Before a joint hearing of the

Otago Regional Council **RM 20.024**
Waitaki District Council

Under	the Resource Management Act 1991
In the matter of	applications by Oceana Gold (New Zealand) Limited for resource consents for the Deepdell North Stage III Project

Statement of evidence of Gavin Lee for Oceana Gold (New Zealand) Limited

4 August 2020

Qualifications and experience

1 My name is Gavin James Lee.

2 I am the Community and Environment Manager at the Macraes Mine, owned and operated by Oceana Gold (New Zealand) Limited (**OceanaGold**).

3 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.

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

5 For the previous 25 years, I have worked in Environmental and Social Management of 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) to Indonesia (15 years).

Scope of evidence

6 On behalf of OceanaGold I will provide an overview of the Deepdell North Stage III Project. My involvement in the Deepdell North Stage III Project has been to work closely with the OceanaGold Engineering Team to ensure an optimal design based on feedback from respective technical experts. I have overseen the preparation of the consent application and subsequent responses to requests for further information. I have also engaged directly with affected parties and worked to integrate their concerns into the proposed design where possible.

7 My evidence will cover:

(a) A description of the Deepdell North Stage III Project including the existing environment;

(b) A description of the process undertaken in formulating the final proposed design and the key elements associated with the design.

(c) A summary of the key effects and the process followed for identifying mitigation.

(d) A summary of consultation and response to submissions; and

(e) Responses to the Councils' recommending reports.

The Deepdell North Stage III Project setting

8 Macraes sits within a rural upland landscape of rolling hills of moderate relief with characteristic broad ridge crests and incised valleys. The broader landscape of Macraes still maintains cultural significance for the Kā Rūnaka. Since the arrival of Europeans and the introduction of pastoral activities, the landscape has continued to evolve to the present day mosaic of pasture, tussock grassland and isolated relic habitats of native vegetation.

9 Mining in various forms, has been part of this landscape since 1862. Although mechanised mining has been in Macraes for more than 100 years, the development of Macraes Operation in 1990, paved the way for an accelerated rate of change as a result of mining. Improvements in the technology for farming have also seen similar rates of landscape change, all be it on a different scale to mining.

10 The Deepdell North Stage III Project (which I will call **the Project**) is a return to an already mined deposit and is unlike the most recent consents, such as Coronation and Coronation North which were Greenfields developments and involved considerable effects to natural vegetation communities. The partially Brownfields Project will access the ore body by via an already backfilled and rehabilitated pit. Although this may appear inefficient, this is the nature of mining at Macraes, where as far as practicable, pits are backfilled in order to reduce the environmental footprint, leaving uneconomic ore resources (as dictated by the gold price at the time) remaining in the ground.

11 Key elements of the Project are shown in Figure 1 and described below:

(a) The excavation of 57 million tonnes of rock to allow access to 3.5 million tonnes of ore. The resulting Pit will disturb approximately 38 ha of land, of which 18.4ha has previously been disturbed in the original mining and subsequent backfilling of Deepdell North Stage I & II in 2004. The total depth of the pit once completed will be 150m, which will partially fill to form a lake over a 35-year timeframe.

(b) The creation of the Deepdell East Waste Rock Stack to the east of the Pit. The waste rock stack includes the backfilling of the existing Deepdell South Pit. The extent of the new disturbance as a result of the waste rock stack will be 57.4ha, and the waste rock stack will rise to a height of approximately 150m from the surroundings.

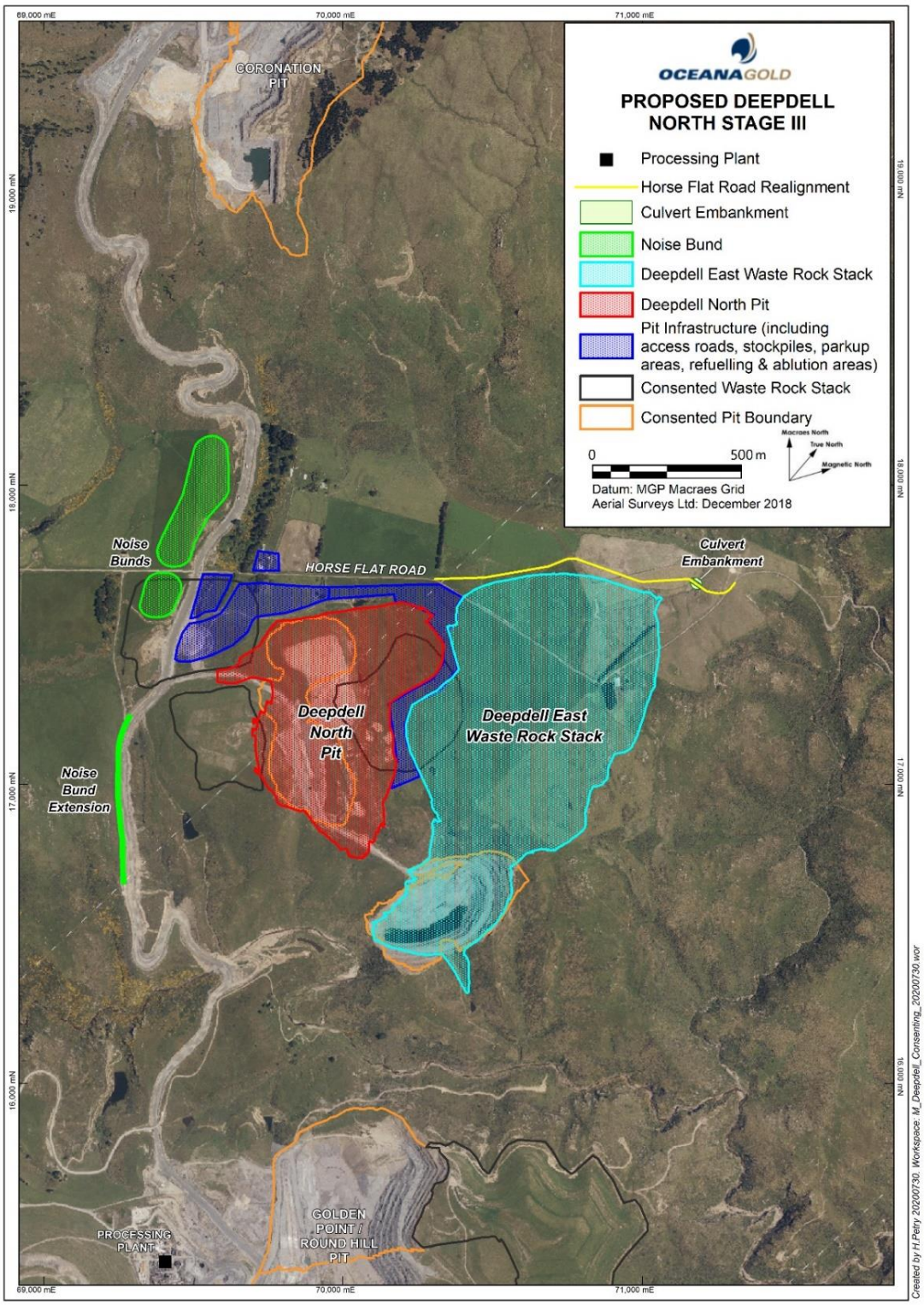

Figure 1: Project Elements

(c) The creation of the waste rocks stack will facilitate the need for realignment of 900m of Horse Flat Road prior to closure of the existing alignment. The realignment will include the installation of a 51m long culvert across an ephemeral gully.

(d) Access for transporting ore to the Process Plant will be via the existing Coronation Haul Road.

(e) In order to reduce affects to amenity, noise bunds have been designed along the western side of the Haul Road, using some of the rehabilitation materials salvaged during the initial pit development.

(f) Site facilities will be established including crib rooms, toilets, fuel storage and park up areas.

(g) Diversion drains for diverting clean water away from the active mining areas and dirty water drains for diverting sediment laden run-off water into silt ponds.

Deepdell North Stage III Design Process

12 In order to show how the Project is meeting its obligation under section 17 of the Resource Management Act 1991 (**RMA**) to avoid as part of the 'avoid, remedy, mitigate adverse effects hierarchy', the following describes the journey undertaken by the Project Team in delivery of the final design. Essential to the Project Design process is the ability to find the right balance between effects, mitigation and stakeholder interests. As I will describe later, the tension between mitigation and stakeholder interests has a strong influence on the design of the Project in the aspects associated with terrestrial biodiversity.

13 The locational constraints associated with the Pit (ie the gold is located where the geological forces of earth left it) means that it is very difficult to identify alternatives to the pit location.[1] The other major Project element resulting in significant disturbance is the location of the waste rock stack and the need to be proximate to the pit drives further locational constraints.

14 Project design began in late 2017. As part of the initial scoping work, three possible alternatives were identified for waste rock storage, as shown in Figure 2.

[1] The Assessment of Environmental Effects does include an analysis of Open Cast vs Underground Mining.

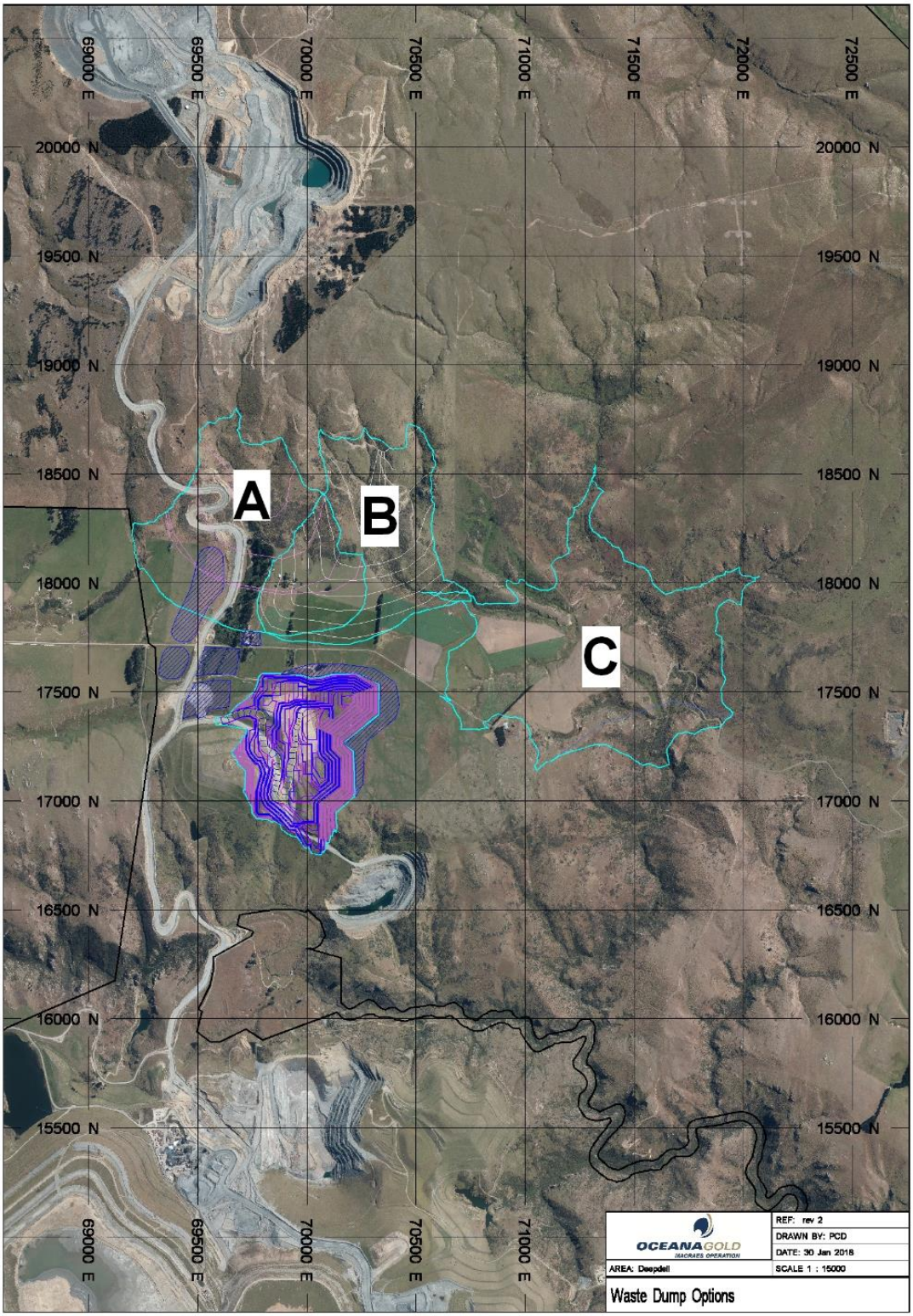

Figure 2: Waste Rock storage options A, B and C identified in initial scoping. The Pit is shaded purple

15 A screening exercise was undertaken for each alternative in order to assess its operability and consentability. This included a multicriteria desktop analysis of effects. The results of this analysis would then provide a preferred option for further detailed study. The screening looked at various aspects of the alternatives including technical review for understanding the feasibility of construction, financial review, community effects (ie noise, dust, loss of productive land), heritage and archaeology review, terrestrial ecology review, water and aquatic ecology review, landscape and visual assessment, and external stakeholder review. A classification (or acceptability) matrix was developed and then for each aspect, specific criteria identified. The classification levels were as follows: Most Preferred Option (all criteria being met), Acceptable Option (most criteria being met and all critical criteria being met), Allowable Option (not all criteria being met but all critical criteria being met), Not Preferred Option (critical criteria can be met but most other criteria cannot be met) and Unacceptable Option (critical criteria cannot be met).

16 I note that the screening exercise is not meant to be a detailed assessment of effects nor a planning assessment. It merely provides the designers with a guide to establishing a preferred option on which to focus subsequent efforts.

17 The screening exercise found that although alternative A was likely to have acceptable outcomes for terrestrial and aquatic biodiversity, it was likely to result in non-preferred amenity effects (noise and dust) and result in loss of productive land not currently owned by OceanaGold. Alternative B would have less technical difficulty and community effects but potentially greater (although manageable) effects to terrestrial ecology compared to alternative A. Both alternatives A and B were expected to result in non-preferred outcomes for landscape and visual effects. Alternative C was likely to have improved landscape outcomes over the other options, and similar outcomes on community effects (to alternative B) but it was less favourable in terms of terrestrial and aquatic ecology, water management and cost. Based on the above analysis alternative B was selected for more detailed assessment.

18 A range of studies were conducted in the first quarter of 2018, with a focus on alternative B. A meeting and field visit was organised with key stakeholders in May 2018 to discuss preliminary outcomes of the studies. Attendance at that meeting included representatives from the Otago Regional Council (**ORC**) and Waitaki District Council (**WDC**), Department of Conservation (**DOC**), and the local Community. At the heart of the meeting was the issue of the effects on terrestrial ecology and establishment of covenants as a form of compensation.

19 At the completion of studies, it became apparent that the impacts on environmental, amenity and heritage values associated with alternative B were substantially more significant than those originally anticipated. The presence of the nationally vulnerable[2] plant species, *Olearia fimbriata* and freshwater fish species, *Galaxias depressiceps*,[3] within the footprint; the loss of the Bellfield homestead and a water race; anticipated noise effects; the significant loss of a stream bed and the complexities for water and sulphate management signalled that the design carried sufficient risk to warrant further consideration of other potential locations. In June 2018 it was decided to place further work on the consent application on hold and investigate further options for the design/location of the waste rock stack.

20 As a concept, what is now the preferred waste rock stack location was considered in the scoping of the Project design but discounted due to the likely unacceptable landscape effects and temporary loss of productive pasture. Detailed studies of the new waste rock stack recommenced in 2019.

21 Based on the outcomes of the studies and stakeholder engagement the following are the key attributes associated with the preferred waste rock storage location (or Deepdell East Waste Rock Stack), when compared to the alternatives:

(a) The waste rock stack sits on the sub watershed divide. This facilitates a less challenging approach to water management, through the more gentle topography and limits stream infill thereby avoiding impacts to important aquatic values found in Highlay Creek.

(b) No Threatened flora and fauna species (nationally critical, nationally endangered or nationally vulnerable)[4] found within the footprint, resulting in significant improvement compared with previous alternatives.

(c) No impacts to recognised archeological features.

(d) An equivalent area of loss of high producing paddocks as with alternative B, all on OceanaGold land.

(e) The lowest fuel use, and therefore carbon dioxide emissions, as compared with other alternatives.

(f) Further from the closest farm residence, thus reducing amenity effects.

---

[2] In accordance with the New Zealand Threat Classification System, 2017.

[3] As identified by D. Rich of the Department of Conservation.

[4] The highest conservation value assigned to a species found in the footprint is At Risk Declining.

22 The design process undertaken and the search for the preferred option for waste rock storage for the Project shows how an iterative approach based on technical and stakeholder input, can drive avoidance of important values and lead to an optimum design which balances the effects on values.

Key Issues

23 Project effects on values and the proposed mitigation are detailed in the evidence provided by the technical specialists. Therefore as part of my evidence I will not focus on an extensive explanation of the effects and full package of mitigation, but will instead focus on the key issues that were either identified in the preparation of the consent application or as part of submissions and/or the Section 42A reports prepared by the Council.

Terrestrial Biodiversity

24 Realising terrestrial biodiversity was going to be a key issue, OceanaGold engaged ecologists (Dr Mike Thorsen and Dr Graham Ussher) in order to ensure that the final design was robust and internally peer reviewed. As a result of the feedback from stakeholders, the team was bolstered to include an experienced herpetologist (Dr Mandy Tocher) to focus on management of effects to lizards.

25 Despite the exhaustive alternatives process I have outlined, the proposed Project will impact on a number of significant terrestrial biodiversity values thus requiring further actions within the mitigation hierarchy (remedy, mitigate, and if there are residual effects following these measures then offsetting). In some cases, for example effects to plants that are either threatened, locally rare or taonga species, mitigation actions in the form of salvaging and replanting in protected areas is suitable to ensure no-net loss of these values. In other cases, such as loss of habitat, mitigation is not possible, whilst remediation in the form of restoration (or rehabilitation) is problematic due firstly to the technical difficulty in re-establishing fully functional native ecosystems and secondly, and more importantly, the desire of the local community to return the mined out land to grazing (ie. its previous land use prior to mining). Thus, addressing effects on habitats in a socially acceptable way generally takes the form of offsetting and/or compensation.

Biodiversity Offsets, Protected Areas and the Macraes Community

26 The Macraes Operation has a recent and successful history of utilising protected areas as a form of compensation for loss of habitat, with over 650ha of land in the Macraes Ecological District now in ecological covenants. The most recent example is the establishment of covenants for the Coronation North Project. Despite the

Coronation North footprint affecting more intact and natural habitats, with a number of species higher in the threat classification system than those found in the Project area footprint, OceanaGold was able to facilitate a package of mitigation that was agreeable to almost all parties, and which was accepted by the expert ecologists advising on that project to constitute appropriate compensation.

27 Not content with the previous level of performance, for the Project, OceanaGold has for the first time developed plans for two formal biodiversity offsets. Biodiversity offsets, which are higher on the mitigation hierarchy, require more rigour and formality in terms of understanding and establishing the biodiversity gains over what is lost.

28 The use of biodiversity offsets offers a step change in how effects to biodiversity at Macraes are managed, however they are not supported by all stakeholders. As part of the granting of the Coronation North consent, the local community, via Macraes Community Incorporated (**MCI**, the main communication vehicle developed for interacting with OceanaGold in relation to the Macraes Operation), appealed the decision in part due to the use of ecological covenants. Although the Appeal was withdrawn following mediation, concerns over covenants were raised at subsequent meetings between MCI and OceanaGold. In essence the concerns expressed by the community via MCI is that covenants that permanently exclude or severely restrict farming in the area will in future adversely impact on the viability of farming, both through the direct loss of suitable land, and also indirectly by increasing risk to adjacent and nearby farming land through fire risk and weed spread.

29 In order to address the concerns of the Community, OceanaGold implemented a number of strategies. Firstly, the University of Otago was commissioned to undertake the Common Ground study in which representatives from all the main stakeholder groups (ie. Councils, DOC, the local community, OceanaGold and Iwi) were interviewed. The focus of the study was to investigate the underlying values that each stakeholder held regarding land use in Macraes. The study found that there are three broad groups associated with regulation, production and conservation of land. However, there was fluidity between individual stakeholders in terms of how to manage the land, thus identifying the common ground.

30 Secondly, as part of a tender process for the OceanaGold Redbank farming lease in 2018, part of the process for identifying the preferred tender was to gauge the acceptance of ecological covenants during interviews of the short listed applicants. Then in early 2019, as part of the preliminary planning for offsetting consultation was held with the Redbank lessee to identify areas of the lease which were the

least productive, but which held good potential for ecological enhancement. The identified area subsequently became the Redbank Offset site. As the offset design has continued to be developed, OceanaGold has continued to engage with the lessee to ensure his views and concerns were taken into account.

31 Thirdly, OceanaGold was contacted by a farmer, outside of the immediate area of the mine site but still within the Macraes Ecological District, who was interested in improving water management on his farm. During initial discussion with the famer it became clear that a number of ephemeral wetlands were present on the property. A site survey identified the wetland which has subsequently been proposed for the wetland offset. At the time of preparing this evidence, OceanaGold is drafting an agreement for the establishment of a covenant over the wetland in exchange for further support for water management on the farm.

32 Fourthly, as I have indicated earlier, OceanaGold has endeavoured to engage DOC and the Waitaki District Council from the beginning of the design process for ecological mitigation. DOC has continued to be constructively engaged on the detail of the Management Plans for the biodiversity offsets (termed Ecological Enhancement Area Management Plans in Dr Thorsen's evidence), as well as in relation to lizards, which I discuss below.

33 Finally, the design of the offset site has attempted to take into account the local community's concerns regarding loss of productive land by incorporating grazing into the offset area. Dr Thorsen discusses the ecological merits of grazing and responds to concerns raised by DOC and WDC in his evidence.

34 The collaborative approach taken by OceanaGold for the design and selection of Biodiversity Offset sites has been followed with the intention of finding the right balance between the aspirations of all parties. OceanaGold believes that, aside from having agreement with institutions such as DOC, having local community buy-in to conservation actions is an important aspect of achieving net positive outcomes for biodiversity. Our hope is that the 'common ground' achieved between different land management approaches produces long term sustainable stewardship of the land that acknowledges the range of outcomes that can be achieved.

Effects on and Management of Lizards

35 Macraes is well known for its lizard diversity and hosts the DOC conservation reserve for conservation of the Grand and Otago Skinks. Although these species are not present within the Project footprint, the initial survey work found the presence of potentially four species of lizard, including three species with specific conservation value (ie. all three are At Risk-Declining).

36 During consultation with DOC, prior to the formal notification period, it was recognised that the survey of lizard values and proposed mitigation OceanaGold had undertaken was insufficiently robust having regard to meet the extent of the effects proposed in the resource consent application and the need for a permit from DOC under the Wildlife Act.

37 It is important to recognise that while the Wildlife Permit process is a separate process to the resource consent application, DOC and OceanaGold agree that the processes should be run such that the conditions of the resource consent and the wildlife permit are consistent. All four species identified as occupying or potentially occupying the Project footprint are protected under the Wildlife Act 1953. I also note that unlike the resource consent process, the Wildlife Permit process does not involve input from interested stakeholders and is not supervised by the Environment Court.

38 It should also be noted that the resource consent process assesses effects in terms of the sustainable management purpose of the RMA. The Wildlife Permit process takes a 'Totally Protected Species' approach where the level of mitigation is likely to be greater for protected species. An example of this is the McCann's skink which is Not Threatened (the lowest conversation status under the NZTCS), but which requires specific mitigation under the Wildlife Permit requirements.

39 Dr Tocher was engaged to conduct a review of the terrestrial biodiversity studies with the purview of assessing their adequacy to meet the requirements of both processes. The review was undertaken in June 2020, and subsequently led to the development of a draft Lizard Management Plan (LMP). The draft LMP and a summary of its contents are found in Dr Tocher's evidence, whilst a summary of how the mitigation package accords with good practice can be found in Dr Ussher's evidence, and an explanation of the planning requirements under the RMA detailed in Mr Kyle's planning evidence. The scope and subsequent draft LMP has been prepared based on consultation with DOC.

40 Thus, in offering the lizard mitigation measures proposed in the LMP it should be understood that this has been prepared to cover the Wildlife Permit specifically, and goes above and beyond that which would normally be reasonable in order for a resource consent application to be granted.

41 In concluding my remarks on terrestrial biodiversity, OceanaGold, in conjunction with a team of technical specialists and through engagement with its stakeholders has prepared a comprehensive plan to achieve the objective of no net loss outcome for biodiversity. The plan and the process undertaken to develop the plan demonstrates adherence to the effects management hierarchy of avoid, remedy,

mitigate, offset and compensate. I believe that the key Management Plans, which are now well advanced drafts with input from stakeholders, provide certainty that the objectives can be achieved.

Noise

42 Noise effects from the mining operation and in particular from hauling ore to the process plant at night was a focus for the previous consent application associated with Coronation North Extension. Since the granting of the Coronation North Extension consent, OceanaGold has reached formal agreement with the affected residents – C & E Howard. An Affected Party Approval has now been received from the Howards, and OceanaGold is in the process for finalising the requirements with the Howards to have the consent conditions of the Coronation North Extension varied to allow for night time hauling from Coronation. Once this occurs, consent conditions for Deepdell North Stage III will need to reflect the Coronation North Extension variation.

43 More detail with regards to noise can be found in Dr Trevathan's evidence.

Water Quality & Aquatic Ecology

44 Water quality, and its effects to aquatic ecology, continues to be a major focus for management at the Macraes Operation. The Deepdell North Stage III consent application includes detailed analysis of water quality using an industry accepted model for water (Goldsim) to determine long term downstream water quality. The model looks at the site as a whole, thereby taking into account cumulative effects of water quality. Details of the modelling results can be found in Ms Hartwell's evidence.

45 Nitrate has been an emerging contaminant of focus in recent years. Nationwide, the recent concerns to control nitrate, and other nitrogen based compounds, has focused on intensive farming. Isotopic testwork, conducted for OceanaGold by GNS, has suggested that a proportion of nitrogen, in the form of nitrate, found in the mine water is associated with unburnt explosives from the mining operation. The most recent analysis includes analysis of drainage from the waste rock stock showing up to 10% of the nitrogen is sourced from unburnt explosives and the remainder is naturally occurring nitrate from the source rock.

46 Dr Ryder and ORC Council Consultant Dr Greer agree that elevated nitrate in mine water from Deepdell East Waste Rock Stack is unlikely to lead to direct effects on important aquatic values. Dr Greer is concerned that elevated nitrate levels could

lead to excessive algal growth which could in turn affect fish. Dr Ryder has extensive knowledge of the aquatic environment at Macraes and disagrees.

47 One of the key forms of mitigation for managing long term water quality post closure is the construction of the Camp Creek Dam. The Dam was previously consented as part of the Macraes Phase III consent application in 2013 and allows for intermittent dilution of Deepdell Creek during dry months of the year. It also has the potential to provide flushing flows for nuisance algae.

48 As part of its adaptive management approach to sulphate and nitrate management, OceanaGold is currently undertaking parallel research investigating accelerated passive treatment systems with Verum Group (formerly CRL) and the use of mine water for irrigation with the University of Otago. The later programme is looking at utilising those nutrients (ie sulphate and nitrate) for small scale irrigation of farm paddocks during dry periods of the year, when flow is low in streams and the risk of algal growth is greatest. The research is 18 months into a 3 year programme and has shown some promising signs. Lessees of land associated with the research have been consulted on the set up of the trials and been provided updates on the results. If successful, the research will provide a long term win-win solution for managing mine water and downstream effects through reduced reliance on Camp Creek Dam.

Summary of Consultation and response to Submissions

MCI - oppose

49 Engagement with MCI on the Project has been ongoing since February 2018. At key stages of the design OceanaGold has sought comment from MCI including the May 2018 site meeting, I have discussed previously and in September 2019 prior to lodging the consent application. Unfortunately, due to the COVID-19 lockdown in April 2020, a meeting with MCI, in which a summary document on the Project was to be provided, was cancelled. This document, which was designed to provide a more accessible synopsis of the Project, was distributed by email with an invitation for a video discussion, however this did not facilitate further discussion.

50 The submission and subsequent discussions with MCI raised concerns that were more general in nature, ie. dust, noise, roading issues, the standard of rehabilitation, and transparency on bonding, associated with mining operation, and those more specific to the Project, ie. ecological covenants, the loss of productive land to mining and the impact on lessee woolshed and associated facilities.

51 As Ms Harwood outlines in her evidence on Air Quality, historically there has been significant issues with dust, primarily resulting from the Mixed Tailings Impoundment (**MTI**), which led to several community complaints. Since 2017, OceanaGold has undertaken a considerable earthworks program which has resulted in the capping of 90% of the MTI, significantly reducing the potential of dust from this source. As Ms Harwood points out, only one dust complaint has been received between 2015 – 2019 relating to hauling of ore from Coronation North.

52 Despite the compliance with respect to monitoring results and lack of complaints regarding dust, OceanaGold is committed to improving its monitoring, in the form of additional suspended particulate matter (**TSP**) in order to better inform both the Council and the Community of the effects on air quality.

53 Coming out of the discussions with MCI, I believe that the issues of loss of productive land, the use of ecological covenants, the standard of rehabilitation, and to a certain extent transparency on the bond and supervision of consent conditions are part of an underlying theme associated with long term land use and productivity. The farming community in Macraes has a reach history dating back in some cases to five generations. Many of the farmers have a strong attachment to the land and fierce desire to ensure that their children and grandchildren will be able to continue to farm in the Macraes district. With the changing regulatory landscape i.e. the introduction of the Climate Change Response (Zero Carbon) Amendment Act, the impending National Policy Statements for Freshwater and Biodiversity, farming practices are likely to change and land use conversion whether for farming or mining will not be a simple exercise. OceanaGold recognises the importance of continuing to work together with the Community on these issues.

54 OceanaGold is currently preparing a farmers' field day in which specialists will discuss issues such as biodiversity, water, carbon and pest management. This this event, which is scheduled for September 2020, aims is to provide further information to the community on the imminent changes to national environmental policy and also to investigate opportunities for dealing with these changes. The event will also provide a forum for OceanaGold to explain and seek input for its vision for 2040.

55 Progressive rehabilitation plays in important role in managing environmental effects such as controlling erosion and sediment loss, minimising dust and creating a post mining land use. Historically rehabilitation has focused on farming as a final land use however recent consent have required some ecological objectives to be

met. To date the Macraes Operation has completed 540ha of rehabilitation, with 18 ha completed in 2019 and a further 60ha ready for seeding in spring of 2020.

56 A Rehabilitation Review, which was prepared by Landcare in 2019, was a step towards identifying how the post mining landscape can better integrate into a modern-day farm. I agree with the comments in Mr Purves' Section 42A, that consent conditions do not appropriately capture the complexities associated with rehabilitation and final landuse, and that more a prescriptive approach to rehabilitation has limitations.

57 As part of its annual business plan for 2020, OceanaGold is in the process of drafting a land management strategy which will outline an improved strategy for rehabilitation, along with outlining how the company will divest its land ownership, and manage other land use issues, including biodiversity and carbon management. Comment from the community on the land management strategy will be sought in 2021.

58 With respect to MCI's concerns over transparency of the Bond, every two to three years OceanaGold undertakes a review of the risks assessment which accompanies the bond. As part of the risk assessment, the consultant responsible for the bond calculation provides an explanation of how the bond is calculated. Previously the Councils have been invited to attend this risk assessment review. In order to improve transparency. Members of MCI will be invited to be a part of this review.

Appin Farms - support

59 Consultation with Appin Farms on the Project design, and specifically the location of the Deepdell East Waste Rock Stack commenced in December 2018. Negotiations have been ongoing as to the relocation of the woolshed and associated facilities, and at the time of preparing my evidence, a draft agreement is currently being prepared on this matter.

Aukaha - neutral

60 Consultation on the Project with Aukaha, the planning agency responsible for coordinating responses from the tangata whenua, has been ongoing since 2018. In addition to consultation with Aukaha, OceanaGold has had regular dialogue with representatives from the Kāti Huirapa ki Puketeraki Rūnaka with regards to consent applications, including Deepdell North Stage III and exploring options for shared value projects.

61 Along with the submission, Aukaha was also requested to provide a Cultural Impact Assessment which provides further information on the potential cultural effects from the Project, and the broader Macraes Operations. I have attached the CIA as **Appendix 1**.

62 In dialogue with the tangata whenua it is recognised that addressing the cultural effects is not a simple matter and that it will take a high level of trust through ongoing dialogue to reach a common understanding on the level of significance of these effects and the type of actions that can be explored to mitigate or compensate for these effects. We intend to continue the dialogue assisted by the existing protocols of engagement with the three runaka of Te o Moeraki, Kāti Huirapa ki Puketeraki Rūnaka and Te Rūnaga o Otakou.

63 Aukaha have been invited to provide input into the management plans for the biodiversity offsets and proposed conditions have been updated to address management plans (for further information see Ms Hunter's evidence).

64 Regarding the term of the consent being limited to 25 years, I don't believe that this is suitable when take into account the post mining monitoring required for the Macraes Operation. Currently OceanaGold maintains a bond with management and monitoring activities out to 20 years following mine closure. Given the evidence provided by Mr Hine regarding the future of Macraes, I recommend that the land use consent term remains at 35 years.

Neil Roy

65 OceanaGold is in regular communication with Mr Roy and has consulted on the Project on several occasions. Recent conversations with Mr Roy have focused on the loss of productive land and the use of brown top, the location of the Waste Rock Stack, the locked gate on Horse Flat Road and the appropriateness of the Golden Point Road pedestrian access.

66 Along with MCI, Mr Roy, a multi-generational farmer, questions whether the position of the waste rock stack would have received a consent had it first been proposed in the original consent application, and that backfilling the Coronation Pit is a preferable option. The Macraes Operation has a history of backfilling pits where feasible. The Project does include backfilling of the Deepdell South Pit and the recently consented Coronation North Extension is an example of how mine planning was able to allow for backfilling of an operational pit. As Mr Purves points out in the Section 42A report, the hauling of waste is a significant cost for the mining operation and would make the Project uneconomic. It would have also led to a substantially increase in amenity effects associated with haul road noise.

67 Mr Roy's concerns regarding loss of productive land mirror those of the MCI. As I have outlined earlier in my evidence, loss of productive land is a consideration in the site selection process. Mr Roy's concerns over the use of brown top will be taken on board. Brown top is typically part of the seed mix due to its resilience and ability to provide soil cover. However, we will consider his comments for future rehabilitation.

68 With regards to the appropriateness of the new alignment for the Golden Point pedestrian access, the original pedestrian access was offered as part of the Coronation Consent in 2013, in order to maintain public access. To my knowledge the pedestrian access has never been used. The current management of the Coronation haul road gives preference to public vehicles for accessing the haul road alignment between the Golden Point Road/Haul Road crossing and Horse Flat Road. In recent years this access has included riders of bicycles. If Mr Roy deems the pedestrian access is no longer required, OceanaGold would support this position subject to any relevant regulatory constraints.

Director-General of Conservation - oppose

69 Consultation with DOC on the Project has been ongoing since January 2018. The conversations with DOC at the management and operational level have been constructive and solution orientated. In my opinion, both parties have attempted to obtain positive ecological outcomes as part of the process. DOC representatives have made a number of site visits to understand the context of the Project and the proposed forms of mitigation.

70 Many of the issues raised in the Director General's submission have been resolved. The most recent communications with DOC staff have examined the detailed proposal of the draft Ecological Enhancement Area Management Plans, the Lizard Management Plans and the relevant ecological consent conditions. Based on the nature of these conversations, I am confident that we will arrive at an acceptable outcome with DOC on their concerns.

71 A more detailed response to matters raised by DOC is outlined in Dr Thorsen's evidence.

ORC – Oppose

72 OceanaGold was surprised to receive a submission in opposition from the Otago Regional Council as we consulted with the ORC early on in the development of the Project and expected that if there were any issues of significant concern with what was being proposed they would have been raised with the company.

73 I was personally surprised that ORC would consider it appropriate to make a submission on a proposal that it was also a consent authority for. When I queried this, I was advised by ORC that this situation was common. My subsequent enquiries suggest that is not the case, and I have been unable to find other instances where this has happened.

74 The ORC submission raises a number of theoretical issues with regard to the Project's impacts on terrestrial ecology. It appears the submission was prepared without the benefit of any advice from an experienced ecologist familiar with the design and implementation of biodiversity offsets, and the submission writers may not have been familiar with the Macraes area, and in particular with the Project site.

75 OceanaGold has gone to significant lengths to adhere to the relevant policy in the new partially operative Regional Policy Statement concerning the way impacts of mining on biodiversity should be addressed via the application of the effects management hierarchy, and in the principles that should be applied to the construction of biodiversity offsets. This is discussed in more detail in the ecological evidence of Dr Thorsen (and in the draft management plans he has prepared) and Dr Ussher, and in the planning evidence of Mr Kyle.

76 The ORC's submission questions whether the Project footprint represents the best alternative and again appears to be based on theory rather than knowledge of the Project and the site. In my evidence I have explained at length the evaluation process that was gone through to arrive at the proposed waste rock stack. That process is explained in the application documents and I am at a loss to understand the basis upon which the ORC submits that the effects management hierarchy has not been followed.

77 In relation to the offsets, I am satisfied that the approaches being taken are sound and will result in no net loss or better, and will otherwise adhere to accepted principles of good offset design. The conditions that are proposed in the evidence of Ms Hunter will ensure that the offset benefits are delivered.

Response to Recommending Reports

Waitaki District Council

78 I have already addressed a number of the issues raised by Mr Purves in the Section 42A report. In the report, effects on biodiversity are considered the key issue for the application. Further to my evidence, I refer to Dr Thorsen's evidence for responses to the technical concerns raised.

79 Mr Purves has highlighted the need to additional conditions for a detailed landscape plan for the view provided for from the Golden Point Reserve. This is acceptable to OceanaGold provide the condition allows for backfilling of the Deepdell South Pit to commence prior to approval of the plan by Council.

80 Mr Purves has provided comments on the pedestrian access for Golden Point Road. As I have indicated in my response to Mr Roy, if access along the haul road is sufficient such that the pedestrian access is no longer considered appropriate, then OceanaGold will remove it from the Project, subject however to regulatory constraints under the Public Works Act.

Otago Regional Council

81 In Ms Neville's Section 42A report for the regional council, she describes the key issues being effects on water quality, effects on aquatic ecology and sizing of the culvert and diversion channel.

82 I have addressed matters concerning water quality and aquatic ecology in my evidence and point to Ms Hartwell's and Dr Ryder's evidence for further responses to those matters raised in the report.

83 On the matter of design criteria for the culvert and diversion channels, Mr Trovelainen's evidence outlines an approach to accommodate the effects of climate change.

84 With regards to Air Quality and in line with the response to the MCI submission, OceanaGold accepts the recommendation to undertake TSP monitoring at the Howards residence in order to address concerns of the community, while also acknowledging Ms Harwoods' evidence[5] that it is not required due to dust effects at the site.

Conclusion

85 The Deepdell North Stage III Project has been developed through an inclusive and iterative approach to the make up of the key elements. The Project has used a range of technical specialists to create a solid technical design and incorporates good practice in terms of understanding stakeholder concerns and where possible integrating them into the design.

[5] Evidence of Ms Harwood, paragraph 86.

86 OceanaGold continues to build on its environmental and social performance, through the proposed biodiversity offsets. The wetland offset in particular provides a great example of how farming, mining and conservation can co-exist and achieve mutually positive outcomes. In my opinion it provides a model for future developments at the Macraes Operation.

87 I respectfully request that OceanaGold be granted the resource consents necessary for the Deepdell North Stage III Project to proceed.

Gavin Lee

4 August 2020

Appendix 1

Cultural Impact Assessment

Prepared by Aukaha May 2020

Cultural Impact Assessment

Deepdell North III

May 2020

Aukaha

Intellectual Property Rights

Acknowledgement

The preparation of the cultural impact assessment for the Coronation North Project was undertaken with the assistance of the following groups:

- Kāti Huirapa Rūnaka ki Puketeraki
- Te Rūnanga o Ōtākou

Front Cover Photograph: Aerial view of Deepdell Creek looking downstream, with the Deepdell South Pit in the upper left corner.

Version: May 2020

Aukaha
Level 1
258 Stuart Street
PO Box 446
Dunedin
Tel: 03-477–0071

Prepared by:
Kathryn Gale

Reviewed By:
Kāti Huirapa Rūnanga ki Puketeraki
Te Rūnanga o Ōtākou
Maree Kleinlangevelsloo

Report 1 of 1
For OceanaGold (NZ) Ltd

Contents

1. Introduction

1.1 Purpose of this Cultural Impact Assessment

This cultural impact assessment (CIA) has been prepared for OceanaGold (NZ) Ltd (OGL) on behalf of Kāti Huirapa Rūnaka ki Puketeraki and Te Rūnanga o Ōtākou (Kā Rūnaka). This CIA:

- Identifies mana whenua i.e. those with mana over the Deepdell North III Project area
- identifies potential effects of the Deepdell North III Project at Macraes Mine on mana whenua cultural values
- provides comment on whether the proposed measures appropriately address effects on cultural values
- makes recommendations regarding the Deepdell North III Project

Due to time constraints, this CIA has not been written according to the usual methodology. It is important to note that this assessment was completed after the application was lodged. It is best practice and the preference of Kā Rūnaka that CIAs are included with and lodged as part of the appllciation's assessment of environmental effects.

Therefore this CIA does not cover the iwi statutory framework or association of Kā Rūnaka with the Macraes area in great detail. However, this appears in previous CIAs [1].

This report should not be seen as all the consultation required with Kā Rūnaka, but as a basis for ongoing consultation and discussion between OGL and Kā Rūnaka.

1.2 Mana whenua

Mana whenua are those who have mana (authority) over whenua (land) and is often used to refer to the whānau (families), hapū (sub-tribes) or iwi (tribes) of a particular area who are recognised as holding the traditional rights and responsibilities within that area to manage and govern natural resources. Kāti Huirapa Rūnaka ki Puketeraki and Te Rūnanga o Ōtākou are mana whenua within the area of influence of the Deepdell North III Project. They whakapapa to the tribes of Waitaha, Kāti Mamoe and Kāi Tahu.

[1] E.g. Cultural Impact Assessment for Coronation North Project, and Coronation Pit Supplementary Report

1.3 Description of proposed activity

The Macraes Gold Project is located approximately 30 kilometres to the northwest of Palmerston. This CIA was written for the Deepdell North Stage III Project (the Project), which includes the following key components:

- The Deepdell North Stage III Pit, which involves re-mining the Deepdell North Pit and expanding it from 18.7ha to 38ha
- Creation of the Deepdell East Waste Rock Stack, which will have a footprint of 70.6ha
- Creation of the Deepdell South Backfill Waste Rock Stack, which will backfill the existing Deepdell South Pit.
- Associated infrastructure including new haul roads, silt ponds and noise bunds.

The Project impact area is 169.9ha – this includes that area of the Project and a 100m buffer zone. The Project is expected to take approximately 2 years to complete.

Figure 1: Deepdell North III project area and buffer zone

2. Impacts on Cultural Values

2.1 Mauri

All things possess a mauri or life force. The primary management principle for Māori is the protection of the mauri of an ecosystem. If the mauri of the natural environment is degraded it no longer has the capacity to support cultural uses and values.

The Project will have a negative effect on mauri, but this effect is difficult to quantify. Where effects are not well understood, Kā Rūnaka apply the precautionary principle (see recommendations section).

2.2 Cumulative effects

He taura whiri kotahi mai ano te kopuka tai no i te pu au / From the source to the mouth of the sea all things are joined together as one

In accordance with tikaka Māori, a holistic approach should be taken to the management of the natural environment. This world view is articulated by the philosophy of 'ki uta ki tai', which is a holistic natural resource management framework. Ki uta ki tai is an approach rather than a value, but is an important concept to keep in mind when assessing effects on cultural values.

A ki uta ki tai approach recognises the interconnectedness of all things. All parts of a catchment are connected, and effects that occur upstream will flow down and affect areas downstream. Here, it includes recognising that the Project is part of the overall Macraes Gold Project.

Kā Rūnaka have concerns with the way the statutory framework deals with consents one at a time, without considering their part in an overall whole – in this case, by looking at the Project without considering it as part of the Macraes Gold Project. This makes it difficult to assess and address cumulative effects of the Macraes Gold Project, as each component is consented one at a time.

2.3 Kaitiakitaka and rakatirataka

Kaitiakitaka is an inherited responsibility of those who hold mana whenua to ensure that the mauri of the natural resources of their takiwā is sustained. Kā Rūnaka are kaitiaki for the Deepdell North Project III project area and are responsible for ensuring that its natural resources are available for Kāi Tahu whānau to use now and in the future. Kā Rūnaka therefore have an intergenerational perspective. Kaitiakitaka is an expression of rakatirataka.

Rakatirataka is customary authority over natural resources, including mahika kai and other taoka tuku iho. Rakatirataka is inextricably linked to kaitiakitaka.

The nature of thestatutory framework described in the ki uta ki tai section above also affects rakatirataka, as it is difficult for Kā Rūnaka to address the cumulative effects of applications holistically as they wish to.

The statutory framework does not allow mana whenua to fully exercise rakatirataka and kaitiakitaka, because it does not give mana whenua decision-making authority. Mana whenua do not have the authority to decline applications that negatively affect cultural values – that authority rests with councils. While this issue is not something that can be addressed by OGL or the Project, it is important to recognise this context when assessing the overall effects of the Project on rakatirataka and kaitiakitaka.

2.4 Mahika kai and Taoka Species

Mahika kai is the cornerstone of Kāi Tahu identity. Mahika kai is a term that literally means "food workings". It refers to the places where food is gathered and also embodies the traditions, customs and collection methods, and the gathering of natural resources for cultural use.

Taoka species are those species that are treasured by Kāi Tahu. Some of these have been recognised in the Ngāi Tahu Claims Settlement Act, but several important species were excluded. There is much overlap between mahika kai and taoka species as many species are treasured for their value as food.

The Project will have a significant negative effect on mahika kai and taoka species.

This is through:

- The removal of approximately 54.79ha of indigenous vegetation. This will affect:
    - 71 indigenous plant species (including 13 threatened species)
    - 9 indigenous bird species (including one threatened species and seven taoka species)
    - 4 indigenous reptile species (including three threatened species)
    - A largely unknown invertebrate community
- Negative effects on ecosystems valued by Kā Rūnaka including:
    - Destruction of 0.32ha of ephemeral wetland containing threatened species
    - Destruction of 0.07ha of seepage wetland containing threatened species
    - Destruction of 3.73ha of shrubland containing threatened species

Kā Rūnaka also note that the AEE has emphasised addressing effects on threatened species. Kā Rūnaka believe that it is preferable and easier to look after species before they are threatened than

to try to restore species after they have been negatively affected. Therefore an equal emphasis should be put on the effects on both threatened and non-threatened species.

2.5 Ancestral landscapes

The Macraes district is part of a wider ancestral landscape of significance to Kā Rūnaka.

The East Otago area is important as a place of settlement, a burial place and as an ancestral landscape that embodied the ancestral, spiritual and religious traditions of all the generations prior to European settlement. East Otago is therefore an important taoka tuku iho (treasure handed down by the ancestors) for Kā Rūnaka.

The extension of the Deepdell North Stage III Pit and creation of the waste rock stack (WRS) will affect the ancestral landscape the Project is located within. This is through visual effects on landscape, and by potential effects on any sites of significance in the Project area. Although there are no archaeological sites recorded in the area of the project, there may be sites in the area that are unknown.

2.6 Wai Māori

Ko te wai te ora ngā mea katoa / Water is the life giver of all things

Water plays a significant role in Kāi Tahu spiritual beliefs and cultural traditions. The condition of water is seen as a reflection of the health of Papatūānuku. The loss and degradation of this resource is a significant issue for Kāi Tahu.

The main surface water bodies in the vicinity of the Deepdell North Stage III Project are part of the Deepdell Creek catchment. Deepdell Creek is a tributary of the Waihemo River, which is of great significance to Kā Rūnaka.

Freshwater crayfish (*Paranephrops zealandicus,* at risk: declining) and Taieri flathead galaxids (*Galaxias depressiceps*, threatened: nationally vulnerable), are present in the project area. These are mahika kai and taoka species that will be adversely affected by the Project. Wai Māori in the Project area may also be negatively affected by excavation of the pit resulting in decreased surface and subsurface flow of water into some water courses and sediment runoff entering the waterway affecting water quality.

3. Comments on proposed measures to address the effects of the application

The following mitigation measures have been propsed by OGL:

1. Avoiding effects by siting the WRS in the location with the fewest adverse effects
2. Remediation of effects:
    a. On reptiles by creating new lizard habitat
    b. By rehabilitating Deepdell North III WRS to habitat currently used by pipits and spur winged plover
    c. Establishing a new pit lake, replacing habitat currently used by black backed gulls
    d. Creating freshwater crayfish habitat in the western clean water drain
3. Mitigating effects:
    a. On *Melicope simplex* and *Myrsine divaricata* by relocating plants
    b. On water, associated with sediment runoff via the adherence to best practice and Standard Operating Procedures throughout the mining activities
    c. On water by designing the waste rock stack to control runoff and prevent sedimentation
4. Offsetting impacts on remaining species and ecosystems. An Ecological Enhancement Area (EEA) located at Rebank Station (Redbank EEA) will offset effects on shrublands, low producing grasslands and the seepage wetland. Another EEA and supporting research project would offset effects on ephemeral wetlands. Both EEA combined would offset effects on remaining species. The location of the Redbank EEA is shown on the map below. It will be at least 126ha, and will be legally protected through covenanting.

The Ephemeral Wetland EEA will use weed control to improve indigenous vegetation cover at ephemeral wetlands at 5-7 sites (yet to be selected) over a 10 year period. The associated research programme will address deficiencies in knowledge on the form, function, threats and management of ephemeral wetlands.

The implementation and management of each of the EEAs will be documented in an Ecological Enhancement Area Management Plan (EEAMP). The EEAMP will form a part of a broader project Ecological Management Plan which will include on-site works to avoid, remedy, and mitigate adverse effects.

Figure 3: Location of the Redbank EEA in relation to the Project

3.1 Mauri

Kā Rūnaka have determined that adverse effects on mauri are not adequately addressed by the proposed measures. While the measures go some way to addressing effects on mauri, the creation of a pit and waste rock stack will forever alter the mauri of the Project area. The offsets proposed do not fully address this effect on mauri. Mauri cannot be replaced or created.

3.2 Cumulative Effects

Kā Rūnaka are frustrated that the statutory framework limits what they can comment on when providing input to decision-makers. Kā Rūnaka have assessed several applications for projects at Macraes Gold Project over the life of the mine, and therefore have a holistic understanding of the effect the mine as a whole is having on the wider area. Kā Rūnaka note that there are significant cumulative effects that are difficult to be address through the current framework. This may lead to Kā Rūnaka declining to provide support and / or written approvals for future projects.

3.3 Kaitiakitaka and rakatirataka

Kā Rūnaka have an intergenerational perspective and are concerned about the long term effects of the Project after its completion. This includes long-term effects on water quality, the natural landscape, vegetation communities and the geological stability of the area.

The statutory framework does not allow mana whenua to fully exercise rakatirataka and kaitiakitaka, because it does not give mana whenua decision-making authority. Kaitiakitaka and rakatirataka will be negatively affected if Kā Rūnaka are not be able to address their concerns with the application prior to a decision being made on the granting of resource consents.

3.4 Mahika kai and taoka species

Kā Rūnaka have determined that the measures proposed do not adequately address effects on mahika kai and taoka species. The primary reasons for this are:

- That in some cases there is not enough information available to determine what the potential negative effects might be e.g. very little information is provided on potential effects on lizards and invertebrates. Where this is the case, Kā Rūnaka support the use of the precautionary principle.
- That a key measure for addressing adverse effects is through the biobanking approach and creation of EEAs. This is not supported by Kā Rūnaka. These areas already exist and already contain mahika kai and taoka species values that have led to them being selected as the preferred means of offsetting. The increased legal protection of existing mahika kai and taoka species is supported, but it is not the same as creating new areas of ecological significance to replace those that will be destroyed by the Project. Kā Rūnaka do not have a full understanding of the biobanking system that has been proposed, and would like to have a greater understanding and some input into the system before they can support its use.

Kā Rūnaka also acknowledge and support the other proposed measures including creation of artificial habitat for species. However it is difficult to know if artificial habitat is equally as good as natural habitat for species, and Kā Rūnaka prefer that mahika kai and taoka species are able to inhabit good quality natural habitats.

3.5 Ancestral landscape

Kā Rūnaka support the restoration of the landscape as specified in the AEE, and would like to continue to work with OGL to ensure that long term effects of the whole Macraes Gold Project on the wider ancestral landscape are avoided, or appropriately addressed where this is not possible.

3.6 Wai Māori

Kā Rūnaka have been unable to determine whether the measures proposed adequately address effects on wai Māori because of the lack of information on potential hydrological impacts on the Deepdell Creek catchment. Kā Rūnaka support the mitigation measured that have been proposed i.e. adherence to best practice and Standard Operating Procedures throughout the mining activities to prevent sedimentation, and creation of freshwater crayfish habitat in the western clean water drain. However it is not clear whether these measures will adequately address potential negative impacts on wai Māori because of this lack of information. Kā Rūnaka would like to work through these concerns with OGL.

4. Recommendations

Kā Rūnaka make the following recommendations

1. That Kā Rūnaka work with OGL to address their concerns with this application, prior to the hearing taking place.
2. That the consenting authorities apply the precautionary principle where effects are not well understood because information is deficient. The precautionary principle is a strategy for approaching issues of potential harm when adequate knowledge on the matter is lacking. Kā Rūnaka understand this principle to mean in a resource management context that applications should only proceed when there is evidence that effects can be appropriately managed. If it is unclear whether effects can be managed, applications should not proceed until there is sufficient evidence to suggest that there are no adverse effects, or that adverse effects of the activity are acceptable. Kā Rūnaka support the use of this approach when assessing resource consent applications.
3. That through the existing relationship OGL and Kā Rūnaka communicate about how to address cumulative effects of the Macraes Gold Project as there is limited mechanism for this under the statutory framework
4. That through the existing relationship Kā Rūnaka and OGL communicate about further opportunities to address adverse effects on mauri. These may be through regulatory or non-regulatory mechanisms

5. That the Heritage New Zealand Accidental Discovery Protocol is included in consent conditions to ensure that any unidentified culturally significant sites are protected
6. That for any future projects at the Macraes Gold Project Kā Rūnaka are provided with the Assessment of Environmental Effects at OGL's earliest convenience. The technical reports that make up the AEE will inform the CIA and will allow both pieces to be lodged at the same time with the resource consent application.
7. That Kā Rūnaka are involved in the drafting of the Ecological Management Plan and any EEAMPs for Deepdell North III to support identification of any further opportunities to address adverse effects on mauri, mahika kai and taoka species. Ideally these plans would be written before resource consents were granted And a condition requiring OGL to comply with any Ecological Management Plan and EEAMP written for the Project would be included.
8. Kā Rūnaka have reservations around using a biobanking approach and would like to discuss these further with OGL.
9. That AEEs for any future projects at the Macraes Gold Project place an equal emphasis on addressing adverse effects on threatened and non-threatened indigenous species.
10. That if resource consent is granted, consent conditions include controls that ensure that at the closure of the project the site is managed appropriately e.g. managing long term discharges and geological stability.

Kā Rūnaka acknowledge their existing relationship with OGL, which has been formalised most recently through a Protocol of Engagement signed in 2017.

OceanaGold acknowledges in the Protocol of Engagement that the areas of operation of the Macraes Gold Project have significance to Kā Rūnaka , and that the operation of the Macraes Gold Project can potentially have adverse impacts on the interests of Kā Rūnaka .

Both parties have agreed to commit to progressing solutions to the environmental and cultural concerns of Kā Rūnaka, and have agreed to work collaboratively in developing and implementing initiatives to address any adverse impacts of the Macraes Gold Project on the cultural values in the receiving environment.

Kā Rūnaka is looking forward to working with OGL to develop an appropriate package to addressing adverse effects on cultural values of the Deepdell North III Project.