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By email: Jade.McRae@es.govt.nz

Re: Technical Review of Proposed Wetland Clearance Across Conservation Land near Mossburn, Southland

1 Introduction

The Stalker family owns a farm near Mossburn, the western margin of which adjoins So Big Swamp. This wetland is a Conservation Stewardship area and Regionally Significant Wetland. Much of this is comprised of a sizeable low-fertility wirerush peat bog which drains to the south-east into a long, narrow extension. This area is an old river channel which supports a mosaic of more fertile marsh/swamp wetlands with flaxland, tussockland and sedgeland habitats present. The Stalker property supports a similar range of wetlands and is contiguous with the conservation land.

The Stalkers are considering purchase of land west of So Big Swamp but there is currently no access between the two properties. Wildland Consultants Limited (Wildlands) were commissioned by the Stalker family to 'undertake an ecological assessment of the wetlands and to determine if there was an area of lower conservation value that would be suitable for creation of a farm access route' (Wildlands, 2021). The report encompasses the ecological values/significance of the wetlands, potential environmental impacts and their avoidance, mitigation and/or compensation.

Environment Southland commissioned e3Scientific Limited to provide a technical review of the Wildlands (2021) ecological assessment submitted with the resource consent application to modify a Regionally Significant Wetland (WSP 2021). Specifically, this was to determine:

- That the information provided is adequate;
- The conclusions are reasonable;
- The measures proposed to avoid, mitigate or compensate will result in the adverse effects of modifying the wetland being less than minor, as stated in the assessment.

The findings of the review are presented below.

2 Methodology

The methodology employed by Wildlands for this assessment is consistent with standard ecological practice. The assessment included both desktop research from relevant sources (ecological databases and literature) and a site visit on 1 August 2020. Vegetation/habitat types were described, mapped and their values assessed. All vascular plants (including weeds and threatened species), avifauna and potential herpetofauna were documented and lists provided.

3 Vegetation Types and Flora

Twelve vegetation and habitat types were identified. These were mapped at an appropriate scale and described with a sufficient level of detail.

Three plants with a national conservation status of 'At Risk - Declining' (de Lange *et al.*, 2018) were recorded – a sedge (*Carex tenuiculmis*), manuka (*Leptospermum scoparium* var. *scoparium*) and tufted hair grass (*Deschampsia cespitosa*). The threat status of manuka reflects the potential effects of myrtle rust (*Austropuccinia psidii*) nationally and it remains common in many habitats in Southland. In contrast, I would consider *Carex tenuiculmis* and *Deschampsia cespitosa* rare at regional scales. It was not explicitly stated in the Wildlands report if any of these species would be affected by the development.

A number of woody weeds were noted. These were consistent with those commonly found in similar wetland habitats in Southland but were present at relatively low densities.

4 Fauna

4.1 Avifauna

Birds recorded were consistent with the habitat and locality. The Wildlands report identifies one At Risk – Declining species (fernbird - *Bowdleria punctata*) (Robertson *et al.* 2017). While only recorded on DOC land, Wildlands noted that fernbird may also 'utilise the more structurally complex wetland habitats on the Stalker property'.

4.2 Lizards

The possibility that the wetland habitats could support lizard populations was identified by Wildlands and a desktop analysis was undertaken. In order of likelihood of occurrence, based on habitat preference and distribution, lizards present could include the southern grass skink (*Oligosoma polychroma*; Clade 5), cryptic skink (*Oligosoma inconspicuum*), and Southland green skink (*Oligosoma chloronoton*). All three species have a conservation status of 'At Risk – Declining' (Hitchmough *et al.*, 2016).

5 Ecological Value and Significance

The ecological significance assessment of vegetation/habitats was completed using criteria in the Southland Regional Policy Statement (SRPS) (Environment Southland, 2017).

The wetlands were assessed as significant indigenous wetland vegetation - having been considered to have met three of the four criteria for significance in Appendix 3 of the SRPS (representativeness; rarity/distinctiveness; ecological context). e3s agree with this assessment. However, given the range of vegetation types and presence of ecological, environmental and disturbance induced gradients, the area could arguably also be considered to have also met the diversity/pattern criterion.

Wildlands correctly identified that raised peatland bogs, flaxland swamps, and red (copper) tussock grassland are listed in the Schedule of Threatened, At Risk and Rare Habitat Types in Appendix 2 of the SRPS. However, it was not made clear to which vegetation types the threat status corresponded. Under the SRPS, raised peatland bogs and swamp/marshes are Threatened, while red tussock grassland is At Risk.

In summary, e3s agrees with the Wildlands significance assessment, with the following additional observations:

- Wetland loss in Southland has been considerable and is ongoing (Robertson *et al.*, 2019).
- The flaxland swamp is representative of a wetland type that has suffered the greatest historical loss of extent in Southland (Clarkson *et al.*, 2011). It represents the most ecologically significant area within the access way footprint.
- It is relatively uncommon for peat bogs in developed landscapes to have intact or semi-intact swamp/fen wetlands associated with them. Therefore, even degraded areas that support these wetland types are important. The presence of these wetland types adds to the significance of So Big Swamp and the wetlands on the Stalker property.
- Exotic pasture dominant areas were assessed as low value/not significant. However, such areas can be an effective buffer to more sensitive areas and have the capacity to recover if protected from stock.
- The wetlands (both on DOC land and on the Stalker property) appear to have a low weed burden. Therefore, they represent quality and viable examples of these wetland types.
- Peat bogs are considered endangered ecosystems at national scales (Holdaway *et al.*, 2012).

6 Ecological Effects

6.1 Summary of Proposal

The proposed access track crosses public and privately owned wetland and dryland habitats at the southern end of the peat bog (the northern-most point of the old river channel). A summary of the proposal is provided in Section 2.6 and detail on construction in Appendix C of the consent application (WSP 2021). It is proposed to create a c. 205 m x 10 m access road across the area. The road is to be elevated up to 600mm above the current substrate with geogrid level coarse material at the base and compacted gravel on top (to 4m width). A slight gradient across the road would capture effluent and direct it into a swale. Slope surfaces either side of the road would receive topsoil and be replanted. Fences would be erected to prevent stock access into adjacent wetland.

Two 1200mm culverts would be required where the road crosses the Moss Burn and Browns Stream. Up to six additional culverts would be installed at various

places along the road to allow any surface/groundwater to flow under the road surface.

6.2 Summary of Environmental Effects

The consent application provided good detail on the vegetation/habitats of the affected area and sufficient information on construction and design of the road.

The actual and potential effects considered in the application included:

- Disturbance to, and clearance of, indigenous vegetation and wetland loss. In total, approx. 300 m² dense wetland (swamp) flaxland would be removed from the Stalker property. On DOC land, the footprint totals approx. 1,555 m². Approximately 467 m² of this consists of scattered harakeke-copper tussockland (wetland) with moderate ecological values. The remainder is lower value, predominantly better drained exotic grassland with occasional flax and copper tussock (*Chionochloa rubra subsp. cuprea*).
- Effect on landscape and amenity values.
- Effect on natural character.
- Effect on public access.
- Effect on cultural and heritage values.
- Temporary release of sediment into waterways during construction.
- Possible alteration of wetland hydrology.
- Disturbance and loss of lizard habitat.

A number of adverse environmental effects were not adequately identified or addressed in the Ecological Assessment:

- Fragmentation and loss of the natural connection between bog and swamp/marsh wetlands.
- There was no assessment of the magnitude of impact of habitat loss to fernbirds.
- There was no assessment of the magnitude of impact of habitat loss on lizards.
- There was no indication if At Risk plants were present along the proposed footprint of the access way.

7 Environmental Impact Management

The proposal constitutes a non-complying activity under Rule 74 (c) of the Proposed Southland Water and Land Plan. To be considered for consent the activity must either have adverse effects that are no more than minor; or be

consistent with the policies of the relevant statutory plans. Relevant policies of the proposed Southland Water and Land Plan are:

Policy 32: Protect significant indigenous vegetation and significant habitats of indigenous fauna associated with natural wetlands, lakes and rivers and their margins.

Policy 33: Prevent the reduction in area, function, and quality of natural wetlands, including through drainage, discharges, and vegetation clearance.

The proposal is also a non-complying activity under regulations 54 (a), (b) and (c) of the National Environmental Standards for Freshwater. Relevant policies of the National Policy Statement for Freshwater Management 2020 are:

Policy 6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.

Environmental impacts would occur on both public and private land. Avoidance, mitigation and compensation measures were proposed. These include the following:

- Alignment of the access way along an old fence line through vegetation of relatively low ecological value for the majority of the footprint.
- Width of access way reduced to a maximum width of 10 m.
- Mitigate loss of high value flaxland and tussockland vegetation by conserving and replanting excavated flax and copper tussock into three areas – two on DOC land; one on the Stalker property.
- Access corridor fenced to prevent stock access to DOC land.
- Gradient and swale to capture contaminants.
- Installation of up to eight culverts to avoid hydrological changes to the wetlands.
- Culverts positioned such that fish passage is not impeded.
- Use of appropriately sized machinery and weed free fill during construction.
- Weed control within wetlands upstream of the proposed access way.
- Compensation via legal protection (QEII or DOC covenant) of high value indigenous wetland vegetation on the Stalker property adjacent to the So Big Swamp Conservation Area.

- Avoid or reduce impact on lizards by avoidance of preferred habitat (e.g. rocks, woody cover and dense ground-level vegetation).

The consent application did not consider what, if any, measures should be taken to avoid or mitigate adverse effects on fernbirds or At Risk plant species.

The application concluded that if the mitigation measures proposed above were implemented, then the overall adverse effects of the activity would be 'no more than minor' and that there would be no loss in area, function, and quality of the natural wetland vegetation at the site.

8 Discussion

The wetland's status as a Regionally Significant Wetland, and the non-complying nature of the proposal with regard to the Southland Land and Water Plan and other statutory regulations sets a high bar for avoidance, mitigation, and compensation for adverse environmental effects.

It is agreed that flax and copper tussock could be split and transplanted successfully and acknowledged that the mitigation plan involves replanting a greater area of flaxland/tussockland than was removed. However, this does not necessarily compensate for the fragmentation and loss of connectivity and natural character of the existing wetland values which are noted to be 'very high'. Furthermore, it will not necessarily recreate 'like for like' the wetland habitat removed as the areas identified for replanting are likely to have a different ecological context (e.g. hydrology and possibly soils).

The application considered that restoration and legal protection of adjacent wetland vegetation on the Stalker property could compensate for wetland loss resulting from the access way, and that this would achieve consistency with Policy 32 above. However, the land is not in productive use and the wetland values are not threatened or under pressure from farming activity or development. Furthermore, they already have a high degree of protection via local government statutory regulations. In addition, the weed burden within the wetlands upstream of the proposed access is very low, so the benefits arising from this compensation are relatively minor.

9 Conclusions

e3s concludes that, with respect to the consent application, ecological assessment and other information therein:

- The methodology was sound and consistent with standard ecological practice.
- Information on flora, fauna, threatened species, vegetation/habitat types and ecological significance were provided at a sufficient level of detail and that the conclusions were sound.

However, e3s considers that:

- There is reasonable doubt that the proposed mitigation would result in no net loss in area, function, or quality of the natural wetland vegetation at the site. Hence, the adverse effects are likely to be more than minor.
- e3s considers that the effects on the natural character of the wetland would be more than minor. We consider that this effect cannot be adequately mitigated or compensated for.
- Despite the proposed measures to avoid modification to wetland hydrology, e3s considers that there remains sufficient doubt as to the medium to long term effects on the wetlands immediately above and/or below the proposed road.

If you have any questions regarding the information provided in this letter, please contact Melissa Jager on 03 409 8664 or via email at melissa.jager@e3scientific.co.nz

Yours sincerely,



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References:

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