently purchased a farm at 682 Golden Valley Road, Waihi. As a condition of purchase, OGNZL has made a commitment to fence and plant streams and wetlands that exist on the property. This will involve an estimated 1.4 km of fencing, and 11,000 plants, with an estimated total cost of $91,000.

Tailings Ponds

6.13 The discharge of tailings into Tailings Storage Facility 2 ("TSF") temporarily ceased on 15 July 2005. Since that time, the water quality of the tailings pond has improved to a level where its constituent concentrations are lower than the receiving water standards defined in the various consents and the pond water has been discharging to a tributary of the Ohinemuri River since Waikato Regional Council granted approval on 23 October 2007.

6.14 Since that time, riparian vegetation has naturally re-established around the perimeter of the tailings pond (refer Figure 5) and the pond provides both habitat and a refuge for birdlife (refer Figure 6).

6.15 While OGNZL intends to raise the crest of TSF2 by approximately 5m and discharge more tailings into TSF2, the results to date demonstrate the potential of the TSF2 pond as a habitat for birdlife once tailings deposition is complete.

6.16 The vegetation that exists on the pond edge today has established naturally. Once the pond is no longer required for tailings storage, options exist to carry out planting around the edge of the pond to hasten the process of establishing habitat for birdlife.
6.17 While the pond water is currently pumped to an adjacent tributary, at closure an outlet structure will be constructed to facilitate access between the pond and the Ohinemuri River.
Figure 5 – TSF2 Pond with naturally established riparian vegetation and birds in the background
Figure 6 – Birds on TSF2
Gilmour Lake

6.18 Another good example of what is possible is the Gilmour Lake, shown in Figure 5. The Company created Gilmour Lake when Mine Lake, a small lake that had formed in the 1960s over a section of the old workings at Martha Hill known as the Milking Cow, was removed as modern pit operations commenced. After five years maintaining the Lake the Company gifted it to the District Council and they have carried out further planting and development. Gilmour Lake is highly valued by the Waihi community and hosts many recreational and amenity features.

Kauri Bank

6.19 Kauri has been planted by OGNZL and its predecessor companies since 1994 but in 2003 the project set a target representing one tree per person year worked in the Martha Mine since open pit mining commenced in 1987. The KauriBank project involved “banking” or planting one tree per man year worked at the mine since 1987.

6.20 Kauri were planted on Company owned land (refer Figure 8 and Figure 9), as well as land owned by Hauraki District Council and the Department
of Conservation. A total of 6,369 kauri were planted and 239 kauri have been donated to various causes including the Athenree wetlands.

6.21 The cost for the kauri planting can be estimated using $32 per plant (=203,000 for kauri plantings on site). This cost does not include the cost of establishing around 10-20 smaller plants around each kauri to provide the habitat/shelter they need when young.

6.22 A comprehensive record of the “bank” has been maintained as a database for potential botanic studies, research or carbon sequestration monitoring. Trees have been tagged, located with a GPS and measured for diameter and height and tree condition has been recorded and ongoing maintenance is carried out.

Figure 8 - Kauribank, Baxter Road Waihi.
6.23 Between 1995 and 2015, a partnership existed between OGNZL’s predecessor Company Newmont Waihi Gold and the Department of Conservation to protect the New Zealand Dotterel; a bird inhabiting coastal sand dunes and species. During that time, approximately $1 million was contributed to the Dotterel Watch programme which made a positive difference to the Dotterel population and a substantial contribution to the long term survival of this species.
Figure 10 - New Zealand Dotterel

Archeys Frog

6.24 One of the species of high conservation importance in the area around Waihi is Archeys frog. These small indigenous frogs are not impacted by OGNZL’s mining operations but are under threat from predators and disease. There is much that ecologists do not know about Archeys frog habitat requirements, biology, and what can be done to better protect them.

6.25 OGNZL is voluntarily providing financial support for post-graduate study into Archeys frog through Massey University and the University of Otago, and is hopeful to fund a more extensive survey of the Coromandel so that there is a better understanding of their distribution and numbers.

Pest Control

6.26 OGNZL and its predecessor companies have also undertaken pest monitoring and pest control on its own land and at Union Hill. This includes weed control as well as pest control in areas of known New Zealand Dotterel habitat.
6.27 OGNZL and its predecessor companies have maintained five DOC-200 traps on site for approximately 10 years, primarily around the tailings storage facilities and polishing ponds where New Zealand Dotterel are observed during nesting season.

6.28 Rat control commenced around five years ago and there is an ongoing weed pest pro

6.29 gramme on site, focused primarily on revegetated areas but also on the general site. OGNZL works with Waikato Regional Council on notifiable weeds (e.g. Alligator Weed, Yellow Flag Iris) when access is needed across OGNZL owned land.

6.30 The examples illustrated above show the significant potential for OGNZL to achieve positive net biodiversity gains across its site and the surrounding environs in conjunction with future mining.

6.31 None of the biodiversity programmes mentioned above are a requirement of the resource consents.

6.32 I note that many opportunities remain for OGNZL to continue biodiversity initiatives in and around Waihi to protect and enhance indigenous species. OGNZL recognizes the potential to work collaboratively with DOC, iwi and other stakeholders on future biodiversity initiatives and is both keen and able to assist in that task.

7. **DRAFT NPSIB AND WHY IT IS PROBLEMATIC**

7.1 In order for OGNZL to advance its mining plans it needs to be able to build a third tailings storage facility. As described in paragraph 5.3, there are many factors that need to be considered when siting these structures.

7.2 The identified ideal location will necessarily result in the inundation of part of SNA166 identified in the Hauraki District Plan (“HDP”).
7.3 The mapping process that was followed is described in the HDP. In summary there was a rapid assessment process using aerial imagery and limited field data, with only some of the resulting SNAs being ground-truthed.

7.4 The area of the SNA to be inundated has been assessed by OGNZL’s ecologists as not comprising values that warrant it being an SNA. However, as described by Dr Keesing the current wording of the draft NPSIB would result in the SNA being described as having ‘high’ significance, and that would mean that effects on the SNA would need to be avoided based on the fact that under the NPSIB as presently drafted the use of the full effects management hierarchy is allowed only in SNAs of “medium” significance.

7.5 This is of critical importance to OGNZL. OGNZL has carried out an assessment of alternatives and so far no practicable alternative to the proposed location has been identified. If OGNZL cannot construct a tailings storage facility in this location, there will be nowhere to place the material that will result from the mine’s next planned extension to the mine life.

7.6 It appears that there has been little consideration of the impact the proposals would have on the future land use options of companies like OGNZL, that unavoidably impact a mapped SNA as part of their work, even though that portion of the SNA has been assessed by ecologists as having no ecological significance.

7.7 OGNZL has given consideration to an ecological offset package that would achieve at the very least “no net loss” of biodiversity. OGNZL would like the opportunity to discuss the mitigation package with stakeholders in conjunction with applications for resource consents.

7.8 If the wording of the draft NPSIB remains unchanged, there will be no opportunity to have that conversation, nor to achieve the biodiversity
gains described in paragraph 6 that OGNZL and its predecessor companies have demonstrated are possible.

8. CONCLUSION

8.1 There needs to be an opportunity for projects that are constrained as to location to be able to be considered on their merits through sound ecological assessment and the potential for biodiversity enhancement. As it stands, the draft NPSIB will likely impose a fatal constraint on future mine development at Waihi.

8.2 Given that in addition to the various economic and social benefits ongoing development of the mine provides, and the development of the mine has also been the source of some of the most valuable enhancements in the surrounding natural environment, it would be a perverse outcome if new national direction had the effect of preventing such enhancements.

8.3 OGNZL and its predecessor companies have a demonstrated track record of environmental enhancement at Waihi. Because gold mining is a high value industry, OGNZL can afford to very effectively achieve “no net loss” or “net gain”.

8.4 It is likely in the future that for mining operations to continue, some limited impact on biodiversity will be unavoidable. That being the case, OGNZL will need to be able to access the entire effects hierarchy. For this reason, I support wording changes in the Draft NPSIB that will provide the opportunities for net biodiversity gain that OGNZL can provide.

...........................

Kathy Mason

13 March 2020
## Attachment 1 – Native Tree Plantings

<table>
<thead>
<tr>
<th>Location</th>
<th>Area (ha)</th>
<th>Year Planted</th>
<th>Number of Plants</th>
<th>Owner</th>
<th>Type</th>
</tr>
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<tr>
<td><strong>Ohinemuri River Riparian</strong></td>
<td></td>
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<tr>
<td>Golden Valley Bridge (1995a and 1995b)</td>
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**Hills and Gullies**

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<td>Torrens' Gullies (2009d, 2009e, 2009f, 2009g and 2009h)</td>
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<td>Number of Plants</td>
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<td>Whittingham West (2000d and 2000e)</td>
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<td>2000</td>
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<td><strong>Town and Surrounds</strong></td>
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<td>Eastern-Mill Stream</td>
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<td>Mangatoetoe Stream</td>
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<td>Crusher Office</td>
<td>0.03</td>
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<td>365</td>
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<td>Location</td>
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<td>Number of Plants</td>
<td>Owner</td>
<td>Type</td>
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<td>Sustainability (public area development)</td>
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<td>3245</td>
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<td><strong>TOTAL</strong></td>
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CONSULTATION BEFORE THE MINISTRY FOR THE ENVIRONMENT AND THE DEPARTMENT OF CONSERVATION FOR THE PROPOSED NATIONAL POLICY STATEMENT FOR INDIGENOUS BIODIVERSITY

IN THE MATTER OF of the Resource Management Act 1991 (RMA)

AND

IN THE MATTER OF The Proposed National Policy Statement for Indigenous Biodiversity (NPSIB)

EVIDENCE OF ALISON CLAIRE PAUL

2020
1. My name is Alison Paul and I am employed by Oceana Gold (New Zealand) Limited ("OceanaGold") as General Manager for Corporate and Legal Affairs.

Qualifications and Work Experience

2. I hold a BA/LLB degree from the University of Auckland. I have been a practising lawyer for 28 years, working in private practice in New Zealand and London, England until 2004, when I joined OceanaGold.

3. I continue to hold a practising certificate in my role of managing both the legal and external affairs for OceanaGold’s New Zealand business interests. My team, working with our external legal advisors, routinely advise in the company’s dealings around acquiring land, permits and regulatory clearances as required to undertake the development of its Macraes and Waihi operations.

Purpose of Evidence

4. I have been asked by OceanaGold to prepare this evidence in support of its formal submission in respect of the Proposed National Policy Statement for Indigenous Biodiversity (“the NPSIB”).

5. My evidence addresses the economic and social benefits of OceanaGold’s operations in the two main locations where the company operates: Macraes in the Waitaki district of East Otago and Waihi in the Hauraki district of the Waikato region.

6. I refer to several documents in this evidence. I am happy to make copies of these documents available to the officials and/or the responsible Ministers upon request.

Longevity and continuity of OceanaGold’s operations

7. The company’s gold mines have been operating in both the Macraes and Waihi locations for about 30 years and as a result of successful exploration activities the company has mineral resources under development or ear-marked for future development that could be expected to support another 20 years of mining or more in both locations.

8. Over the last 30 years OceanaGold and, at Waihi, its former owner Newmont, have between them received and operated under hundreds of resource consents, minerals permits and other forms of regulatory consent. They have submitted and received
consent for approximately 86 transactions from the Overseas Investment Office, including a number for which those operations were required to demonstrate an investment that would produce a substantial and identifiable benefit to New Zealand applying the criteria of the Overseas Investment Act. In addition to delivering promised economic benefits over many years, I consider that OceanaGold has a broad and consistent history of compliance with its obligations in relation to land in New Zealand.

9. Given OceanaGold’s track record in New Zealand, the company is confident that it can continue to meet the high standards of environmental performance required in order to meet the outcomes for indigenous biodiversity that are targeted by the NPSIB (which OceanaGold supports). The company’s purpose, in submitting on the NPSIB, is to ensure that the delivery of those outcomes is not frustrated by a lack of flexibility, and especially a lack of access to the full range of environmental management techniques, that large-scale gold-mining requires in order to operate.

Economic benefits of the Macraes and Waihi mines and future development

10. I have commissioned several reports in recent years in order to understand the value that OceanaGold’s mines bring to the districts and regions in which we operate and to New Zealand generally. In this evidence I refer in particular to two of those reports, prepared by KPMG and NZIER respectively. The KPMG report measures the economic and other contributions of the existing operations at both Macraes and Waihi, separately and combined. The NZIER report updates some of the economic contributions using subsequent years’ data and looks ahead to what might be expected to follow, in economic terms, from the future development of an additional underground resource at Waihi.¹ To do that it measures the economic impact of a theoretical new underground mine, supplying ore to the existing Waihi processing facility for overall production of 1.8 million contained ounces of gold over 10 years.²

11. In keeping with recommended practice, both reports measure OceanaGold’s direct economic contributions only and, in the case of its contribution to GDP, use Gross Value Added (GVA) to support comparisons with New Zealand’s GDP overall and other sectors.

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¹ It is important to note that any mining, at either Macraes or Waihi, will continue to require infrastructure for placement of excavated overburden and the storage of the crushed rock residue after the gold and silver have been removed and processed into bullion (tailings). Roads, lay-down areas and other structures and land modifications form a routine, and indispensable, part of gold-mining. These various forms of land use, while finite and ultimately rehabilitated to a natural state at the end of mining, make some degree of surface clearance a necessary part of continuing to mine, regardless of the combination of open pit and underground mining techniques that are available to be used.

² A rate of production that is consistent with a high grade underground gold mine of the kind targeted by exploration undertaken by OceanaGold to date and ongoing at Waihi.
of the economy. Both of those measures (direct contributions and GVA) are conservative and do not include other flow on / induced effects and value created further down the value chain.

12. In the second of the two reports, NZIER have set out to analyse the economic impacts of a new mine on a computable general equilibrium (CGE) basis. NZIER has explained to me that CGE modelling:

“… is our preferred method for conducting policy analysis or sectoral impact studies, as it delivers more conservative, but more realistic, estimates of benefits and costs than commonly-used (and widely criticised) alternatives such as multiplier analysis.”

13. In summary the two reports estimate that OceanaGold’s existing operations make an important direct contribution to the New Zealand economy as follows:

(a) Total revenue from gold and silver of about $ ½ billion. Revenue was around $502 million in 2017 ($511 million in 2016). It contributed:
   (i) $178 million (or 0.07%) directly to New Zealand’s GDP in 2017 ($174 million, or 0.08%, in 2016).
   (ii) $83 million (or 14%) directly to Hauraki’s GDP in 2017.
   (iii) $96 million (or 8%) directly to Waitaki’s GDP in 2017.

(b) The creation of high-paying jobs for over 900 workers:
   (i) 350 workers in Hauraki and 550 workers in Waitaki.
   (ii) OceanaGold employed 6.25% of the labour force in Hauraki and 5.56% in Waitaki in 2017 (4.4% and 4.5% respectively in 2016).
   (iii) It delivered nearly $93 million in wages to its staff in 2017 ($91 million in 2016) at an average wage of $105,099 per annum ($102,945 pa), which is almost twice that of New Zealand’s average annual mean income ($61,830 in 2017, $57,780 in 2016).

(c) High productivity:
   (i) In 2017, OceanaGold’s annual productivity per worker ($197,778) was the fifth highest, behind labour productivity in mining ($502,156) in electricity, gas, water and waste services ($426,100), in rental, hiring and real estate services ($283,700) and in financial and insurance services ($214,437).
   (ii) OceanaGold’s annual labour productivity is about 1.6 times higher than New Zealand’s annual labour productivity ($97,016).
(iii) OceanaGold supported a range of supplying industries by purchasing $189 million of inputs in 2017 (and $239 million paid to trade suppliers in 2016) with $52 million spent by the Waihi operation in 2017 and $137 million spent by the Macraes operation in the same period.

(d) OceanaGold contributes to central and local government’s revenue through taxes and royalties. The combined royalties and taxes paid to the Crown from OceanaGold’s New Zealand operations over the past three financial years was $109,674,000.

(e) OceanaGold produces about 85% of New Zealand’s gold output, which was $578 million in 2017:

(i) In 2017, gold was the third largest export to Australia ($500 million), after dairy products ($743 million) and miscellaneous edible preparations ($662 million).

(ii) The value of OceanaGold’s gold exports in 2017 was equivalent to 1% of New Zealand’s total exports, 4% of milk, butter and cheese exports, 34% of wine exports, 93% of crude oil exports and 111% of wool exports.

14. At Macraes, the continuation of mining and the economic benefits that brings to the Waitaki District and at the regional and national levels is linked to future development of both open pits and underground mining along the known “line of strike”. Mr Lee talks to the next open pit development (Deepdell North) in his evidence and the potential impact the NPSIB could have on that and future mine-life extensions.

15. At Waihi, as at Macraes, there is the opportunity to bring new mine development into the existing operations, either to extend the mine-life and/or to increase production in parallel with existing operations. By modelling the development of a new underground mine, it is possible to understand the scale of the additional economic benefits, over and above the benefits of the existing operations, that the known mineral resources in Waihi represent. In its report NZIER estimates the direct and flow-on effects of increased gold production at the local and regional levels modelled on an additional 1 million ounce underground mineral resource at Waihi. Their conclusions are as follows:

(i) Hauraki’s GDP increases by $128.1 million (22%) per year, district household spending by $67.1 million (18.2%), and district exports by $120.7 million (62.9%);
(ii) The Waikato region benefits from the additional economic growth in Hauraki with a $128.5 million (0.6%) increase in regional GDP, a $67.3 million (0.5%) increase in regional household consumption and a $121.3 million (1.8%) increase in regional exports.

(iii) Supplying industries in the Hauraki economy are positively affected by an increase in gold production. This is especially the case for business services (1.3%), petrol manufacturing (1.5%), transport equipment (1.2%), gas and water supply (1%) and rail transport (0.9%).

(iv) New Zealand GDP rises by $197 million (0.07%) per year.

(v) An additional $141 million (0.2%) of New Zealand-wide export revenue in an average year of production. National exports of gold would increase by $98 million (11%) driven by the increase in gold production.

(vi) Households also benefit through slightly higher real wages. Aggregate employment at the national level is assumed to be fixed, but there is 2.1% growth in employment in Hauraki (118 additional jobs), mostly in the gold industry and supporting supply and investment sectors.

Alison Paul
13 March 2020
UNDER The Resource Management Act 1991 (RMA)

IN THE MATTER of a draft national policy statement for indigenous biodiversity (NPSIB)

LEGAL SUBMISSIONS ON BEHALF OF

OCEANA GOLD (NEW ZEALAND) LIMITED

13 MARCH 2020

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Senior Legal Counsel
Oceana Gold (New Zealand) Ltd
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Project Barrister
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Overview of Submission

1 Oceana Gold (New Zealand) Limited (OGNZL) is an important part of New Zealand’s extractives sector, which is in turn an important part of New Zealand’s primary sector. OGNZL’s activities and overall contributions to New Zealand are outlined in the company’s submission on the NPSIB, and the significant contributions OGNZL makes at local, regional and national levels are described in some detail in Alison Paul’s evidence. OGNZL has successfully operated in New Zealand for around 30 years, during which it has demonstrated an ability to successfully manage operational impacts on indigenous biodiversity, including significant biodiversity, to achieve net biodiversity gains.

2 In its current form the NPSIB will operate to prevent the further development of OGNZL’s two highly successful and currently operating mines at Macraes (in the Waitaki District and Dunedin City districts) and Waihi (in the Hauraki District).

3 In the case of the Macraes Mine almost all Greenfields development potential is in areas that have been assessed by ecologist Dr Thorsen as comprising ‘high’ SNA using the NPSIB criteria¹.

4 In the case of the Waihi mine key land owned by OGNZL and identified for the storage of surplus rock and tailings from the next proposed stage of the mine includes a small area noted in the operative Hauraki District Plan as being an SNA. More recent ecological surveys of the area indicate that the land generally lacks features that support the area affected being classified as significant. Even so, using the criteria in Appendix 2 of the NPSIB ecologist Dr Keesing assesses the area is likely to be classified as ‘high’ significance².

5 At both Macraes and Waihi future development will be unable to avoid adverse effects on high significance biodiversity, using the criteria in the NPSIB. Residual adverse effects on biodiversity after mitigation are likely to be amenable to

¹ See the evidence of Mr Gavin Lee describing the prospective areas within the Macraes area and the evidence of Dr Mike Thorsen assessing the likely evaluation of biodiversity values in the same areas using the criteria in the NPSIB
² See the evidence of Mrs Kathy Mason describing the need to use land within an area noted in the Hauraki District Plan as an SNA and the evidence of Dr Vaughan Keesing describing the lack of significant ecological values but nevertheless the likely classification of the land under the NPSIB
compensation (in the form of formal offsets and other forms of compensation) so that the result would be no net loss and potentially a net gain in biodiversity values.

6 OGNZL has recent experience where areas containing “high” significance biodiversity have been unavoidably impacted, and the company, in consultation with key stakeholders and in partnership with the Department of Conservation, has been able to develop a successful compensation package (comprising both offsets and other forms of compensation) to achieve a good outcome that maintains biodiversity.

7 If development cannot occur at Macraes and Waihi because of the combined effects of:

a. Almost all areas with indigenous biodiversity being classified as significant; and

b. Almost all areas of significant indigenous biodiversity being classified as “high” significance; and

c. A requirement that even important locationally-constrained mineral and aggregate extraction activities must avoid adverse effects on all “high” significance biodiversity, even though it is possible to offset or otherwise compensate to achieve no net loss in biodiversity values;

there will be associated losses to biodiversity as a consequence of foregoing the net benefits that could result from the development. There will be additional biodiversity losses in the form of a reduction in related effort by OGNZL to protect and enhance biodiversity, not to mention the adverse social and economic impacts on people and communities associated with the loss of jobs and the many positive social and economic contributions that OGNZL makes.

8 OGNZL produces around 85-90% of the nation’s entire gold production (and a similar proportion of the silver production). All the gold and silver produced is exported, thereby contributing export earnings. Gold and silver are highly valuable mineral products with a variety of uses that are in demand globally, and OGNZL’s New Zealand operations contribute highly paid jobs, royalty and tax revenue for the nation, and significant regional social and economic benefits.

9 Importantly in the context of the NPSIB, OGNZL’s operations contribute biodiversity value enhancement through targeted effects mitigation and compensation projects (including formal biodiversity offsets); and voluntary

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3 See the Coronation North example discussed in the evidence of Gavin Lee, and see also his discussion of another project – Deepdell North – which has been applied for but not yet determined by the relevant councils.
biodiversity enhancement through activities indirectly related to mineral development. This latter aspect – the voluntary contributions that OGNZL makes to the maintenance and improvement of indigenous biodiversity should not be underestimated, and it very much conforms with the government’s initiative to forge stronger partnership between business and the environment.

10 Through its efficient development of valuable mineral resources and careful management of biodiversity impacts to ensure biodiversity values are maintained, OGNZL contributes to both te hauora o te tangata – the most important part of the environment in accordance with the whakatauki Hutia Te Rito – as well as te hauora o te koiora, te taonga, and te taiao.

11 Some of OGNZL’s key mining-related operations\textsuperscript{4} unavoidably impact on biodiversity values. The location of mineral deposits that are able to be economically developed, and the technical methods that can be used to mine those minerals sometimes mean that it is impossible to avoid impacting biodiversity values while accessing the mineral resource. To put it another way, if impacts on biodiversity values must simply be avoided, it means that in many cases development of valuable mineral resources is impossible, and the consequence is that the valuable contributions that mineral development can make, including to biodiversity, are foregone.

12 To ensure that biodiversity is appropriately protected, maintained, and in many cases improved in those instances where impacts on biodiversity values from mining activities are unavoidable, it is essential that responsible developers like OGNZL are able to utilise the full effects management hierarchy, and that residual adverse effects after mitigation are able to be compensated (whether via a formal biodiversity offset or otherwise) to achieve no net loss and preferably a net gain in biodiversity value.

13 It appears that this is the intended policy outcome in the NPSIB\textsuperscript{5}. Mineral and aggregate extraction is recognised (along with a limited range of other activities)

\textsuperscript{4} ‘Mining-related operations’ include all activities undertaken in accordance with minerals (exploration and mining) permits issues under the Crown Minerals Act 1991, and includes activities such as drilling, earthworks, open pit construction, ore processing, storage of topsoil and waste rock, storage of tailings and the construction of necessary roads and pipelines

\textsuperscript{5} See He Kura Koiora i hokia. A discussion document on a proposed National Policy Statement for Indigenous Biodiversity, Ministry for the Environment 2019 at page 45, where it is stated that the proposed policy setting around specific activities that are exempt from avoiding adverse effects in SNAs “…clarifies what is required to maintain indigenous biodiversity while providing for existing and new activities that are important to New Zealand’s overall wellbeing”.

as a nationally important activity that benefits the people of New Zealand\textsuperscript{6}. Because mineral deposits are fixed in location and there are limited technical options for how those minerals can be extracted it is recognised that there will be situations where valuable biodiversity and valuable minerals co-locate, and the NPSIB seeks to provide workable arrangements which will allow mining activities to be undertaken in those circumstances, provided biodiversity values are being maintained.

14 The NPSIB provides for this in the case of non-significant biodiversity\textsuperscript{7} and also for significant biodiversity provided the biodiversity does not qualify as being of ‘high’ significance\textsuperscript{8} and provided an applicant can demonstrate there is a functional or operational need to undertake the activity in that location and that there are no practicable alternative locations.

15 There are fundamental problems with the ways mineral and aggregate extraction’s unavoidable impacts on significant biodiversity are managed under the NPSIB that must be addressed in order to ensure the intended policy outcomes are achieved. These are:

a. The criteria for assessing whether biodiversity is ‘significant’\textsuperscript{9} are not appropriate and require some modification. Ecological advice is that as presently drafted almost all indigenous biodiversity will qualify as significant. OGNZL is aware that other submitters are providing information in relation to this issue and it is not addressed further by OGNZL.

b. The division of significant biodiversity into ‘high’ and ‘medium’ categories, in an attempt to “triage” anticipated acceptable biodiversity off-setting and compensation outcomes ahead of any detailed assessment, is unnecessary and problematic to apply in practice. The criteria for identification of ‘high’ significant biodiversity are so broad that almost all biodiversity that is assessed as significant will also be assessed as ‘high’, with the result that the policy intent to provide an exception for important locationally-constrained activities such as mineral and aggregate extraction will be frustrated. That is not the policy intention, and in my submission the current proposal would appear to have been based on limited information available at the time of drafting that suggested the ‘high’ significance category would only impact a very small amount of land likely

\textsuperscript{6} This is also recognised in the purpose of the Crown Minerals Act 1991 and in the Government’s Minerals and Petroleum Strategy for Aotearoa New Zealand 2019-2029
\textsuperscript{7} Clause 3.13(b)
\textsuperscript{8} Clause 3.9(2) and Appendix 2
\textsuperscript{9} Appendix 1
to be used for mining\textsuperscript{10}. This difficulty may also be partly attributed to the fact that a request for ongoing representation on the Biodiversity Collaborative Group was denied to the extractives sector. Rather, the requirement that effects of such activities on significant biodiversity be managed according to the effects management hierarchy so that there is no net loss in value, and preferably a net gain, ensures that important biodiversity values are maintained. The comparatively small number of projects likely to trigger an assessment against the full effects management hierarchy makes a triage of this kind unnecessary in any event.

16 The RMA gives regional councils\textsuperscript{11} and territorial authorities\textsuperscript{12} a regulatory function to maintain indigenous biodiversity. The direction given in the NPSIB will support that function, but the NPSIB’s definition of what the maintenance of indigenous biodiversity requires needs modification as it appears to be focused on biodiversity quantity, rather than the overall quality of biodiversity (of which quantity is one aspect).

17 Section 104(1)(ab) of the RMA requires that when considering an application for a resource consent a consent authority must have regard to any offset or compensation proposal advanced by an applicant designed to ensure a positive effect on the environment. At the same time, a consent authority must also have regard to the provisions of an operative national policy statement under section 104(1)(b)(iii). Both obligations are subject to Part 2 of the RMA, and there is no statutory priority as between the two requirements (i.e. neither is subordinate to the other as a matter of law). It is therefore important that the NPSIB does not purport to place limits on the circumstances when offset and compensation proposals that assist in the promotion of sustainable management are able to be considered. Any limits of this nature would be unlawful. As presently drafted the NPSIB’s principles for biodiversity offsetting and compensation\textsuperscript{13} do not purport to place limits on consent authorities’ ability to consider offset and compensation proposals, and this position must be retained.

18 The definition\textsuperscript{14} of a ‘significant natural area’ or SNA has three components. Where an area is identified in an existing planning document as a significant natural area the definition deems it to be an SNA for the purposes of the NPSIB, with the consequence that all biodiversity values within that area must be

\textsuperscript{10} See draft section 32 report and the planning evidence of Mr Wyeth, one of the draft report’s authors
\textsuperscript{11} Section 30(1)(ga)
\textsuperscript{12} Section 31(1)(b)(iii)
\textsuperscript{13} Appendices 3 and 4 respectively
\textsuperscript{14} Clause 1.8
managed as if they are significant, regardless of what biodiversity values are in fact present in the area, and regardless of whether those values meet reasonable significance criteria. Including all areas that are identified as SNAs in existing planning documents as SNAs for the purpose of the NPSIB may be efficient as a default position, but the presumption that all such areas are in fact significant (or that impacts on any part of such an area will impact the values that make it significant) needs to be rebuttable. There are known examples where SNAs identified in existing plans do not in fact contain significant biodiversity values, or where their boundaries are inaccurate so that impacts at their edges are not, on any view, objectionable in practice. An example that affects OGNZL’s Waihi mine is discussed in the evidence of Mrs Mason and Dr Keesing.

19 Pending proper identification of SNA attributes and boundaries by councils using the process and criteria specified in the NPSIB\textsuperscript{15} there must be an ability for an assessment of actual biodiversity values and impacts to override the limits imposed by the boundaries of a ‘deemed’ SNA, just as there is an ability for an assessment to identify that an area is in fact an SNA even though it is not recognised in an existing planning document.

20 The treatment of existing activities in SNAs\textsuperscript{16} is confusing, as is the definition of ‘existing activity’. All mineral extraction activities of scale are managed under resource consents, and the discretionary nature of all of the consents OGNZL holds for its major mining activities have required biodiversity effects to be considered and appropriately managed. It needs to be clear in the NPSIB that where activities have been authorised by consents issued under the RMA, those activities can continue under the conditions of the consents that have been granted, including where biodiversity impacts (and associated remediation, mitigation and offsetting/compensation) have been approved but have not yet been undertaken in conjunction with other mining-related activities. This is particularly important for many mining activities that have a moving footprint within an approved area. The character, scale and intensity of the mining activity and its effects on biodiversity have been considered and are authorised by consents, and this needs to be distinguished from the situation where an existing activity is able to increase the scale, character and intensity of its effects on biodiversity without those additional effects having been addressed.

21 There is overlap in coverage between the NPSIB and the existing New Zealand Coastal Policy Statement and also the proposed NPS for Freshwater

\textsuperscript{15} Clause 3.8
\textsuperscript{16} Clause 3.12
Management. It needs to be clarified that matters concerning biodiversity in other national policy statements must be considered subject to (i.e. they are subordinate to) the requirements of the NPSIB. Clause 1.6 of the NPSIB, which makes the NPS that is specifically designed to address the maintenance of New Zealand’s indigenous biodiversity\textsuperscript{17} subordinate to the NZCPS in relation to biodiversity is not supported. The purpose of the NZCPS is to state policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand generally\textsuperscript{18}.

22 The amendments required to the NPSIB to address these matters are set out below and are discussed in more detail in these submissions. Aspects of these changes are also discussed in the ecological evidence of Dr Keesing and in the planning evidence of Mr Wyeth. In summary, the changes requested to the notified NPSIB to address OGNZL’s concerns are:

a. Amend the description of the concept of “maintenance of indigenous biodiversity” at clause 1.7(3)(a) to refer to “the size overall quality of populations of indigenous species”.

b. Amend the definition of “SNA or significant natural area” at clause 1.8 by adding to the end of the definition the following words:

“Provided that where an assessment of environmental effects prepared in accordance with the requirements of clause 3.19 concludes that an area or part of an area identified in an operative or proposed plan or policy statement before the commencement date as an area of significant indigenous flora or significant habitat of indigenous fauna does not possess features that qualify it as significant using the criteria in this National Policy Statement, that area or part of that area (as the case may be) shall be deemed not to be a significant natural area for the purposes of this National Policy Statement.”

c. Amend Policy 10 to read “to provide for appropriate activities that have already modified indigenous vegetation and habitats of indigenous fauna or which have existing resource consents that authorise such modification”:

d. Add a new Policy 16 to implement Objective 6 as follows:

\textsuperscript{17} See the matter of national importance in clause 1.4
\textsuperscript{18} As described in the Preamble to the NZCPS, 2010
“to recognise the role landowners, communities and tangata whenua are able to play in maintaining and improving biodiversity when they are allowed to provide for their social, economic and cultural wellbeing.”

e. Amend clause 3.4 by adding a new subclause (c) as follows (and renumbering existing subclause (c) as new subclause (d)) to clarify the relationship between the NPSIB and other national policy statements:

   “recognising that in any case where another national policy statement and this National Policy Statement contain overlapping direction in relation to indigenous biodiversity the requirements of this National Policy Statement shall prevail”

f. Amend clause 3.8(1) to read:

   Every territorial authority must-

   a) Undertake a district wide assessment in accordance with Appendix 1 to determine if an area is significant indigenous vegetation and/or significant habitat of indigenous fauna; and if it is,

   b) classify areas of significant indigenous vegetation and/or significant habitat of indigenous fauna as either high or Medium, in accordance with Appendix 2

g. Delete clauses 3.8(5) and 3.8(8)(c).

h. Delete clause 3.9(2)(a).

i. Amend clause 3.9(3)(a) to read “the use or development is to take place in, or affects, an SNA classified as Medium; and”

j. Amend clause 3.12(1) to read “This clause applies to the management of the effects of existing activities on SNAs but does not apply to any activities affecting indigenous biodiversity authorised by existing resource consents.”

k. Delete paragraph (b) of the policy to be inserted in plans pursuant to clause 3.19(3)

l. Delete Appendix 2.

m. Amend Appendix 3, clause 2(1) and Appendix 4, clause 2(a) to read “residual adverse effects cannot be offset because of the irreplaceability or vulnerability
of the indigenous biodiversity affected is listed in the New Zealand Threat Classification System as Nationally critical, Nationally endangered, or Nationally vulnerable”

n. Amend Appendix 3, clause 2(ii) and Appendix 4, clause 2(b) to read “there are no technically feasible or socially responsible options by which to secure gains within acceptable timeframes”

o. Delete Appendix 3, clause 2(iii) and Appendix 4, clause 2(c) and replace with “there will be significant adverse effects on pristine indigenous biodiversity”.

Appropriate recognition of mineral and aggregate extraction

23 While the default approach in the NPSIB is that activities should avoid effects on biodiversity within SNAs it is recognised in clause 3.9(2) that for some important activities this is not always practical, and a requirement to avoid adverse effects would effectively be saying that the activity cannot proceed at all.

24 Land use and development associated with mineral and aggregate extraction is correctly identified as falling within the category of important activities for which an exception to the default ‘avoid’ requirement in clause 3.9(1) is appropriate, and in my submission this position should be retained.

25 As the evidence of Ms Paul, Mr Lee, Dr Thorsen and Mrs Mason explains, at both OGNZL’s existing mines there remains significant mineral resource development potential. This potential cannot be realised if adverse effects on significant biodiversity values have to be avoided.

26 As the evidence also explains, examples such as Coronation North and Deepdell North show that where avoidance of effects on significant biodiversity values is not possible, careful application of the other components of the effects management hierarchy can lead to good outcomes for biodiversity, and in some cases an improvement in biodiversity value from the status quo. In other words, in some cases biodiversity is better off overall because development has taken place.

27 In my submission the NPSIB in its current drafting at clause 3.9(2)(d)(ii) correctly recognises that the functional and operational needs of activities associated with

19 Clause 3.9(1)(a) lists four types of effect that must be avoided in an SNA. The list is extensive (including what appears to be any loss of or reduction to ecosystem extent, any ‘disruption’ to ecological sequences, and the loss of even an individual specimen of any threatened species) and on its face will preclude most activities impacting biodiversity within an SNA.
mineral and aggregate will sometimes unavoidably impact significant biodiversity values. Clauses 3.9(2)(b) and (c) fairly recognise that development affecting significant biodiversity values should not be contemplated lightly, and developers need to demonstrate that avoidance is not a realistic option.

The “High/Medium” classification in Appendix 2 undermines the recognition given to activities associated with mineral and aggregate

28 As presently drafted though, the exception created for activities associated with mineral and aggregate extraction is likely to be of limited utility. This is because of the requirement to firstly sub-categorise significant biodiversity into ‘high’ and ‘medium’ significance, and to then apply the exception only to areas of ‘medium’ significance.

29 The draft section 32 analysis completed to support the notified version of the NPSIB (Draft Report) undertook an indicative spatial analysis of the extent to which the proposed provisions would impact on existing mining and quarrying operations in 6 districts throughout New Zealand. Mr Wyeth was one of the authors of the Draft Report and in his evidence for OGNZL he explains the methodology that was used in that initial analysis. The findings of the Draft Report in relation to the expected impact the provisions would likely have on the development of New Zealand’s mineral and aggregate resources are summarized at page 83. The findings can be summarized as:

a. Between 1% and 42% of identified mining and quarrying areas in the 6 districts were likely to be classified as SNAs;

b. Only between 0% to 2% of the mining and quarrying areas were likely to be classified as ‘high’ significance where adverse effects would need to be avoided;

c. In almost all of the identified mining and quarrying areas where SNAs were likely to be classified, mining activities would be able to establish or expand subject to the application of the effects management hierarchy to ensure biodiversity values were maintained;

d. “This low coverage indicates that High SNA are unlikely to materially impacting (sic) on existing mining or quarrying operations under part 3.9 of the NPSIB in the six study councils.”

30 No analysis of the likely impact of the provisions on mining and quarrying in other districts was completed for the Draft Report, and in particular no analysis was
undertaken in the Waitaki District, Dunedin City, and Hauraki District where OGNZL’s mines are located.

31 No consultation was undertaken with Crown Minerals within MBIE to determine where in the country mineral development was most important, and the presence of mining and quarrying as an important district factor was not used as a criterion in selecting the study councils.\(^{20}\)

32 Throughout the Draft Report the authors caution that the analysis of the costs and benefits of the NPSIB they were able to complete was provisional only, and because it was based on a selection of case studies, and involved using a number of proxies for significance/“high” significance and the making of a number of assumptions, a better understanding of the true costs and benefits needed to be made following the consultation phase.

33 In the case of OGNZL’s operations, which represent the vast majority of New Zealand’s metallic mineral production, the ground-truthed impact of the NPSIB provisions, and in particular the impact of areas of “high” significance needing to be avoided is vastly different from the preliminary conclusions in the Draft Report.

34 At Macraes, the spatial analysis undertaken by Dr Thorsen indicates that there are essentially no large prospective areas that are clear of likely “high” significance areas. As Mr Lee explains, this means that under the NPSIB provisions as they currently stand further development of the nationally important resources of the Hyde Macraes Shear Zone will become impossible, because all “high” significance areas must be avoided.

35 At Waihi, a similar result is likely. Further development of the nationally significant resources of the Waihi Epithermal District will require construction of new rock and tailings storage facilities. The only suitable location having regard to a range of factors such as geotechnical suitability, proximity to existing infrastructure, land ownership, health and safety, and management of water is land that includes a small area recorded in the Hauraki District Plan as an SNA. The recently assessed biodiversity values of the area to be affected are described in the evidence of Dr Keesing and are modest. Nevertheless, applying the criteria in Appendix 2 of the NPSIB Dr Keesing concludes that the relevant area would be classified as “high” significance. As is the case with Macraes, the consequence is that the necessary storage areas to enable the mineral deposit to be developed cannot be used, and the result is that the development opportunity is denied.

\(^{20}\) The factors used to select the 6 case study councils are discussed at page 13 of the Draft Report
36 I submit that is not the policy intent. In the case of both Macraes and Waihi, there is history showing that impacts on significant biodiversity values, including those that would be assessed as “high” under the NPSIB Appendix 2 criteria, are able to be mitigated, offset and compensated to achieve outcomes that at worst maintain, and in many cases improve overall biodiversity values.

37 As Mr Wyeth points out in his evidence, when the actual ground-truthed impact of the provisions as drafted is assessed under section 32, the outcome is not the same as the conclusion that was tentatively reached in the Draft Report.

38 Mr Wyeth concludes that the retention of Appendix 2 is not the most appropriate way to give effect to the NPSIB’s key objectives, and in my submission he is right. The foregoing of development opportunities at mines such as those at Macraes and Waihi, when it is clear that unavoidable impacts on biodiversity values (including significant biodiversity values) are able to be managed such that biodiversity is maintained and even improved through the responsible application of the effects management hierarchy, simply makes no ecological sense, and cannot be the policy intent.

**Mining is highly regulated under the RMA’s resource consents process**

39 A possible imagined advantage of the way the NPSIB is presently drafted is that the effective elimination any potential for minerals to be developed in areas such as Macraes and Waihi creates certainty and this in turn goes to the efficiency and effectiveness of the measures. Alternatively, Appendix 2 may have been intended to operate as a sort of triage, to remove from consideration at the outset any clearly inappropriate development proposals, before the need for a detailed ecological assessment of the effects management options.

40 I submit that any such analysis is flawed for several reasons.

41 Firstly, I submit that the history of major mineral development under the RMA shows that the requirement to obtain resource consents to authorise new or changed activities is effective in providing a structured and demanding process whereby applicants must:

   a. properly assess the biodiversity values potentially impacted by development proposals (including determining whether the values are significant for the purpose of section 6 using established criteria);

   b. demonstrate that effects on those values cannot reasonably be avoided;
c. apply the effects management hierarchy in a transparent and responsible way; and

d. demonstrate that any promised actions to address biodiversity impacts will in fact be implemented so as to show that the overall outcome will be the maintenance of biodiversity.

42 As the Coronation North example referred to in Mr Lee’s evidence shows, the case-by-case analysis and bespoke design\(^{21}\) of biodiversity mitigation and compensation measures to address the requirements of a specific proposal is a highly effective way of ensuring that the maintenance of biodiversity is achieved, while at the same time ensuring that development opportunities are not unnecessarily foregone.

43 The fact that the biodiversity impacts of mining-related activities are actively managed via the resource consent process and the application of the effects management hierarchy to achieve good biodiversity outcomes is unfortunately not part of the discourse from environmental advocacy groups. For example, a recent press release from Forest & Bird\(^ {22}\) discusses an increase in the number of hectares of land used for mining purposes on the West Coast of the South Island. The inference is that these new mining areas equate to a net loss of important biodiversity. There is no discussion whatsoever of the remediation, mitigation and compensation requirements that will have accompanied these developments, or the fact that those proposals will have been assessed in accordance with the principles of the RMA. In my submission it is disingenuous to assert or imply that an increase in the area of indigenous biodiversity affected by mining necessarily means a net loss in important biodiversity values.

44 For example, new development affecting biodiversity may be accompanied by actions such as fencing off of other threatened areas, weed or pest control, new plantings, or species translocation that improves the condition of and values associated with other areas of biodiversity such that overall biodiversity values are maintained or improved. I submit that without this analysis a focus on the amount of new mining is misleading.

45 Secondly, the strictly limited range of activities that qualify under clause 3.9(2) for an exemption to the default ‘avoidance’ requirement in clause 3.9(1) means that

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\(^{21}\) Including in that case the development of compensation measures in conjunction with Department of Conservation staff and Council ecological advisors with expert knowledge of the biodiversity values in question

there is no ‘floodgates’ issue requiring the use of a threshold test to reduce the number of applications advancing to a full resource consenting process.

46 The vast majority of biodiversity losses in New Zealand attributable to land use activities (as opposed to losses attributable to pests and weeds; and losses attributable to a general lack of biodiversity management) are as a result of activities that have been allowed to occur in a largely unregulated way, and have not been subject to requirements to remedy, mitigate and compensate for the losses.

47 The default ‘avoidance’ requirement in relation to activities affecting significant biodiversity together with the setting of criteria for significance in Appendix 1 in a way that means that most indigenous biodiversity will be classified as significant will address the vast majority of biodiversity loss that is still able to occur in an unregulated way. Farming and urban development will no longer be able to occur in ways that result in indigenous biodiversity losses.

48 By contrast, the relatively few activities that come within the exception created by clause 3.9(2) will still be subject to the resource consent and designation (in the case of activities undertaken by requiring authorities) processes.

49 Limiting the opportunity for these relatively few activities to apply for a consent to undertake development that impacts significant biodiversity only if that biodiversity is of ‘moderate’ significance is not justified on the basis of certainty and efficiency. In my submission the evidence demonstrates that it is in fact an ineffective approach in that it will unnecessarily eliminate opportunities to undertake developments that have potential to maintain or improve important biodiversity values while also addressing the social and economic wellbeing of people and communities.

Where biodiversity is genuinely irreplaceable achieving appropriate compensation/offset will not be technically possible

50 As the evidence of Dr Keesing shows, the criteria that must be observed in the development of biodiversity offset and compensation proposals are comprehensive, and their proper application ensures that residual adverse effects on biodiversity values are understood and addressed.

51 Where biodiversity values are irreplaceable, biodiversity offsets will not be technically possible. In instances where offsets are technically possible, but the residual adverse biodiversity effects are large, achieving no net loss or better might not be practicable.
52 Dr Keesing’s opinion is therefore that adding an additional ‘hurdle’ in the form of a requirement that only ‘medium’ significant areas are eligible for the application of the effects management hierarchy adds an unnecessary extra step.

53 To put it another way, Appendices 3 and 4 already contain principles that recognise where offsets and other compensation cannot be expected to achieve no net loss outcomes, and those principles apply to the management of effects on all significant biodiversity values – from those that are only just significant through to those values that are very significant.

54 For example, it may be that an SNA contains biodiversity which is irreplaceable if lost. Appendices 3 and 4 contain principles that explain that in such a situation the loss cannot be offset or compensated for.

55 However, in another example it might be the case that an SNA is assessed as being well-buffered relative to remaining habitats in the ecological district (meaning it would be of “high” significance for ecological context under the Appendix 2 criteria) but that a biodiversity offset is able to be advanced that meets all the principles in Appendix 3 and will result in a net gain in biodiversity value. In such a situation it makes no ecological sense if the only option is avoidance.

56 Dr Keesing identifies some potential improvements that could usefully be made to the “limits” to offsetting and compensation contained in Appendices 3 and 4, and I discuss these briefly below:

a. “irreplaceability” is an undefined and uncertain concept, and it might be better to equate that concept with our most threatened species, being those that are listed in the New Zealand Threat Classification System as Nationally Critical, Nationally Threatened, and Nationally Vulnerable. As Dr Keesing explains, the idea is that biodiversity in these categories is under such threat that the risks associated with losses are too great and an offset will likely not be possible.

b. “Vulnerability” is also not a defined term. As Dr Keesing explains, the extent to which impacted species are “vulnerable” is taken into account in the design of offsets and other compensatory measures, and it is wrong to express vulnerability per se as a limit.

c. Reference to “socially acceptable” options must be removed. In my submission this has no place in determining whether biodiversity is being maintained and in particular whether a no net loss or better outcome is being achieved through a particular proposal. Social acceptability is presumably what is being factored in when decision makers undertake their overall evaluation of a proposal. It is
in my submission entirely inappropriate and non-sensical to suggest that social unacceptability, whatever that means, can somehow mean that a technically robust offset is in fact not achieving no net loss or better.

d. The reference to effects being “uncertain, unknown or little understood” is just a restatement of the precautionary approach that local authorities are required to adopt pursuant to clause 3.6 of the NPSIB and adds nothing.

e. Dr Keesing suggests that where biodiversity is in a pristine condition its character and complexity is such that an offset will not be possible, and he suggests recognition of this would be a useful addition to the “limits”.

Maintaining biodiversity needs to be concerned with quality not just quantity, and the definition should reflect this.

57 What is meant by “maintenance of indigenous biodiversity” is described or defined at clause 1.7(3) of the NPSIB.

58 There is a clear emphasis on the amount of biodiversity. In particular there is a requirement that there be no reduction in the size of populations of indigenous species. In my submission that requirement appears to assume that size is a proxy for quality. That may or may not be the case.

59 In my submission it is possible to imagine situations where a large population of indigenous species is of rather low biodiversity value because of its poor quality. For example, the population could be struggling under pressure from disease or weed infestation. The overall quality of the population might be improved even if its size was reduced, but at the same time there were actions taken to improve its condition.

60 I submit that what maintenance of biodiversity requires is that there should be no reduction in the overall quality of populations of indigenous biodiversity, of which size is one factor, and in my submission the definition should be amended to reflect this by deleting the reference to “size” in clause (a) of the definition and replacing it with “overall quality of”.

There are problems with some SNAs identified in existing plans and the definition of SNA should reflect this.

61 As Dr Keesing and Mrs Mason’s evidence explain, in the Hauraki District Plan (HDP) SNAs are mapped. The HDP itself acknowledges that some of these SNAs have been mapped based on limited information and may be inaccurate. The
HDP is explicit in recognising that plan changes may be needed to correct errors in the existence or extent of SNAs in the district.

62 I suggest that the Hauraki District is not the only place in the country where some identified SNAs may not be robust or accurately defined.

63 SNA166 in the HDP is adjacent to OGNZL’s existing mine infrastructure at Waihi and is largely on land the company owns. Part of SNA166 will be unavoidably impacted by new surplus rock and tailings storage infrastructure OGNZL will need to build in conjunction with the next stages of development of the Waihi mine.

64 As Dr Keesing explains in his evidence it is likely that the area to be impacted by mine development in the future should not be considered SNA at all.

65 Under the definition of SNA in the NPSIB an area will be managed as an SNA if it meets one of three qualifying criteria:

a. It is identified as an SNA in a plan as a result of an assessment using the criteria for significance set out in the NPSIB;

b. It is identified as an SNA in a plan or policy statement in existence at the commencement of the NPSIB;

c. It is identified as an SNA as part of an assessment of environmental effects.

66 In my submission criterion (b) must be qualified. Existing SNAs are ‘grandfathered’ into the NPSIB under this criterion. While that is a fair starting point or presumption, what happens in a case like SNA166 where the ecological advice is that part of the area is not actually significant?

67 In my submission it is appropriate that the NPSIB acknowledge that there may be areas not currently mapped as SNA which are in fact significant and should be managed as such. This is provided for by criteria (c) in the definition which recognises that once an ecological assessment as part of an assessment of environmental effects is undertaken an area should be managed as an SNA if it has been found to meet the test for significance under the NPSIB.

68 I submit that the same level of ecological assessment that concludes an existing area mapped as SNA is not in fact significant must also be valid.

69 In my submission therefore, criterion (b) in the definition should be amended such that the presumption that an existing mapped SNA is in fact significant is able to be rebutted. The wording to achieve this is provided at paragraph 23(b) of these submissions.
Addressing consented but unimplemented activities

70 Clause 3.12 of the NPSIB deals with existing activities in SNAs.

71 Existing activities are defined as activities that are lawfully established but not covered by existing use rights as described in section 10 of the RMA.

72 The definition and the provisions in clause 3.12 are somewhat confusing. In my submission the policy intent is that where a lawful activity is occurring, and the scale, character and intensity of the activity’s effects on biodiversity values in an SNA are no greater than they were when the activity was lawfully established, then the activity can continue unaffected by the NPSIB.

73 That is a reasonable proposition in my submission and is no more than a statement of the position at law.

74 Where changes to a lawful activity give rise to new or increased effects on significant biodiversity values, such that existing use rights provide no protection under section 10, then those new or increased effects on biodiversity should be managed under the NPSIB in the same way as are the effects of a new activity. Again, in my submission that is an unremarkable proposition.

75 What is unclear in my submission is what it intended where an activity that authorises effects on significant biodiversity values has been authorised by consent (together with actions to ensure biodiversity values are maintained) but those effects have yet to occur. The progressive nature of mining means that this is a common occurrence. Consents are often sought and granted for activities that will be progressively undertaken over a long period – perhaps over a decade or even longer. In some instances, the actions to address impacts on biodiversity will be undertaken prior to the adverse effect occurring, and this is seen as best practice.

76 In my submission it is important that the NPSIB recognise this type of situation. There will be ‘new’ adverse effects on biodiversity values post commencement of the NPSIB that will occur under existing resource consents.

77 To avoid any confusion a simple amendment to Policy 10 as set out at paragraph 23(d) of these submissions and an addition to clause 3.12(1) of the NPSIB will clarify this type of situation. I submit the following wording in clause 3.12(1) would be appropriate:

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23 Clause 1.8(1) definitions
“This clause applies to the management of the effects of existing activities on SNAs but does not apply to any activities affecting indigenous biodiversity authorised by existing resource consents.”

Section 104(1)(ab)

78 Section 104(1)(ab) of the RMA requires any measure proposed by an applicant on a resource consent application by way of offset or compensation to be considered by a decision maker, subject to Part 2.

79 The same requirement applies to the relevant provisions of an NPS.

80 Both obligations are subject to Part 2 of the RMA, and there is no statutory priority as between the two requirements (i.e. neither is subordinate to the other as a matter of law).

81 It is therefore important that the NPSIB does not purport to place limits on the circumstances when offset and compensation proposals that assist in the promotion of sustainable management are able to be considered. Any limits of this nature would be unlawful.

82 For example, it would not be correct if “limits” to offsetting and compensation in Appendices 3 and 4 of the NPSIB were expressed on the basis that offsetting and compensation proposals could not be considered in certain circumstances. As presently drafted the NPSIB’s principles for biodiversity offsetting and compensation do not purport to place limits on consent authorities’ ability to consider offset and compensation proposals, and this position must be retained.

83 This can be contrasted with the position that was taken in relation to the biodiversity provisions in the partially operative Otago Regional Policy Statement which is discussed in He Kura Koiora i hokia24. The partially operative Otago Regional Policy Statement purports to oust consideration of offset and compensation proposals when certain criteria are met. However, the partially operative Otago RPS was notified prior to enactment of section 104(1)(ab) and does not (and cannot) take that provision into account. The Otago Regional Council is currently consulting on an entirely new regional policy statement following a review of the Council’s performance by an independent commissioner appointed by the Minister for the Environment. A new proposed RPS is due to be notified in November 2020, and the approach taken to management of residual

24 At pages 65 and 66
adverse effects on biodiversity will be reconsidered in the light of section 104(1)(ab) as part of that process.

**The NPSIB should prevail over other NPS in relation to biodiversity**

84 In my submission Clause 1.6 of the NPSIB, which makes this NPS that is specifically designed to address the maintenance of New Zealand’s indigenous biodiversity subordinated to the NZCPS in relation to biodiversity should be amended.

85 The purpose of the NZCPS is to state policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand generally.

86 By contrast the NPSIB is much more narrowly focused on ensuring appropriate outcomes for New Zealand’s biodiversity.

87 The NZCPS biodiversity provisions have been criticized for lacking the subtlety necessary to address the unavoidable impacts on significant biodiversity of locationally constrained and important activities in the coastal marine area.

88 In my submission the more nuanced approach taken in the NPSIB to managing this tension is more appropriate and represents an evolution in thinking about the management of activities from that which applied at the time the NZCPS was developed.

89 In my submission the NPSIB should prevail over the NZCPS in relation to biodiversity, and not the other way around.

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Stephen Christensen

Counsel for Oceana Gold (New Zealand) Limited

13 March 2020

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25 See the matter of national importance in clause 1.4
26 As described in the Preamble to the NZCPS, 2010
13 March 2020

Ministry for the Environment
Department of Conservation

Email: indigenousbiodiversity@mfe.govt.nz

Dear Sir/Madam

RE: HE KURA KOIORA I HOKIA: CONSULTATION ON A PROPOSED NATIONAL POLICY STATEMENT FOR INDIGENOUS BIODIVERSITY

OceanaGold is New Zealand’s largest exporter of gold and a regional employer of similar scale to the Tiwai Point aluminium smelter. Our operations directly employ over 900 staff across two locations. The company, which today is a significant multinational gold producer, began business 30 years ago at Macraes, East Otago and its current operating assets in New Zealand consist of two mines - Macraes and Waihi - that, together, accounted for over half of the company’s global production in 2019. In addition to these long-standing operations, we are currently rehabilitating a closed mine on conservation estate in Reefton.

Mineral resources are fixed in location and must be extracted from where they are located. Mineral resources often intersect with indigenous biodiversity, including vegetation and wetlands, that often have significant ecological values.

Management of our effects upon indigenous biodiversity is a critical matter for all of our mines throughout operations and closure phases. OceanaGold holds, or will be required to apply for, resource consents under the Resource Management Act 1991 (RMA) for almost all activity it undertakes. Mining can only be consented late in the development process, based on known, engineered “foot prints”, meaning that the assessment of environmental effects for the purposes of continuing to operate under the RMA is continuous and ongoing. Since 2013, open pit operations at Macraes have been the outcome of three significant, fully public sets of resource consenting applications, each covering one or more years of process to obtain and several running to appeals. OceanaGold’s operations interface with national, regional (currently Waikato, West Coast and Otago) and district (currently Thames-Coromandel, Hauraki, Buller, Waitaki, Dunedin) planning instruments, therefore if implemented the proposed National Policy Statement for Indigenous Biodiversity (NPSIB) will directly, and immediately, impact our business.

The management of indigenous biodiversity and its associated habitats is a matter of the highest importance for all of our mines throughout their operations and closure planning. Like all New Zealanders OceanaGold values indigenous biodiversity. We recognise the importance of the biodiversity measures being proposed by the government and support the outcomes for indigenous biodiversity that are targeted by the NPSIB. Our mines at Macraes and Waihi bring 30 years of experience with managing impacts on biodiversity at those sites, together with recent, ongoing experience of large-scale rehabilitation at our Reefton mine using approximately 1 million eco-sourced seedlings to revegetate about 250 hectares of conservation land. Using covenanting, we are actively managing over 600 hectares of indigenous habitat at Macraes, with plans to increase the land under covenant at that site. As the supporting evidence of Mr Lee and Mrs Mason shows, substantial benefits can, and have, been derived from mitigation, offsetting and compensatory measures undertaken as part of resource consent applications for OceanaGold mining projects. We are already actively working to ensure that net positive outcomes are achieved for the environment, and broader society, in the projects that we undertake at our mines. We often undertake voluntary biodiversity enhancement through activities indirectly related to our mining activity. Our work extends to planting, management and protection of
sites in conjunction with our operations at Haile, South Carolina, USA and Didipio, in the Philippines. The company has won multiple awards for these various programmes.

In their current form, the NPSIB proposals will preclude aspects of the ongoing operations at Macraes and Waihi in ways that will shorten, and could end, those operations and with them the kinds of programmes mentioned above. This is because almost all greenfields future development potential at our mines is in areas that have been assessed by expert ecologists as comprising ‘high’ SNA using the NPSIB criteria or areas that have no impacted values within the tests for significance in the NPSIB but still cross into parts of previously designated (and loosely defined) SNA boundaries. As such, the ability to use the full effects management hierarchy will not be available to us and the biodiversity enhancement benefits resulting from our projects will be foregone and the other social and economic benefits of the activities will not occur. Both of these problems serve to illustrate that the NPSIB is a very blunt instrument that will impact development in ways that cannot have been intended by the drafters.

We wish to be clear that OceanaGold does not seek to be held to a lower standard of environmental performance than any other landowner in New Zealand. We do not question the need for action on indigenous biodiversity decline. We do, however, seek flexibility in the policies and rules that are enacted to achieve that objective, to allow for off-setting and biodiversity compensation as part of regulating land use. We have no doubt that those tools are needed, so that the location-based constraints of continuing to operate the gold mines at Macraes and Waihi, both areas of ongoing “world-class” mineral potential, do not prevent the right project from seeking consents.

It appears to be accepted that the Interim Regulatory Impact Analysis (IRIA) undertaken in support of the NPSIB was necessarily provisional and subject to further consultation. In one respect, this is not surprising given the problems that would be faced in attempting a comprehensive assessment of the effects of the proposed NPS across all of New Zealand and every possible land use. Nevertheless, it is disappointing that extractives activities were not included in the case studies. This is surprising given the sector was initially part of the Biodiversity Collaborative Group, whose October 2018 report formed the basis for the proposed NPSIB, but was subsequently declined representation beyond all but the earliest stages of that group’s remit. The resulting IRIA has significant gaps in its assessment of the impact the proposals will have on extractive industries, including gold mining.

The enclosed submissions and evidence talk to consequences of the NPSIB, in its proposed form, that were overlooked in the selection of the case studies for initial assessment and which also occur in regions (East Otago and Hauraki) that the case-studies did not consider.

I attach OceanaGold’s:

1. Requested amendments to the Proposed National Policy Statement for Indigenous Biodiversity (in the Appendix to this letter);
2. Legal Submissions;
3. Statements of evidence from:
   a. Dr Mike Thorsen
   b. Dr Vaughan Keesing
   c. Mr Gavin Lee
   d. Mrs Kathy Mason
   e. Mr Jerome Wyeth
   f. Ms Alison Paul.

As noted, the provisions of the new national instrument will have far-reaching and significant implications for our ability to continue to develop the mineral resources we are licensed by the Crown to explore and mine. If these mines are unable to continue operations, at the same time as losing the employment and economic contributions that those mines bring to their communities, the contributions we are currently making to improve indigenous biodiversity in the areas in which we operate will also be curtailed.

The enclosed evidence provides the benefit of expert and lay knowledge of our mining operations, their impacts and the benefits that the associated biodiversity programmes have brought to the Macraes and Waihi regions.
We consider an understanding of these issues to be integral to the development of any fit-for-purpose national instrument. On behalf of over 900 workers and their families, I ask that the enclosed appeal for flexibility is given careful and detailed consideration.

In broaching the issues with the proposals as they stand, OceanaGold’s legal submission and analysis has largely focussed on the effect of Appendix 2 of the proposed NPSIB. Appendix 2 is intended to allow appropriate access to the full effects management hierarchy under the RMA (including biodiversity off-setting and compensation) where certain important large-scale land uses are necessarily limited in their ability to avoid indigenous biodiversity values. Extractive land uses such as quarrying and mining are included in that.

The amendments to the NPSIB that OceanaGold is seeking would:

- improve clarity for regional councils, local authorities and resource users with respect to the management of indigenous biodiversity;
- provide greater flexibility for the appropriate use of offsetting or compensatory measures to be considered as part of the assessment of resource consent applications that provide significant social and economic wellbeing, but which are subject to functional or operational constraints – like our mining projects;
- not operate to prevent future development at our Macraes and Waihi mines.

The policy and regulatory measures contained in the NPSIB are significant and are intended to make a difference in the way that indigenous biodiversity is managed nationally. The intention is that New Zealand will as a result halt the decline of indigenous biodiversity, and that the values associated with our remaining indigenous biodiversity will receive greater recognition and protection. OceanaGold supports this outcome, and we consider that the changes promoted in OceanaGold’s submission and supporting evidence do not detract from and in fact will advance progress towards the intended result.

I am unsure whether an opportunity will be made available for any submitters to appear in support of their written submission. If such an opportunity exists, OceanaGold would be very pleased to appear at a time that is convenient.

Yours Sincerely

OCEANA GOLD (NEW ZEALAND) LIMITED

Alison Paul
General Manager Corporate and Legal Affairs
The amendments that OceanaGold considers are required to the NPSIB are set out below and are discussed in more detail in legal submissions.

Aspects of these changes are also discussed in the ecological evidence of Dr Keesing and in the planning evidence of Mr Wyeth.

In summary, the changes requested to the notified NPSIB to address OceanaGold’s concerns are:

a. Amend the description of the concept of “maintenance of indigenous biodiversity” at clause 1.7(3)(a) to refer to “the size overall quality of populations of indigenous species”.

b. Amend the definition of “SNA or significant natural area” at clause 1.8 by adding to the end of the definition the following words:

“Provided that where an assessment of environmental effects prepared in accordance with the requirements of clause 3.19 concludes that an area or part of an area identified in an operative or proposed plan or policy statement before the commencement date as an area of significant indigenous flora or significant habitat of indigenous fauna does not possess features that qualify it as significant using the criteria in this National Policy Statement, that area or part of that area (as the case may be) shall be deemed not to be a significant natural area for the purposes of this National Policy Statement.”

c. Amend Policy 10 to read “to provide for appropriate activities that have already modified indigenous vegetation and habitats of indigenous fauna or which have existing resource consents that authorise such modification”.

d. Add a new Policy 16 to implement Objective 6 as follows:

“to recognise the role landowners, communities and tangata whenua are able to play in maintaining and improving biodiversity when they are allowed to provide for their social, economic and cultural wellbeing.”

e. Amend clause 3.4 by adding a new subclause (c) as follows (and renumbering existing subclause (c) as new subclause (d)) to clarify the relationship between the NPSIB and other national policy statements:

“recognising that in any case where another national policy statement and this National Policy Statement contain overlapping direction in relation to indigenous biodiversity the requirements of this National Policy Statement shall prevail”

f. Amend clause 3.8(1) to read:

Every territorial authority must-

a) Undertake a district wide assessment in accordance with Appendix 1 to determine if an area is significant indigenous vegetation and/or significant habitat of indigenous fauna; and if it is,

b) classify areas of significant indigenous vegetation and/or significant habitat of indigenous fauna as either high or Medium, in accordance with Appendix 2

g. Delete clauses 3.8(5) and 3.8(8)(c).

h. Delete clause 3.9(2)(a).

i. Amend clause 3.9(3)(a) to read “the use or development is to take place in, or affects, an SNA classified as Medium; and”

j. Amend clause 3.12(1) to read “This clause applies to the management of the effects of
existing activities on SNAs but does not apply to any activities affecting indigenous biodiversity authorised by existing resource consents.”

k. Delete paragraph (b) of the policy to be inserted in plans pursuant to clause 3.19(3).

l. Delete Appendix 2.

m. Amend Appendix 3, clause 2(1) and Appendix 4, clause 2(a) to read “residual adverse effects cannot be offset because of the irreplaceability or vulnerability of the indigenous biodiversity affected is listed in the New Zealand Threat Classification System as Nationally critical, Nationally endangered, or Nationally vulnerable”

n. Amend Appendix 3, clause 2(ii) and Appendix 4, clause 2(b) to read “there are no technically feasible or socially responsible options by which to secure gains within acceptable timeframes”

o. Delete Appendix 3, clause 2(iii) and Appendix 4, clause 2(c) and replace with “there will be significant adverse effects on pristine indigenous biodiversity”.