Appendix H - Ecological Assessment prepared by BFL Forestry and Environmental Services Ltd

BFL
Forestry and Environmental Services

Scott Bicknell
Veros Ltd

29th November 2021.

Dear Scott,

Calcutta Farms – Project Development and Storm Water Disposal

Background – Calcutta Farms are proposing the development of an industrial site alongside SH 24 – Tauranga Road, immediately east of Matamata and a short distance before land falls towards Mangawhero Stream. The site is part of an almost completely flat flood plain and all used for horticultural production (mostly vegetables). While there is no particular natural drainage pattern on the landscape (due largely to historic land-use which has included farming and the construction of the highway) the site is all within the catchment of the Stream and all run-off ultimately finds its way there.

As part of the development Calcutta are proposing particular works to ensure storm water is contained, directed and treated so that any contamination of water is substantially reduced or removed before it enters the natural system which in this case is the Mangawhero Stream and its protected riparian vegetation and wetlands. This riparian vegetation and wetlands are being restored and enhanced as part of a programme also undertaken by Calcutta and which has already achieved a high degree of improvement as a natural ecosystem. During the course of this work I have visited the site a number of times and had the opportunity to observe the area in various weather conditions, and particularly over the course of its restoration.

The purpose of this report is to provide my view of the works, the provisions being made to contain and treat storm water and comment upon the possible risk of discharges to the protected areas and Mangawhero Stream. During normal/low flows the stream water is notable for being particularly clear and the Stream is locally acknowledged as a trout fishery. During periods of high rainfall agricultural and other discharges can cause some turbidity, however a combination of soils with high ash content (and ability to absorb water) and robust riparian vegetation ensure this is minimised. Similarly the protected stream side wetland and associated riparian vegetation is important habitat for wildlife while also enhancing the value of the Stream as a fishery.

Storm Water Treatment – is a combination of soakage with excess water flowing to proposed retention areas behind swales/bunds, where flows will be spread and adjoining wetland vegetation will provide an additional filtration function. Once particulate material has settled out water is to be discharged into the natural channel leading to the Mangawhero Stream.

Provision for soakage is around 1.5% of the lot area, which is adequate to address the requirements for average rainfall events, the exception being impervious surfaces such as roads, paths and buildings where water will flow along primary reticulation into the retention areas.

During storm events water flows will be across the surface and into the primary reticulation which in turn flows to the large banked containment areas where extended containment and managed flows will be maintained. These areas included planted wetlands which also have filtration and treatment capability, ensuring that by the time water flows from these areas turbidity is very much reduced and nutrient levels are much lower.

These are very much standard provisions for industrial areas and will ensure that discharges are largely clean water.

Discharge to Mangawhero Stream – Water leaving the swales/ponds is to pass along an existing and natural water course, now included as part of the restored and protected area made up of riparian and wetland vegetation adjoining the Stream.

Water from the swaled/pond area will be discharged down the natural watercourse towards the Stream. This area has been restored by removing weeds and planting natural wetland and riparian species such as the Carex sp. *shown here. Because the bed and banks of the watercourse are well vegetated erosion is unlikely although monitoring will ensure no other action is required.*

As the photograph above shows the watercourse has been restored with dense planting of Carex, etc and is well able to carry the flows likely – stream bed and bank erosion is unlikely. Monitoring after storm event will determine if any remedial action is required however the

ability to spread the flows out of the ponds should ensure this is not the case. At worst if required some stair-casing with large rocks would further help to slow the flows.

The natural outlet shown above spreads across areas of riparian wetlands as shown here (i.e. the flow is not directly into Mangawhero Stream). These wetlands further spread flows and are also excellent natural filters and effective at removing significant quantities of nutrients from the water.

The water course dissipates across an area of open wetland and riparian vegetation before entering the Stream as shown above – permitting further reduction in flows, and removal of any remaining sediment and nutrients. Natural wetlands are acknowledged as particularly effective in this regard, while the steady flow of water from the ponds will also enhance their biodiversity and wildlife values.

The NES – Freshwater – It is also important to consider whether the NES for Freshwater including how the Resource Management Regulations 2020 (NES-F) which came into force on 3rd September 2020 might apply. For the purpose of the NES related regulations wetlands include permanently or intermittently wet areas, shallow water and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions. The NES - F sets strict rules around what works can be undertaken in or near natural wetlands including;-

- Vegetation clearance within a natural wetland (or within a 10m setback of a natural wetland).
- Earthworks within a natural wetland, or within 100m of a natural wetland.
- The taking, damming, diversion or discharge of water within a natural wetland, or within a 100m setback of any natural wetland.

In this case the stream side wetlands are all a significant distance (over 100m) from any of the works proposed and none of these regulations are triggered.

The Calcutta Farms Development

As noted above this development and the steps being taken to manage and treat storm water have implications for both the protected wetland areas adjoining Mangawhero Stream and the water quality of the Stream itself.

Taking into account the provisions being made by the owners to ensure that in this case storm water is both contained and treated, and the intention that in the first instance treated water is to be discharged as a managed flow into a natural water course, and subsequently into areas of wetland (also fully restored) I can find no issues with the proposal or its implications for the protected sites. In particular this proposal is very sympathetic to the natural values and particularly water quality of Mangawhero Stream. Nevertheless the works should be conducted in a manner that will not otherwise interfere with the development of the protected wetlands or adjacent natural areas, so in the short term it is recommended the discharge down the natural watercourse should be occasionally monitored (particularly after heavy rainfall) to ensure no significant erosion of the bed is taking place. While unlikely, if this is found to be the case some simple stair-casing with larger rocks will minimise any further effect.

My conclusions accordingly are;-

- That the Calcutta farms development and proposals for storm water discharge do not pose any particular risk to either the protected wetlands or adjoining natural vegetation, or to the water quality of Mangawhero Stream.
- A modest and more consistent flow of water may actually be beneficial to wildlife and the overall habitat value of this site.
- There are no implications of the NES–F insofar as this proposal is concerned. .
- As the protected areas are now in an established or consolidation stage there is no particular need for these to be accessed apart from routine weed and pest animal control, and it is unlikely that the works will interfere with this activity.

Overall it is considered that the effects of both the construction works and permanent use will be ‘less than minor’, reflecting the fact that the site is relatively flat and the extent of the works is not particularly extensive.

If I can be of any further assistance with this project please don’t hesitate to let me know.

Peter Berg

Peter Berg – BSc, BforSc, FNZIF,

Environment Manager.

Cc Calcutta farms.