**BEFORE THE TARANAKI REGIONAL COUNCIL AND NEW PLYMOUTH DISTRICT COUNCIL**

**MT MESSENGER BYPASS PROJECT**

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| In the matter | of the Resource Management Act 1991 |
| and | |
| In the matter | of applications for resource consents, and a notice of requirement by the NZ Transport Agency for an alteration to the State Highway 3 designation in the New Plymouth District Plan, to carry out the Mt Messenger Bypass Project |

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# SUPPLEMENTARY STATEMENT OF EVIDENCE OF GRAEME JOHN RIDLEY (CONSTRUCTION WATER MANAGEMENT) ON BEHALF OF THE NZ TRANSPORT AGENCY

17 July 2018

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## INTRODUCTION

1. My name is Graeme John Ridley.

2. My supplementary evidence is given in relation to applications for resource consents, and a notice of requirement by the NZ Transport Agency ("the **Transport Agency**") for an alteration to the State Highway 3 designation in the New Plymouth District Plan, to carry out the Mt Messenger Bypass Project ("the **Project**").

3. I have the qualifications and experience set out in my statement of evidence in chief ("**EIC**") dated 25 May 2018.

4. I repeat the confirmation given in my EIC that I have read the 'Code of Conduct' for expert witnesses and that my evidence has been prepared in compliance with that Code.

5. In this evidence I use the same defined terms as in my EIC.

## SCOPE OF EVIDENCE

6. The purpose of my supplementary evidence is to discuss the key outstanding aspects of the CWMP, CWDMP and SCWMPs and issues that have arisen from ongoing discussions with TRC and DOC since the writing of my EIC.

7. My supplementary evidence addresses:

   (a) the further discussions held with TRC and DOC;

   (b) the updates made to the Project construction related management plans;

   (c) the updated provisions within the CWDMP; and

   (d) winter works provisions.

8. My supplementary evidence should be read in conjunction with my EIC.

## DISCUSSIONS WITH TARANAKI REGIONAL COUNCIL (TRC) AND DEPARTMENT OF CONSERVATION (DOC) SINCE EIC FILED

9. Following the filing of my EIC, I confirm that I have met with the TRC representative, Mr Campbell Stewart, on two occasions.[1] During those meetings we:

   (a) discussed and identified issues and possible associated updates for the CWMP; and

[1] These meetings occurred on 14th June 2018 and 22nd June 2018. I was accompanied in these meetings by my colleague Ms Sharon Parackal.

(b) discussed the CWDMP, and how this monitoring programme is specifically linked to the construction activities for the Project.

10. A site visit was held with TRC staff and representatives Mr Campbell Stewart, Mr Jared Glasgow and Mr Ivan Smith, on 2 July 2018. During the site visit we discussed and viewed the Project site. In particular, we discussed the SCWMPs submitted with the application documentation, and viewed the associated SCWMP locations. I have also exchanged emails with Mr Stewart in particular in respect of the CWDMP.

11. I have also had several discussions with Mr Richard Duirs (DOC representative) in respect of the approach for earthworks and in particular the CWDMP.

## UPDATES TO MANAGEMENT PLANS

### Construction Water Management Plan

12. An updated CWMP has been prepared and is being lodged with Mr Roan's supplementary evidence. This updated version incorporates comments received from TRC. The changes made in this version relate to:

(a) technical clarification;

(b) wording consistency; and

(c) clarity and further detail associated with monitoring process and outcomes.

13. While TRC have not been able to review the updated CWMP before this evidence is being filed, I understand from verbal discussions with TRC that based on the comments received from them on the CWMP and our adoption of these comments:

(a) it endorses the changes and amendments made to the CWMP; and

(b) TRC is comfortable that the CWMP can be approved as final through the hearing process, and considers that no post-hearing certification of the CWMP is necessary.[2]

### Specific Construction Water Management Plans

14. Following the site visit with TRC staff and feedback received, the SCWMPs that were filed with the Transport Agency's EIC, relating to three specific locations on the Project, have now been updated. These updated SCWMPs are attached to the supplementary evidence of Mr Roan.

[2] Noting that the proposed conditions of consent provide for a certification process to apply in the event that the Transport Agency wishes to make substantive changes to the CWMP after it is approved.

15. Discussions with TRC were focused on specific technical aspects which have now been incorporated into the updated SCWMPs. As with the CWMP, I understand that TRC is comfortable that these three SCWMPs can be approved as final through the hearing processes, and that no post-hearing certification is necessary.[3]

16. I wish to highlight the benefit of having these three SCWMPs prepared at this early stage. From the Transport Agency's point of view, the Project will be 'construction ready' for these specific areas of work. In addition, and importantly, both the Project Team and TRC understand the documentation that will be utilised for the SCWMPs and how the SCWMP process will operate.

17. This process of developing three SCWMPs prior to the RMA hearings has in my view provided a sound and informed basis for moving into the more detailed Project earthworks activities, and developing the other SCWMPs.

## UPDATED MONITORING REQUIREMENTS

### Construction Water Discharges Monitoring Programme

18. The CWDMP (which is Appendix C to the CWMP) is discussed in detail in my EIC.[4] The CWDMP has been updated to reflect discussions held with TRC and DOC since the Transport Agency's EIC was filed, and to better allow achievement of the overall monitoring objectives.

19. The two overall objectives of the construction monitoring programme have been confirmed in discussions with TRC and DOC, and further reinforced within the updated CWDMP.[5] These two overall objectives are:

    (a) to provide information for making effective on-site decisions on necessary continuous improvement of erosion and sediment control measures (both structural and non-structural); and

    (b) to assist in understanding the outcome of on-site decisions for water quality and stream ecology, and support any determination of potential ecological effects from sediment discharged by the Project earthworks.

20. Discussions with TRC (including in respect of the comments made in the TRC Section 42A Report) and DOC highlighted that TRC and DOC wished to see amendments made to the monitoring programme, with a particular focus on further understanding the effects that may result from sediment discharge.

[3] Again noting the certification process that applies in the event that the Transport Agency seeks to make substantive changes at a later date.
[4] At paragraphs 118 – 125.
[5] These objectives are discussed in paragraph 118 of my EIC. The updated CWDMP is Attachment C to the updated CWMP attached to Mr Roan's supplementary evidence.

21. The TRC Section 42A Report recommended provision be made for continuous automatic sampling at the inlet and outlet of sediment retention ponds and continuous upstream and downstream monitoring.[6]

22. Through my discussions with Mr Duirs in late June, [7] DOC have also now confirmed that they also wish to see continuous automatic sampling at the inlet and outlet of sediment retention ponds, and continuous upstream and downstream monitoring.

23. Following the comments and recommendations received from TRC and DOC, the key amendment to the updated CWDMP is that it now includes a requirement for continuous turbidity sampling at downstream locations from the Project earthworks. This allows a pre-construction baseline to be determined, and will also allow turbidity levels to be continuously recorded during construction activities. This continuous data record provides for quick analysis and understanding of Project related sediment discharges.

24. A more detailed ecological monitoring programme will also occur, including fish and invertebrate species and diversity monitoring at downstream locations. **Mr Keith Hamill** outlines this ecological monitoring in his supplementary evidence.

25. As discussed at paragraph 185 of my EIC, the CWDMP will be required to be reviewed every three months during the first 12 months of construction, followed by an annual review thereafter. This requirement remains in the updated version of the CWDMP. This review provision is intended to provide for adaptive management and continuous improvement, and provides further significant confidence that the CWDMP can be adjusted if necessary at those times. This review allows for adaptations to be made as necessary to changing site conditions, monitoring outcomes and construction activities.

26. I emphasise the need to consider the CWDMP in the full context of all monitoring components. Taking into account the full components of the CWDMP including the additions to the CWDMP noted above, and the monitoring requirements set out elsewhere within the ELMP, I confirm that a comprehensive and fully effective monitoring programme will occur and that the overall objectives of the monitoring will be achieved. Appendix 1 of this evidence provides a summary of the monitoring components for the Project construction activity.

**My most recent exchange with Mr Stewart in respect of the CWDMP**

27. Following our meeting on 22 June 2018, I provided my email summary of the meeting to Mr Stewart. Mr Stewart responded on behalf of TRC on 9 July

[6] See my EIC, paragraphs 183 to 188.
[7] Pers com Richard Duirs 22 June 2018.

2018. That email exchange is attached as Appendix 2 to this evidence. By way of summary, in his email Mr Stewart confirmed:

(a) That the CWDMP captures the overall monitoring objectives I have discussed above.

(b) That TRC wants to see instream continuous turbidity monitoring during the construction period, and would also support further ecological assessments pre and post construction activities if proposed by the Transport Agency / Alliance.

(c) TRC wishes to see instream continuous turbidity monitoring upstream and downstream from the Project. Mr Stewart notes that if no practical upstream option exists then an alternative methodology for the purpose of comparative monitoring would need to be discussed.

(d) TRC wishes to see two SRPs subject to inlet and outlet flow and turbidity monitoring (one in each catchment). The reasoning for this provided is associated with provision of certainty to the community that the Project is operating in accordance with obligations.

(e) The review of the CWDMP is supported, however a "*high degree of transparency*" is required from commencement of the Project.

28. With respect to these matters, I comment as follows:

(a) The objectives of the CWDMP are now clearly documented within the CWDMP, and these are consistent with TRC's position.

(b) The amendments to the CWDMP to include downstream continuous turbidity sampling and further ecological assessment are consistent with TRC's position.

(c) There is no practical reason to install upstream continuous turbidity monitoring to understand Project related discharges. The downstream sites for the continuous monitoring will enable pre-earthworks baselines to be established and represent more accurately the catchment that will be subject to earthworks. This also allows for comparative monitoring assessment during works. In addition, the longer term water quality sampling at WQ1 to WQ5[8] will also continue and will provide for further understanding of wider, non-Project related, water quality trends.

(d) The rationale for monitoring flow and turbidity is unclear. In the absence of further sampling and establishing relationships between suspended sediment concentration and turbidity, turbidity itself does not provide any confirmation of sediment concentrations. Further, collection of flow data, if it were to occur, would be primarily used to assist with determination of

[8] As confirmed in Figure 3.1 of the CWDMP.

sediment yields. As sediment yields is not a parameter that will be measured for the Project earthworks, the collection of this flow data provides no value.

(e) The flow and turbidity monitoring from two SRPs is therefore not required, and I do not consider it necessary to achieve the CWDMP objectives or to confirm that the Project will meet consent obligations. Grab sampling of a selection of SRPs (inlet and outlet) as per the CWDMP will occur, and this will provide a snap shot of the SRP effectiveness at that time. This, in addition to the other components of the CWDMP (including continuous downstream turbidity monitoring) reflect a comprehensive approach that will allow for full transparency of all Project related effects.

(f) The CWDMP is designed to provide a comprehensive and effective overall monitoring approach. It is reflective of the small aerial extent of earthworks, but also recognises the risks associated with steeper slopes and climatic conditions. The review clause is incorporated to provide the ability to amend the CWDMP as necessary to reflect changing conditions as the Project proceeds.

**Fill 12 and 13 (North and South of Tunnel Location)**

29. DOC have raised a concern related to the earthworks activities to occur in both Fill 12 and 13. Within my EIC I outline the proposed construction methodology and the management of risk within these locations.[9]

30. To assist with the management of this risk, we have also introduced a more site focused monitoring prgramme for these locations. This is in addition to the wider CWDMP that applies, and includes specific ecological monitoring (of both fish and invertebrate species and diversity) immediately downstream from these locations. Mr Keith Hamill outlines the detail of this additional monitoring within his supplementary evidence.

31. The cautious construction methodologies proposed for these fill sites,[10] the CWDMP and the fill specific monitoring programme, mean that any effects of construction related water discharges will be managed effectively with full knowledge of outcomes as the fills progress. Overall, therefore, I remain of the view that erosion and sedimentation related effects associated with these fill sites will be negligible.

**WINTER WORKS**

32. Both TRC and DOC have sought clarification on the process associated with winter work activities that will occur with the Project, and the involvement of

[9] Paragraphs 111, 141 and 145 to 147 of my EIC.
[10] In particular, the ability to progress these works on a step by step basis with small incremental daily installation of diversion pipes, daily stabilisation, and progressive filling as works progress.

TRC in certification of these works. I refer to paragraphs 161 to 164 and 191 to 193 in my EIC which outlines the intended process for winter works.

33. I confirm that the use of SCWMPs continues to be an appropriate tool for this purpose. It allows for consideration of specific locations of works, while also allowing for a Project wide consideration when determining what these works will entail. In addition, the CWDMP provides comfort that any issues that arise during construction will be identified early and addressed accordingly.

34. I understand that TRC now accepts the SCWMPs are an appropriate tool for confirming winter work activities[11], but remain concerned with respect to its ability to certify such works. It was always the Project intent that TRC would certify winter work details through the SCWMP process. For the avoidance of any doubt, in updating the CWMP I have now incorporated clear statements to this effect, including noting that winter works cannot proceed without certification.

35. I understand that draft conditions of consent have also been amended to reflect this.

**OVERALL COMMENT AND CONCLUSION**

36. As noted in my EIC, this Project is relatively small in scale from an aerial extent of earthworks and volume perspective, particularly when undertaking a comparative assessment with other roading alignment Projects occurring in New Zealand. I acknowledge the Project risk associated with slope and vegetative cover, and the requirement to undertake effective erosion and sediment controls, and confirm this remains a key element of, and driver for, this Project. The Project must be considered in this full context and with consideration of all relevant aspects including erosion and sediment control training, design, maintenance, the overall monitoring package (qualitative, quantitative and ecological) and continuous improvement processes in place.

37. Overall, I remain of the view that with the comprehensive proposed construction water management regime in place,[12] the erosion and sedimentation effects of the Project will be negligible.

**Graeme Ridley**

**17 July 2018**

[11] Pers comm Campbell Stewart 22nd June 2018.
[12] Including erosion and sediment control measures, the CWDMP and the ongoing requirement for continuous improvement in both structural and non structural erosion and sediment control measures.

## Appendix 1: CWDMP Schematic

[Separate document]

**Appendix 2: Email exchange with Mr Stewart from TRC (22 June 2018 – 9 July 2018)**

**From:** campbell@southernskies.co.nz <campbell@southernskies.co.nz>
**Sent:** 9 July 2018 20:26
**To:** graeme@ridleydunphy.co.nz
**Cc:** 'Sharon Parackal' <sharon.parackal@mtma.co.nz>; 'Jared Glasgow' <jared.glasgow@trc.govt.nz>
**Subject:** RE: CWDMP Provisions

Hi Graeme,

Following discussions with TRC, I have replied to your email, in the body of your email below.

Regards

Campbell

**From:** graeme@ridleydunphy.co.nz <graeme@ridleydunphy.co.nz>
**Sent:** Friday, 22 June 2018 4:00 PM
**To:** 'Campbell Stewart' <campbell@southernskies.co.nz>
**Cc:** 'Sharon Parackal' <sharon.parackal@mtma.co.nz>
**Subject:** CWDMP Provisions

Campbell,

Thanks for the meeting today. We agreed that I would send to you the 4 key items that seem to be remaining associated with your CWDMP review and as part of this you wished to discuss directly with TRC. Please note that these are documented simply to gauge understanding from TRC as to their position moving forward. Following their feedback we can then meet again if necessary.

- Objectives of CWDMP - We agreed that the 2 key objectives of the monitoring were to 1) inform the continuous improvement process of erosion and sediment control 2) inform part of effects understanding. The monitoring programme needs to reflect these objectives.

I think the purpose column of table 3.1 of the CWDMP (acknowledging there is a mistake in the 1st and 2nd row) outlines the objectives well. Monitor changes to water quality downstream of construction discharges and to assess the effectiveness of SRP's to inform SRP management etc

- Control Sampling Points for CWDMP Management Thresholds – we agreed there appears to be some potential difficulty with comparative analysis of project related sites and the current identified control sites. The options exist for either looking at pre and post earthworks sampling at the same site or potentially moving the current control sites to a better position. Can you advise the TRC thoughts on the pros and cons of the options and the preferred TRC approach.

TRC want to see instream continuous turbidity monitoring during the construction of the project, see comments below. If the Alliance as part of further ecological assessments want to undertake pre and post sampling / assessments that would be supported.

- Downstream Sampling in the Context of the CWDMP Provisions – we discussed the options for downstream continuous turbidity monitoring and when placing this in the context of the overall CWDMP and ecological monitoring you suggested you would be able to gauge an understanding from TRC as to their position of such an approach.

TRC are wanting to see instream continuous turbidity monitoring during the construction of the project, including upstream and downstream for both the Mimi River and the Mangapepeke Stream. If there is no suitably representative upstream location, then an alternative location or methodology for continuous comparative monitoring to provide an indication of the effects that the works have on water quality will need to be discussed.

In addition, and as per previous discussions, TRC want to see the control inlet and outlet grab sampling supplemented with inlet and outlet continuous turbidity and flow monitoring of two SRPs one in each catchment

TRC require continuous monitoring to ensure compliance with resource consent conditions at all times. Continuous monitoring provides certainty to council regarding adherence to consent conditions while also providing reassurance to the wider Taranaki community and stakeholders that the alliance are operating in accordance with their obligations.

- CWDMP Review Clause – this was discussed and in the context of the above it was unclear as to TRC view on this provision and again you suggested you would be able to gauge TRC position after talking to them.

TRC want to see established a CWDMP that will achieve from the commencement of the project a high degree of transparency, assess the effectiveness of the controls and certainty to council regarding adherence to consent conditions and effects on the receiving environment. That said TRC would support a review clause in the CWDMP.

Please note that the above is simply a record of the discussions as I noted them and they will need overall integration with our ecology and wider MtMA team. To understand TRC position however will assist greatly in moving forward.

We look forward to your reply.

Thanks in advance Graeme

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