



Version No: 05 Issue Date: 15/08/2022 Portfolio: Discrete Water Quality	<b>Horizons Regional Council</b>	Section No: 15.7 Appendix No: 19 Page: 1 of 20
<b>horizons</b> regional council 	<b>Hydrology Operations Manual</b>	

Version 3.2.23/01/2020

## Water Quality Monitoring Run Guide

# Whangaeahu SOE

## STATE OF ENVIRONMENT (Monthly Sampling)

# Job Hazard & Task Analysis




**Hazard Identification – tick all that apply, write additional hazards identified:**

The yellow highlighted hazards are known hazards at the time of compiling this document. This **does not negate** the need to assess for and potentially eliminate or isolate any hazards at *each* sample location at *every* visit

Hazard	Yes	Hazard	Yes	Hazard	Yes
Confined space	<input type="checkbox"/>	Suspended loads	<input type="checkbox"/>	Noise – plant and equipment	<input type="checkbox"/>
Difficult entry/exit	<input type="checkbox"/>	Falling objects	<input type="checkbox"/>	Communication – means of	<input checked="" type="checkbox"/>
Oxygen deficiency/excess	<input type="checkbox"/>	Working near cranes and crane runways	<input type="checkbox"/>	Remote area	<input checked="" type="checkbox"/>
Poisonous fumes/gas	<input type="checkbox"/>	Live rails-gantry cranes	<input type="checkbox"/>	Temperature extremes	<input type="checkbox"/>
Explosive gas	<input type="checkbox"/>	Trip hazards	<input checked="" type="checkbox"/>	Reduced visibility	<input type="checkbox"/>
Flammable materials	<input type="checkbox"/>	Slippery surfaces	<input checked="" type="checkbox"/>	Unauthorized persons	<input type="checkbox"/>
Combustible materials	<input type="checkbox"/>	Manual handling	<input checked="" type="checkbox"/>	High pressure water	<input type="checkbox"/>
Hazardous substances	<input type="checkbox"/>	Sharp materials	<input type="checkbox"/>	Vacuum	<input type="checkbox"/>
Drowning	<input checked="" type="checkbox"/>	Line of fire	<input type="checkbox"/>	Air emissions – dust, fumes	<input type="checkbox"/>
Engulfment	<input type="checkbox"/>	Pressurized fluids	<input type="checkbox"/>	General waste	<input type="checkbox"/>
UV Radiation	<input type="checkbox"/>	Pressurized air/gas	<input type="checkbox"/>	Hazardous waste	<input type="checkbox"/>
Electrical – low /high voltage	<input type="checkbox"/>	Traffic / vehicle movements	<input checked="" type="checkbox"/>	Hydrocarbon / chemical spill	<input type="checkbox"/>
Multiple electrical feeds	<input type="checkbox"/>	Machinery – mobile plant	<input type="checkbox"/>	Soil disturbance/erosion	<input checked="" type="checkbox"/>
Working at height	<input type="checkbox"/>	Moving parts	<input type="checkbox"/>	Habitat disruption	<input type="checkbox"/>
Ladders	<input checked="" type="checkbox"/>	Chemical reaction (Pyrophoric iron)	<input type="checkbox"/>	Lighting	<input type="checkbox"/>
Elevated work platforms	<input type="checkbox"/>	Transport of hazardous substances	<input type="checkbox"/>	Weather extremes	<input checked="" type="checkbox"/>
Potential for difficult rescue	<input type="checkbox"/>	Stock/Farm Animals	<input checked="" type="checkbox"/>		

## Required PPE:

These are the known required PPE at the time of compiling this document. This **does not negate** the need to assess for the appropriate required PPE measures at each sample location per visit.

WORK BOOTS	PERSONAL FLOATATION DEVICE (PFD)	HI VIZ
		

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Trip Hazards	✓			✓	✓		Prior to sampling staff must check area is clear of any items that pose a risk. If there is any these should only be moved if safe to do so. Sampling only to commence if the sampler is satisfied that any slip, trip or fall hazards are isolated.
Slippery Surfaces	✓			✓	✓		Pond edges can be slippery at any time. Sampling from the pond edge must always be done from stable level ground using a sample pole. PFD's must be worn by staff. Vehicles must be driven a sensible distance from any pond edges. [HMP18]
Drowning	✓			✓		✓	The STP ponds can be deep, full of sediments, and have operating equipment on/within them. Sampling of the pond must always be done from stable level ground using a sample pole. PFD's must be worn by staff. Vehicles must be driven a sensible distance from any pond edges. [HMP18]
Machinery – mobile plant	✓			✓		✓	Sample site is within an operating waste water treatment plant, plant and machinery may be on-site during sampling. Staff to wear appropriate PPE, obey on site signage and instruction, and give way to all operational traffic.
Traffic Vehicle movements	✓			✓		✓	Sample site is within an operating waste water treatment plant with council and contractor vehicles liable to be present at any time. Staff to obey on site signage and instruction. HRC Vehicle to be parked in a safe and appropriate location. [HMP 16] [HMP 20]
Noise – plant and equipment	✓			✓	✓		Plant operation can create high levels of noise. Ear protection to be carried in HRC vehicle at all times. Ear protection to be worn when machinery is running [HMP 4]
Hazardous Waste – treated Effluent	✓			✓	✓		Sampling activities require the collection of a sample of treated effluent. Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample. Hepatitis B vaccinations are offered by HRC [HMP 30] [HMP 35]
General Waste		✓		✓	✓		General waste can be stored on site depending on operating activity. Sample staff have no need to interact with any waste. All waste created by HRC staff to be taken with them.
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats.

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Manual Handling	✓			✓	✓		There should be no need for sample staff to move any equipment etc. in order to carry out sampling activities. Sampling activities require the collection of a sample of treated effluent. Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample. Hepatitis B vaccinations are offered by HRC. [HMP 30] [HMP 35]
Electrical – low /high voltage	✓			✓	✓		Sampling activity does not require any interaction with live circuitry or equipment. Staff should check sample area is clear of any hazards (i.e. loose cables, live equipment etc.) before sampling. If access/safety is considered compromised sampling is aborted. [HMP 23]
Stock/Farm Animals	✓			✓	✓		Although generally docile farm animals can still be hazardous. The risk should be isolated by finding alternative access routes to the sample location or contacting the owner for assistance. [HMP26]
Weather Extremes	✓			✓	✓		During the duration of a sampling run varying types and degrees of weather may be experienced. All sampling staff are to have access within their HRC vehicle of additional and appropriate clothing.
Temperature Extremes - Hypothermia: following emersion	✓			✓		✓	Staff must have access to suitable PPE and spare clothing within their vehicle. [HMP18] [HMP18]
Traffic Vehicle movements	✓			✓		✓	Sample site requires parking beside a main road. The vehicle must be parked as far off of the road surface as safe and practicable to do so. Use of hazards lights must be considered. Hi-vis clothing must be worn. [HMP 16] [HMP 20]

## Site Information

Hilltop Site Name	Easting/Longitude		Northing/Lat	Comments
Whangaehu at Kauangaroa	NZMG:	2704444	6139696	Hydro Site
	NZTM:	1794415	5577998	
	WGS84:	175 16 30 E	39 55 32 S	
Mangawhero at Raupi Road	NZMG:	2709796	6164368	
	NZTM:	1799759	5602678	
	WGS84:	175 19 48 E	39 42 8 S	
Makotuku at Raetihi	NZMG:	2706482	6195566	Hydro Site
	NZTM:	1796428	5633882	
	WGS84:	175 16 55 E	39 25 20 S	
Mangawhero at Pakihi Road Bridge	NZMG:	2710089	6194423	Hydro Site
	NZTM:	1800036	5632741	
	WGS84:	175 19 27 E	39 25 54 S	
Tokiahuru at Junction	NZMG:	2721769	6186950	Hydro Site
	NZTM:	1811724	5625272	
	WGS84:	175 27 44 E	39 29 46 S	

**[Contact details can be found here.](#)**

## Equipment Required

<b>Sample Bottles</b>	<b>Five (05) sample bottle sets - refer to <a href="http://tgm.horizons.govt.nz/Hydrology/SOPs/cd_om_15.4_Appendix_4_ELS%20Bottle%20Guide.xlsx">http://tgm.horizons.govt.nz/Hydrology/SOPs/cd_om_15.4_Appendix_4_ELS%20Bottle%20Guide.xlsx</a></b>
<b>Sample numbers</b>	<b>Five (05)</b>
<b>Equipment</b>	<ul style="list-style-type: none"> <li>• Handheld multi-parameter instrument (calibrated) – including iPad/screen</li> <li>• Black disc, viewer, tape measure</li> <li>• Clarity Tube</li> <li>• Sampling pole</li> <li>• Chilly bins and ice-packs</li> <li>• Disinfectant equipment for sampling equipment</li> <li>• Field sampling books</li> <li>• Sampling ID labels (created using Hilltop Sampler)</li> <li>• Alcohol gel</li> </ul>




## WHANGAEHU AT KAUANGAROA



### POSSIBLE SITE HAZARDS:

Drowning – River	Traffic / vehicle movements – sales yard	Slippery surfaces – mud	UV Radiation
Trip hazards – cobbles, uneven ground	Limited comms		

### REQUIRED PPE:

WORK BOOTS	PFD	HI VIZ					
							

### DIRECTIONS:

From Horizons Main Depot, 1hr2min (75.1km) to site [Google Maps Link](#)

- Follow SH3 from Palmerston North toward Whanganui (60.5km)
- Turn right onto Warrengate Rd (65km)
- Turn right onto No 2 Line (66km), road turns into Kauangaroa Rd (75.1km)

### ACCESS:

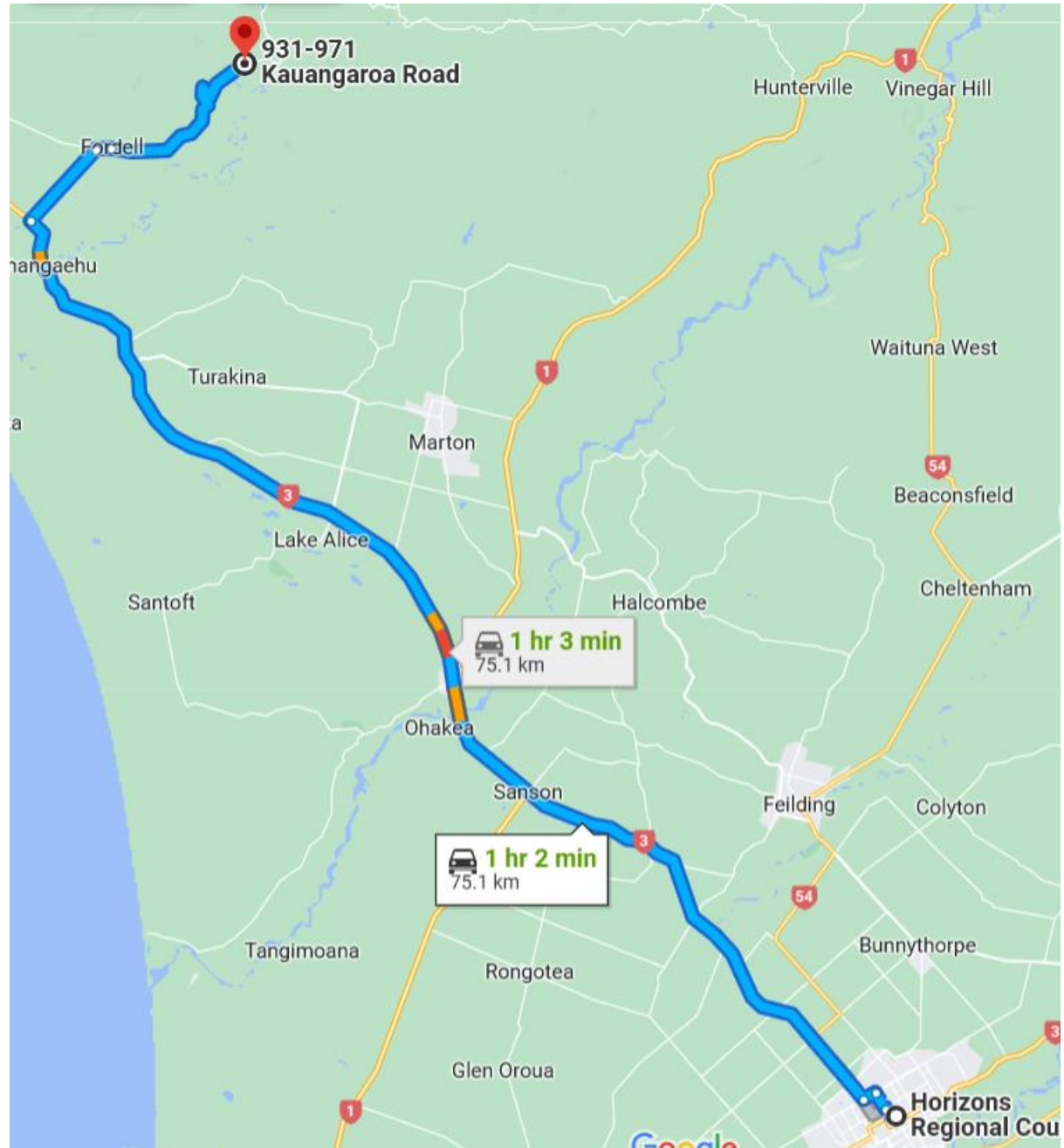
- Sample directly downhill from shipping container
- ESG is on other side of bridge
  - Walk over bridge and down bank

- ESG is located on bridge pier

**NOTES:**

- No 3G/4G coverage, use radio or GPS
- No steps to sample site, slippery grass and mud

**MAP:**



**PHOTOS:**





Site entrance – Park by gate



Site overview – Sample upstream of bridge



ESG and stage located on other side of bridge






## MANGAWHERO AT RAUPIU ROAD



### POSSIBLE SITE HAZARDS:

Drowning – River	Traffic / vehicle movements – sales yard	Slippery surfaces – rocks	UV Radiation
Trip hazards – rocks, uneven ground	No comms		

### REQUIRED PPE:

WORK BOOTS	PFD	HI VIZ					
							

### DIRECTIONS:

From Whangaehu at Kauangaroa, 53min (65.3km) to site [Google Maps Link](#)

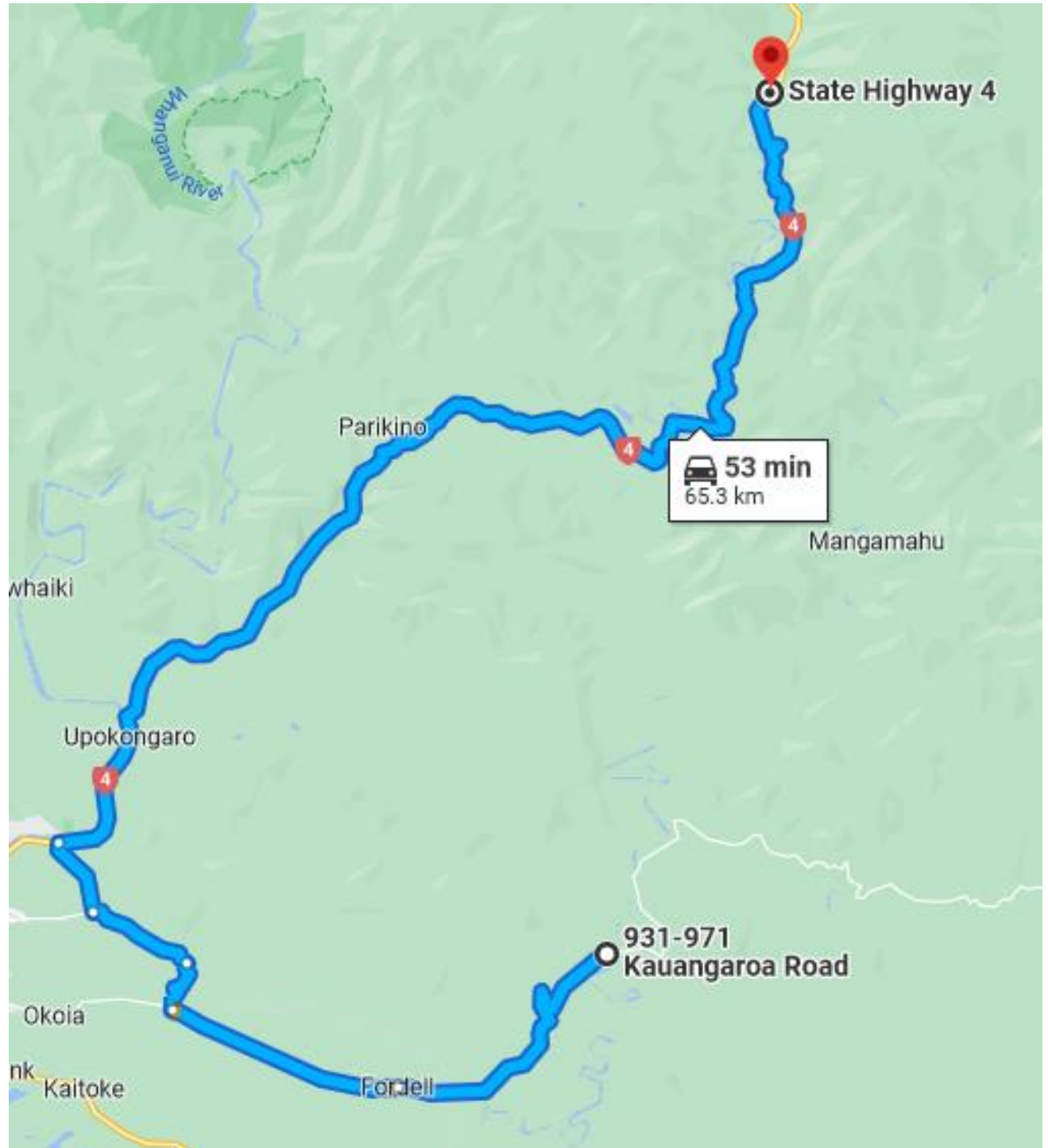
- Start westbound on Kauangaroa Rd (9.5km), road turns into No 2 Line (16.7km)
- Turn right onto Okoia Rd (18.3km), road turns into No 3 Line (21.6km)
- Turn right onto Kaimatira Rd (23.8km)
- Turn right onto SH4 (65.3km)
- Site entrance is on left after the layby, opposite the right guard rail (250m from bridge)

**ACCESS:**

- Walk down track toward river

**NOTES:**

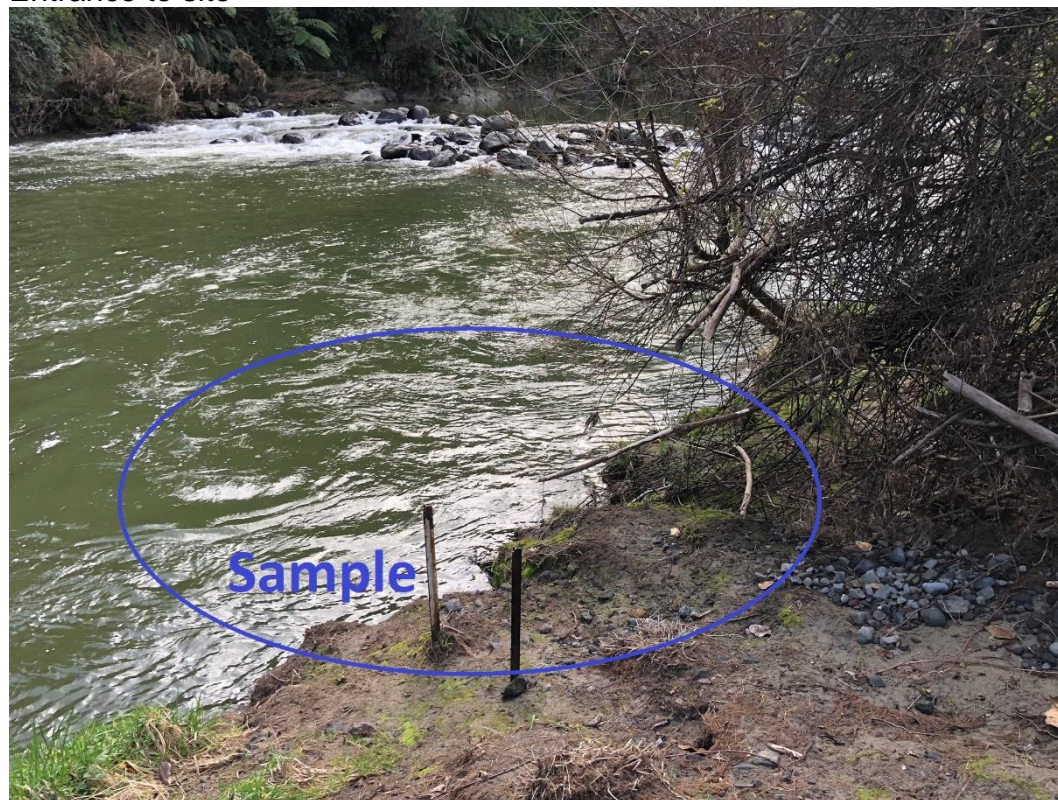
- No 3G/4G coverage or radio. Use GPS
- Rocks are slippery, be careful

**MAP:****PHOTOS:**



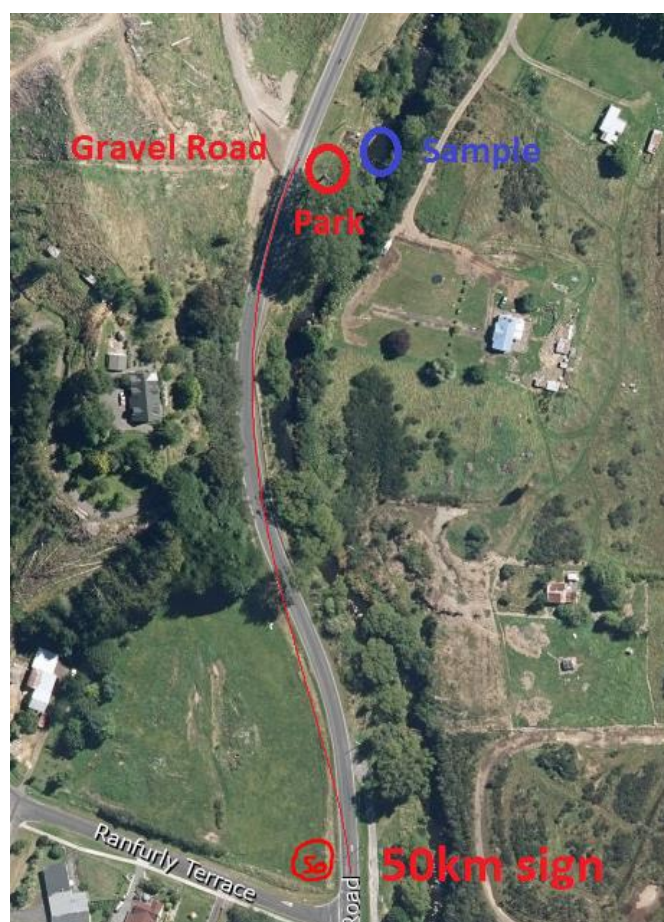


Entrance to site



Sample Location




## MAKOTUKU AT RAETIHI



### POSSIBLE SITE HAZARDS:

Drowning – River	Traffic / vehicle movements – sales yard	Slippery surfaces – gravel	UV Radiation
Trip hazards – uneven ground			

### REQUIRED PPE:

WORK BOOTS	PFD	HI VIZ					
							

### DIRECTIONS:

From Mangawhero at Raupui Rd, 31min (39.5km) to site [Google Maps Link](#)

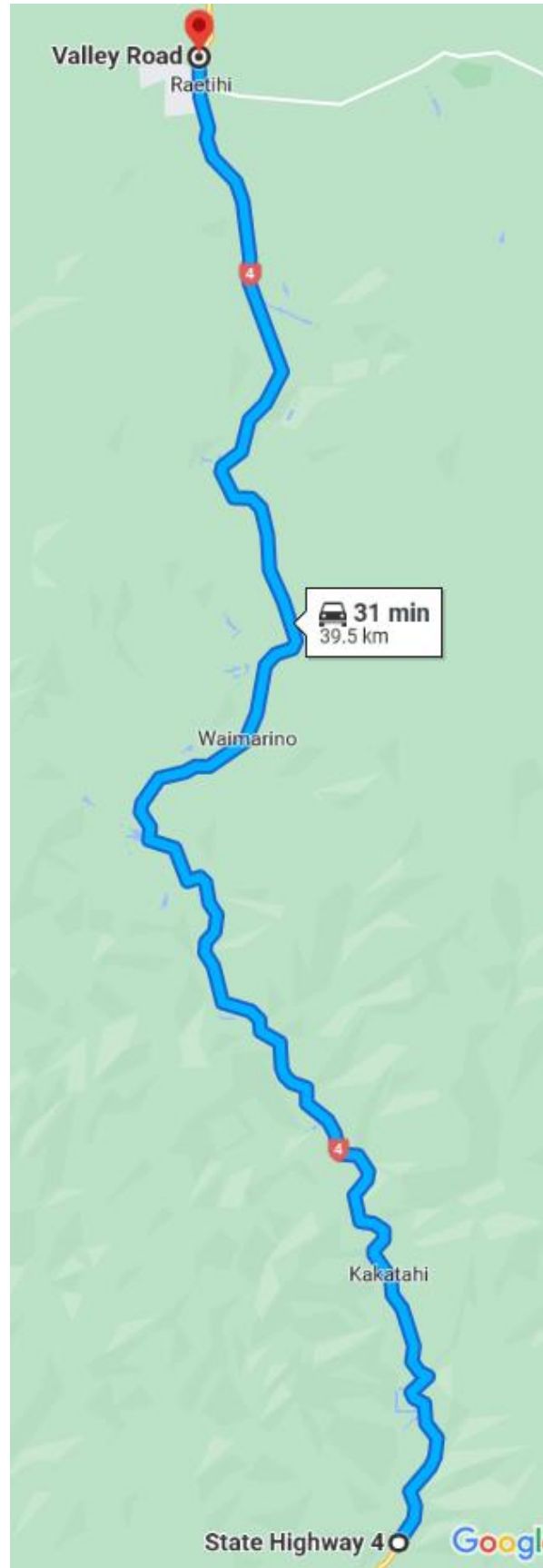
- Start northbound on SH4 past Raetihi (39.5km)
- Site is on the right opposite a gravel road, 300m from 50km sign
- Park on grass on right

### ACCESS:

- Sample down bank from box
- ESG is by weir



**MAP:**





**PHOTOS:**

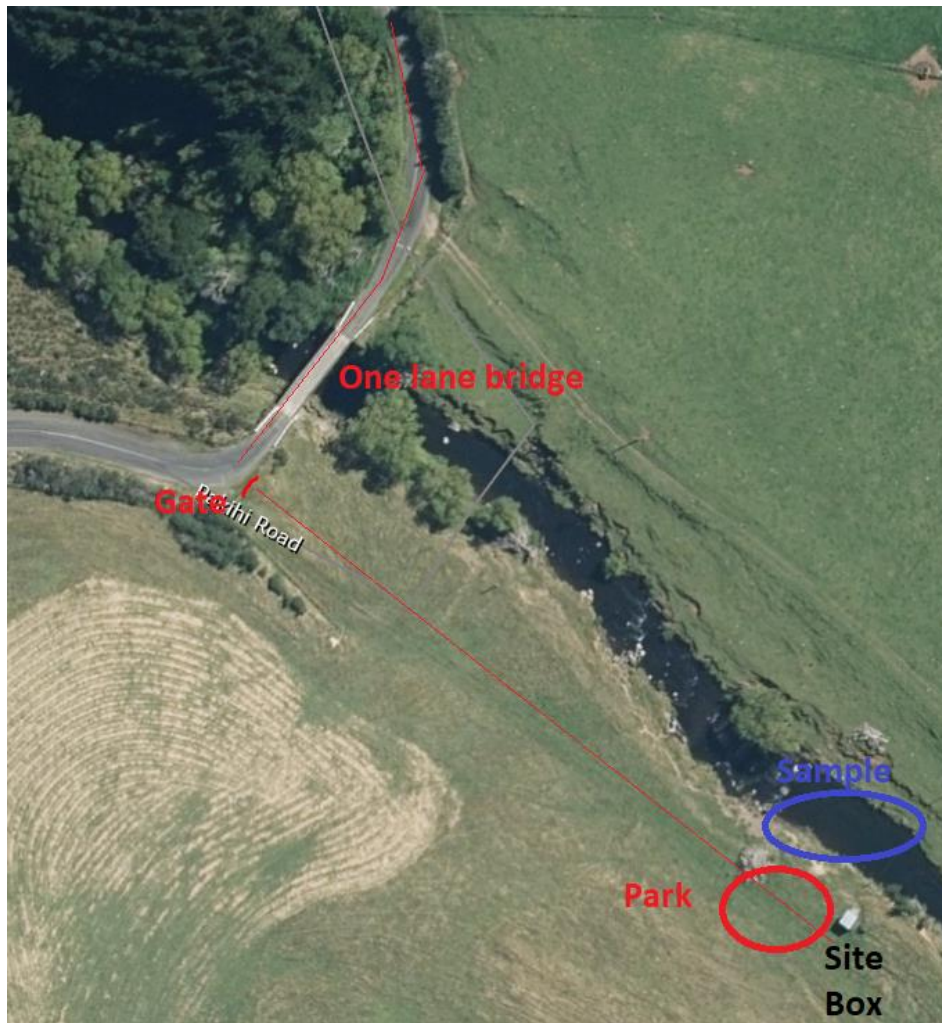


Entrance to site



Overview of site




## MANGAWHERO AT PAKIHI RD BRIDGE



### POSSIBLE SITE HAZARDS:

Drowning – River	Traffic / vehicle movements – sales yard	Slippery surfaces – mud	UV Radiation
Trip hazards – cobbles, uneven ground			

### REQUIRED PPE:

WORK BOOTS	PFD	HI VIZ					
							

### DIRECTIONS:

From Makotuku at Raetihi, 4min (4.6km) to site [Google Maps Link](#)

- Start southbound SH4 (0.6km)
- Turn left onto Raetihi Ohakune Rd (4.3km)
- Turn right onto Pakihi Rd (4.6km)
- Site entrance is gate after 1 lane bridge

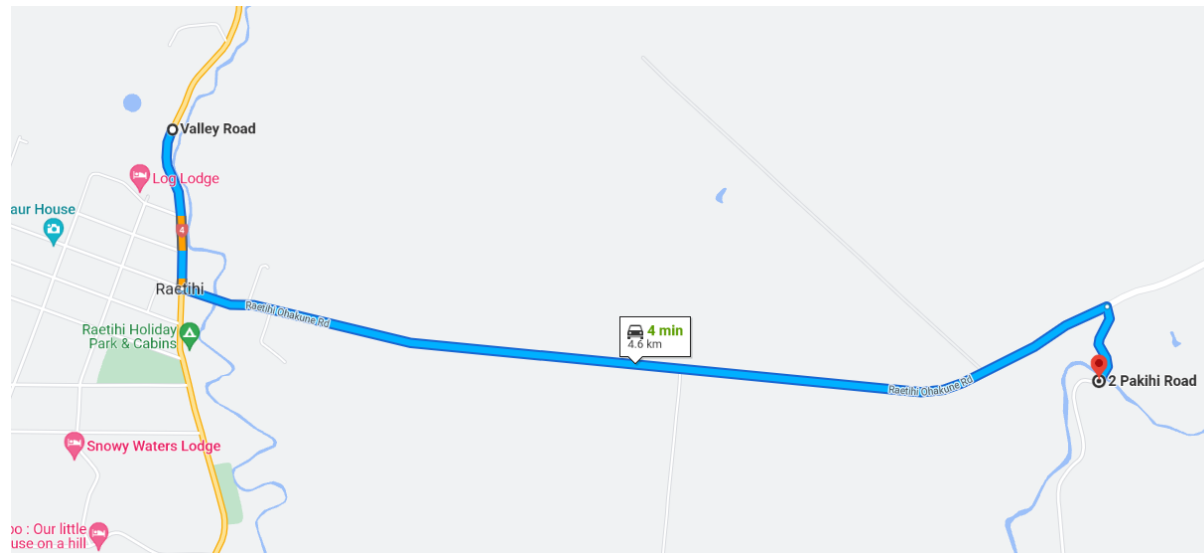


- Park inside gate by site box

#### ACCESS:

- Sample down bank from site box
- ESG downstream on site box

#### MAP:



#### PHOTOS:



Site entrance- Drive through gate to site box



Sample site – ESG to right






## TOKIAHURU AT JUNCTION



### POSSIBLE SITE HAZARDS:

Drowning – River	Traffic / vehicle movements – sales yard	Slippery surfaces – mud	UV Radiation
Trip hazards – cobbles, uneven ground	Limited comms		

### REQUIRED PPE:

WORK BOOTS	PFD	HI VIZ				
						

### DIRECTIONS:

From Mangawhero at Pakihi Rd Bridge, 19min (24.3km) to site [Google Maps Link](#)

- Head northbound on Pakihi Rd (0.3km)
- Turn right onto Raetihi Ohakune Rd (7.7km)
- Turn right SH49 (18.9km)
- Turn right onto Whangaehu Valley Rd (22.9km)
- Turn right onto Oruakururu Rd (24.3km)
- Site entrance is gate before 1 lane bridge
- Follow track and park by site box

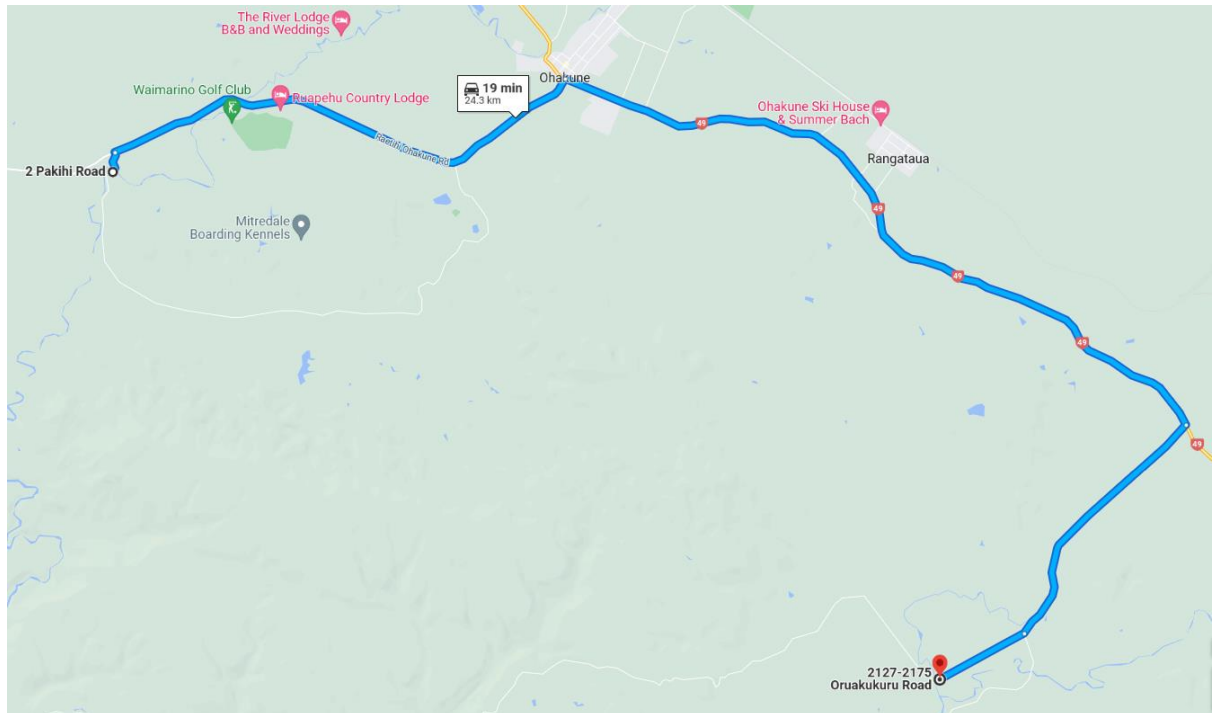


**ACCESS:**

- Sample directly downhill from site box

**NOTES:**

- Ladder could be slippery
- Auto-purge

**MAP:****PHOTOS:**

Site entrance - Enter through gate



Sample site with ESG