URUTI COMPOSTING & VERMICULTURE FACILITY

Farm Environmental Management Plan

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Farm Environmental Management Plan

Version Control

Version	Date	Description	Prepared	Reviewed	Approved
V1.2	25-10-2019	Draft for review	C Kay		
V1.3	8-11-2019	Draft for review	C Kay		
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V1.5	5-6-2020	Draft for review	C Kay		
V1.6	12-6-2020	Draft for review	C Kay		

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0.0 Terms and Definitions

xxx	yyy

1.0 Purpose of the Plan

The purpose of this document is to ensure the operation of the Uruti farm is managed appropriately using Good Management Practices and operates within regulatory rules and resource consent conditions. A major focus of this plan is to avoid, remedy or mitigate the loss of nitrogen to surface water and ground water from irrigated wastewater onto the effluent block.

2.0 General

The Uruti farm was purchased in 2001 with the express purpose of developing a composting and vermiculture facility. Extensive earthworks were carried out to create pads, ponds and wetlands to facilitate the composting and vermiculture operation and to treat any leachate and stormwater runoff created from the composting and vermiculture processes.

The structure of this plan follows the guidelines listed in the Draft National Policy Statement for Freshwater Management September 2019 - "Subpart 3 – Freshwater module of farm plans"

2.1 Scope

This Farm Environmental Management Plan covers the operation of the farm and excludes the operation of pads 1, 2 and 3, the settlement and treatment ponds and the wetlands and the Quarry operation. The operation of these excluded areas are covered by separate management plans.

2.2 Farm Details

Physical Address	1460 Mokau Road, Uruti, 4379
Legal description	Pt Sec 4 Blk II Upper Waitara Survey District
Certificate of Title	A1/1241
Site Area	637 Ha
Farm Identifier	Uruti Composting & Vermiculture Facility
Landowner	
Name	Remediation NZ Ltd
Postal Address	Private Bag 8045, New Plymouth 4342
Contact Person	Kerry O'Neil
Position	Managing Director
Email Address	kerry@revitalfert.co.nz
Contact Phone	021 283 6300
Person responsible for overseeing the implementation of the Farm Environmental Management Plan	

Name	Herbert Van Veen
Position	Uruti Site Manager
Postal Address	Private Bag 8045, New Plymouth 4342
Email Address	
Contact Phone	027 4731 805

2.3 Resource Consents held

2.3.1 Discharge to Land – Consent No: 5838-2.2 (expires 1/6/2018)

2.3.2 Discharge to Air – Consent No: 5839-2.0 (expires 1/6/2018)

2.3.3 Twin culvert – Consent No: 5938-2.0 (expires 1/6/2033)

2.3.4 Culvert – Consent No: 6212-1 (expires 1/6/2021)

2.3.5 Discharge of treated stormwater from Quarry site to water – Consent No: 10063-1.0 (expires 1/6/2033)

3.0 Farm Map

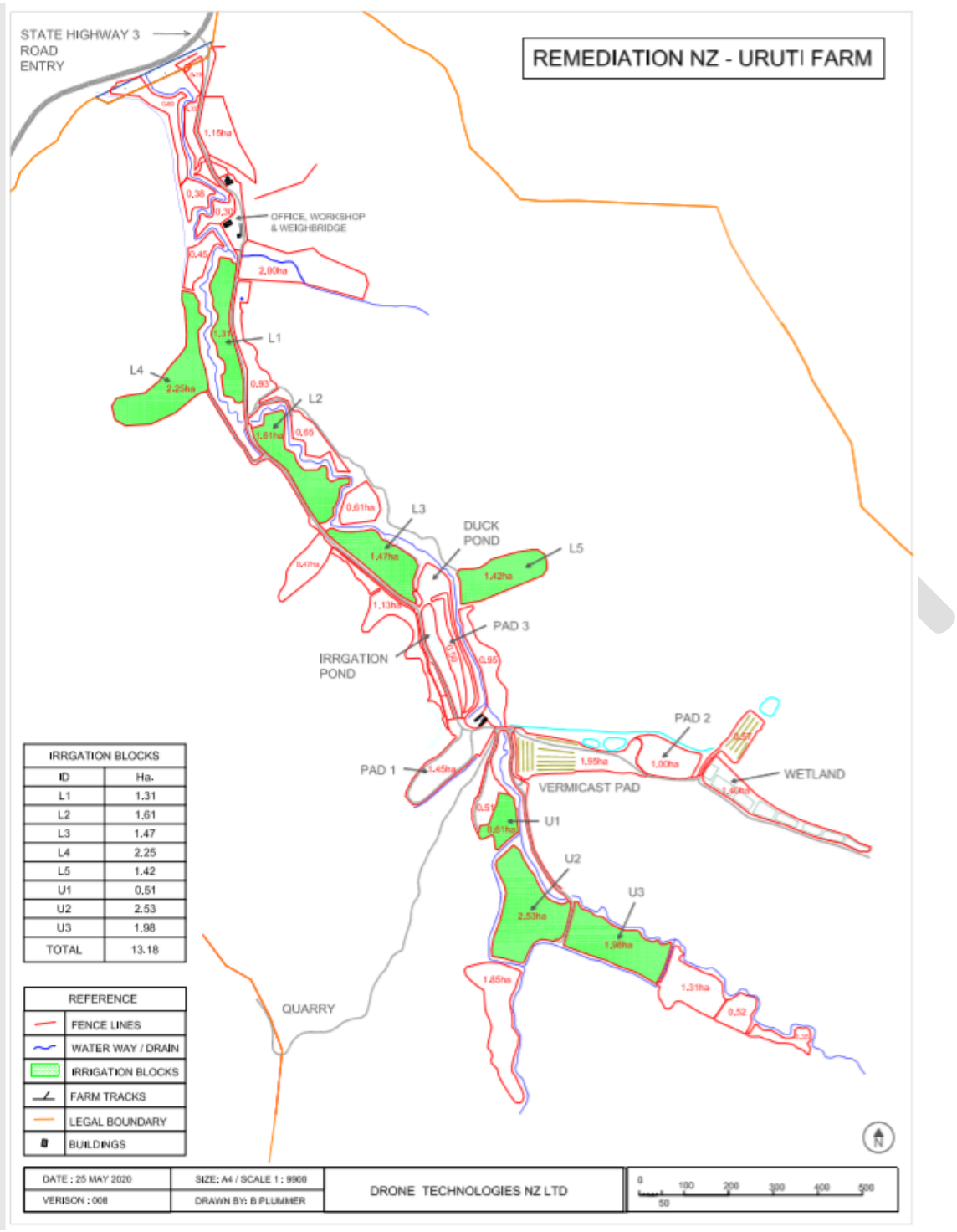

Figure 1: Map of the Irrigation Blocks

4.0 Geology and Topography

The topography of the land ranges from steep bush and regenerating bush land to moderately steep to rolling grazing land to flat river valleys used for grazing and/or irrigation of the treated leachate and stormwater runoff from the composting operation.

The Farm Environmental Plan scope covers all the farm accept the vermiculture and composting pads, the wetlands and the treatment ponds. The range of geology and topography in the catchment requires specific management practices and these are shown in the operating plans listed below.

5.0 Climate

The climate in the Uruti Valley is generally mild and temperate. Rainfall is high, even in the driest months of the year, compared to other parts of the region (See Table). Rainfall is measured and recorded daily from a weather station situated at the site, this to inform site management of potential issues with stormwater drainage.

Forecasted rainfall data is provided by a contracted weather forecasting company each Monday and this data is used to manage the irrigation pond's freeboard.

6.0 Soils on Farm

Based on information provided by BTW Company Limited (2015) the soils in the catchment are classified as Orthic brown soils from the Whangamomona Complex loams. A field survey by BTW Company using soil augers identified the top soil as Light brown grey silty clay and the subsoil as Light grey silty clay

Test pits were dug across the irrigation fields and the soils drainage class was assessed. The lower irrigation blocks drainage class was assessed as moderately drained and the "soil risk" was assessed as low risk. The Upper irrigation blocks soil was assessed as being Anthropic. Anthropic soils categorise soils constructed by or drastically disturbed by human activity. This 5 ha area was subjected to a major development in 2019 which involved stripping off the topsoil and levelling the area by spreading fill across the area. The test pit showed the soil profile subsoil comprising a mixture of brown soils and papa. The subsoil showed a compacted soil structure and was assessed as having a low infiltration rate. This would indicate the soil would be assessed as high risk.

6.1 Soil Risk

Soil risk relates to the risk of surface runoff or subsurface drainage occurring from the soil and the operation of the irrigation system when irrigating onto low and high risk soils is shown in the Standard Work Place Instruction SWPI-740-020-A.

7.0 Farm Operating data

Riparian Planting

8.0 Risk Assessment

8.1 General

The purpose of this section is to identify and assess the risk of contaminant losses from the farm, with consequent impacts on freshwater ecosystem health, groundwater quality and soil quality associated with the activities carried out on the farm[1]

8.1.1 Land Management activities occurring on land that may impact on the quality of the Haehanga Stream and unnamed tributaries (Surface water).

8.1.2 Land Management activities occurring on land that may impact on the groundwater quality (Ground water).

8.1.3 Land Management activities occurring on land that may impact on the soil integrity and fertility (Soil).

8.1.4 Management of erosion prone land

8.1.5 Stock management and exclusion from waterways, wetlands and riparian plantings

8.1.6 Management of feral animals on land in the Uruti site catchment

8.1.7 Fertiliser and effluent management (including the spreading of compost)

8.1.8 Management of contaminant losses as a result of land disturbance

[1] The structure of this plan follows the guidelines listed in the Draft National Policy Statement for Freshwater Management September 2019 - "Subpart 3 – Freshwater module of farm plans"

8.1.1 Land Management activities occurring on land that may impact on the quality of the Haehanga Stream and unnamed tributaries.				
Activity	Potential **Risk/Hazard**	Actions to be taken to reduce or prepare for the risk		Reference
Irrigation of treated effluent onto the irrigation blocks	Surface runoff of effluent into streams	Avoid	Maintain sufficient freeboard in the leachate pond to provide sufficient pond storage to cater for predicted rainfall events	*Leachate & Stormwater Management Plan* *3.5.4 Irrigation Model*
			The volume of effluent applied to the irrigation blocks is restricted to the limits outlined in the Standard Work Place Instruction **SWPI Irrigation from the Catchment Pond**	*Leachate & Stormwater Management Plan* *SWPI Irrigation from the Irrigation Catchment Pond*
			The application rate of effluent applied to the irrigation blocks is restricted to the limits outlined in the Standard Work Place Instruction **SWPI Irrigation from the Catchment Pond**	*Leachate & Stormwater Management Plan* *SWPI Irrigation from the Irrigation Catchment Pond*
			Bund the stream banks to prevent over land flow into streams	*Landscape Plan*
		Mitigate	Expand the irrigation area to reduce the volume of irrigated fluid applied per hectare and the overall amount of nutrients applied.	

8.1.2 Land Management activities occurring on land that may impact on the groundwater quality				
Activity	Potential **Risk/Hazard**	Actions to be taken to reduce or prepare for the risk		Reference
Irrigation of treated effluent onto the irrigation blocks	Drainage of effluent/nutrients into groundwater	Avoid	Excessive irrigation to any one area	
		Mitigate	Aeration of the liquid in the leachate pond to reduce the nitrogen concentration in the irrigated liquid	*Leachate & Stormwater Management Plan*
			The volume of effluent applied does not exceed the water holding capacity of the soil to prevent subsurface drainage	*Leachate & Stormwater Management Plan* *SWPI Irrigation from the Irrigation Catchment Pond*
			Improved pad management so no compost inputs directly enter irrigation pond.	
			Expand the irrigation area to reduce the volume of irrigated fluid applied per hectare and the overall amount of nutrients applied.	
			Harvest pasture and remove off site – cut and carry.	*SWPI – Hay and Silage*

8.1.3 Land Management activities occurring on land that may impact on the soil integrity and fertility				
Activity	Potential **Risk/Hazard**	Actions to be taken to reduce or prepare for the risk		Reference
Irrigation of treated effluent onto the irrigation blocks	Applying excessive nutrients to land through irrigation	Avoid	Excessive irrigation to any one area (waterlogging soil)	
		Mitigate	Expand the irrigation area to reduce the application rate of nutrients per hectare.	*Landscape Plan*
			Dilute the leachate pond with water from the firefighting pond	*Leachate & Stormwater Management Plan*
			Aeration of the liquid in the leachate pond to reduce the nitrogen levels in the irrigation pond and hence reduce the nutrient concentrations of the irrigated fluid.	*Leachate & Stormwater Management Plan*
			Application of compost to improve soil properties	
			Harvest pasture and remove off site – cut and carry.	*SWPI – Hay and Silage*

8.1.4 Management of erosion prone land

Activity	Potential **Risk/Hazard**	Actions to be taken to reduce or prepare for the risk		Reference
Slips and slumps of hill sides	Sediment contamination of streams	Avoid	Identify erosion prone areas and fence off	*Landscape Plan*
			Fence off slips to prevent access to stock	*Landscape Plan*
		Mitigate	Fence off slips and plant the area with regenerative species.	*Landscape Plan*

8.1.5 Stock management and exclusion from waterways, wetlands and riparian plantings				
Activity	Potential **Risk/Hazard**	Actions to be taken to reduce or prepare for the risk		Reference
Stock damage	Stock polluting streams and wetlands Stock eating and trampling riparian plants	Avoid	Fencing off streams and wetlands	*Landscape Plan*
		Mitigate	Enhance wetland area by plant endemic species	

8.1.6 Management of feral animals on land in the Uruti site catchment

Activity	Potential **Risk/Hazard**	Actions to be taken to reduce or prepare for the risk		Reference
Feral animals	Contamination of streams from: • Urine • Dung • Decomposing carcasses	Avoid		
		Mitigate	Animal cull and/or control	*Weed & Pest Management Plan* *3.0 Feral Animal Control*

8.1.7 Fertiliser and effluent management (including the spreading of compost)				
Activity	Potential **Risk/Hazard**	Actions to be taken to reduce or prepare for the risk		Reference
Spreading of compost to land	Excessive nutrients leaching to ground water	Avoid	No application of inorganic fertiliser unless stated in the Landscape Plan	*Landscape Plan*
			No irrigation of blocks where compost is spread for ?? days after application.	
		Mitigate	Analyse compost nutrients and apply at a rate that the pasture is able to assimilate.	*Release of Final Product*
			Release as much A Grade product from site as possible	

8.1.8 Management of contaminant losses as a result of land disturbance				
Activity	Potential **Risk/Hazard**	Actions to be taken to reduce or prepare for the risk		Reference
Land cultivation	Sediment runoff	Avoid	Bund stream banks	*Landscape Plan*
			Riparian fencing and planting	Landscape Plan
		Mitigate	Install sediment traps to capture sediment from stormwater runoff.	*Landscape Plan* *Erosion and Sediment Control Plan*
			Cultivate across the slope	
			Time works for fine weather	
			No cultivation within X m of stream banks	
Land development	Sediment runoff	Avoid		
		Mitigate	Install sediment traps to capture sediment from stormwater runoff.	*Landscape Plan* *Erosion and Sediment Control Plan*
			Time works for fine weather	