Lauren Edwards

From: Tom Anderson
Sent: Wednesday, 14 February 2024 3:59 PM
To: Lauren Edwards
Cc:
Subject: RE: Mt Munro

Kia Ora Lauren,

Certainly appreciate that the deadline is approaching quickly. Below is the advice received from Tonkin + Taylor hydrologists for Questions 3 and 4.

3. Please identify groundwater takes used for drinking water and the bore locations, and show whether any of the parts of the wind farm are outside the buffer (zone of influence) of these structures.

Groundwater use in the area is limited. The bores shown on the Horizons maps are few, generally located along Faulker Road to the west of the site, one bore adjacent to Coach Rd. Where bore depths are provided, these bores are all shallow (up to 6 m depth) and are not considered to be affected by the proposed windfarm. Only one bore is shown on the GWRC open data "Wells" layer and this bore is > 8 km from the site.

4. Some of the submissions have raised concerns as to potential contamination of the aquifers as a result of the proposal. Please provide an assessment of any potential effects of the proposal on groundwater quality

All of the Test Pits with the exception of two undertaken during the preliminary site investigations record Groundwater strikes. Based on the test pit logs and the fact that these test pits are along ridge lines where high ground water is not expected, it is very likely that this is perched water within the overlying colluvium soils on top of the greywacke rock and is not the regional aquifer. Based on a review of the geometric model the excavation depth at the turbines ranges widely between 3 m bgl to 22.6 m bgl which means that the shallow perched water will be intercepted by the turbine foundations and it is possible that some groundwater within the greywacke will be encountered where excavations reach say 15 m + depths.

Noting that no boreholes have been drilled at this stage of the project and therefore there is no information on the depth to the regional aquifer, but it is expected to be deep on the hillslopes (> 20 m). Although exact details on the size and the method of construction for the turbine foundations wont be assessed until detailed design, it is considered that a Construction Management Plan (or similar) should provide a method on how perched groundwater will be managed during the construction so that the effects on groundwater quality can also be managed.

We expect that the greatest impact to groundwater is during the excavations resulting in high turbidity effects (suspended solids) in very localised groundwater which flows into the excavations and from disposal of the water. In all reality, given the elevated setting of the turbines, we expect that any groundwater inflows into these excavations would be low given the typical low permeability conditions of the greywacke bedrock. We assume that placement of concrete would be the main potential contaminant on the groundwater quality in addition to suspended solids and this should have a negligible effect on the aquifer.

The other structures; Bridge piles, terminal substation and storage ponds are all located in the valley and naturally the depth to groundwater (i.e. the aquifer rather than perched groundwater, assuming that shallow groundwater provides recharge to surface water) is expected to be shallower than at the turbine locations. Again, we assume that it is possible some of these excavations will encounter the groundwater and depending on the duration of the

construction programme, these activities may have the potential to impact on the groundwater quality if a suitable management plan is not implemented.

I note that the above includes a recommendation for a Construction Management Plan (or similar) should be provided for any perched groundwater. Are you comfortable with this being included in the proffered CEMP conditions?

In terms of the balance of the questions (14 regarding dust, 17 and 18 regarding highly productive land, 21, 24 and 25 regarding traffic and transport and 29 regarding social wellbeing and health), we are on track to get you responses on each of these by the end of next week (24 February), noting if we can respond earlier than this on an individual matter, we will.

In terms of the social wellbeing aspect, we are pulling together a multi-disciplinary response on that matter. We do not think a peer review of this assessment will be necessary. Likewise, given the advice above on groundwater, we do not think a specialist is needed for this aspect either.

Ngā mihi

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assess the information provided. We wi[illegible] to us by **1 March 2024** in [illegible] 87F reports. If not received by this da[illegible] at the time of writing the further information had not been received, and it will then be something that Meridian can address through evidence.