

Version No: 04 Issue Date: 27/05/2021 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: 30 Page: 1 of 19
horizons <small>regional council</small> 	Hydrology Operations Manual	

Periphyton Monitoring Run Guide

Upper Rangitikei

POINT DISCHARGE/STATE OF THE 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 checked="" 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 checked="" type="checkbox"/>
Explosive gas	<input type="checkbox"/>	Trip hazards	<input checked="" type="checkbox"/>	Reduced visibility	<input checked="" 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 checked="" 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 checked="" type="checkbox"/>	Pressurized air/gas	<input type="checkbox"/>	Hazardous waste	<input checked="" type="checkbox"/>
Electrical – low /high voltage	<input checked="" 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 checked="" type="checkbox"/>	Soil disturbance/erosion	<input type="checkbox"/>
Working at height	<input type="checkbox"/>	Moving parts	<input type="checkbox"/>	Habitat disruption	<input type="checkbox"/>
Ladders	<input 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 checked="" type="checkbox"/>	Stock/Farm Animals	<input checked="" type="checkbox"/>		

Required PPE and Safety Equipment– tick all that apply, write additional PPE required:

The yellow highlighted PPE are 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.

SAMPLING GLOVES	EAR PROTECTION	HARD HAT	SAFETY GLASSES / GOGGLES	WORK BOOTS / WADERS	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HI VIZ	SAFETY HARNESS	SUNBLOCK & HAND SANITISER	VHF RADIO	PERSONAL LOCATOR BEACON	THROWBAG	SHOVEL
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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	✓			✓	✓		Sampling must always be done from stable level. Vehicles must be driven a sensible distance from any river or pond edges. [HMP 18]. Staff driving four wheel drive vehicles must have adequate training [HMP 9]
Drowning	✓			✓		✓	Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff. Always carry a throw bag when working around water and have a personal locator beacon on hand. It is always preferable to have someone else with you at all times when working around water [HMP 18]
Traffic Vehicle movements	✓			✓		✓	Park out of the way of the ford crossing at the Moawhango site. Staff are required to wear Hi Vis when working in the Military Training area. The designated driver of a vehicle is responsible for ensuring the safety and operational requirements and recommendations are met. All staff working within the road reserve must wear high visibility clothing to AS/NZS 1906.4:2010. This clothing must be fluorescent red orange in colour unless the individual is the site STMS then the garment must be fluorescent lime yellow. [HMP 9] [HMP 16] [HMP 20].
Electrical – low /high voltage	✓			✓	✓		Many of the rural sampling sites require traversing across farm paddocks equipped with electric fences that contain stock. If unknown, treat every farm fence as electric and avoid direct contact. Contact the landowner for advise on whether or not the fence is live and discuss alternative routes or options for avoiding the fence if possible. Styles and gates are provided to cross electric fences at Hunterville STP- make us of these.
Stock/Farm Animals	✓			✓	✓		Stock such as sheep and cows may be present at the Hunterville STP site. There is also the possibility that wild horses may be on site at the Moawhango site. 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]

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Weather/Temperature Extremes	✓			✓		✓	Throughout 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 to additional and appropriate clothing. Staff must have access to suitable PPE and spare clothing within their vehicle. [HMP18]
Remote Area and Communication-means of	✓			✓	✓		Cell phone coverage is not available at all sites. Staff must be capable of communicating via VHF radio in an equipped vehicle. Most council vehicles are fitted with the E-Road vehicle locator system. Many vehicles are also fitted with a radio operating on the Horizons digital radio network providing communication and tracking coverages across a majority of the region. [HMP 24]
Line of Fire	✓		✓		✓		Live firing is a risk to staff working in the Waiohuru Military Training Area. Prior to accessing the Moawhango Stream for sampling staff must make contact with the NZ Army Range Control to eliminate the possibility of being caught in line of fire. If there is a possibility that staff may be at risk Range Control will not grant staff access to the sampling site and sampling will need to be done at another time when it is safe.
Machinery – mobile plant	✓			✓		✓	STP sample site is within an operating waste water treatment plant. Plant and machinery may be on-site during sampling. Staff are to wear appropriate PPE, obey on site signage and instruction, and give way to all operational traffic.
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]
Manual Handling	✓			✓	✓		Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample treated effluent. Hepatitis B vaccinations are offered by HRC. [HMP 30] [HMP 35]
Difficult entry/exit	✓			✓		✓	Entry and exit into waterways poses many risks and should be treated with caution. Rivers/Streams can have varying flow levels. STP ponds can be deep, full of sediments, and have operating equipment on/within them. Sampling must always be done from stable level ground. Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff and staff must be trained for working around water. Vehicles must be driven a sensible distance from any pond edges. [HMP18]

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Potential for difficult rescue	✓			✓		✓	Sampling must always be done from stable level ground. Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff and staff must be trained for working around water. Vehicles must be driven a sensible distance from any river or pond edges. Always carry a throw bag when working around water and have a personal locator beacon on hand. It is always preferable to have someone else with you at all times when working around water [HMP18]
Engulfment	✓			✓		✓	Rivers/streams are prone to flash flooding creating the potential for engulfment. Staff must be alert and aware at all times of how the waterways are behaving around them, especially in areas where water is dammed or has structures such as intakes and aqueducts. PFD's must be worn by staff and staff must be trained for working around water. Vehicles must be driven a sensible distance from any river or pond edges. Always carry a throw bag when working around water and have a personal locator beacon on hand. It is always preferable to have someone else with you at all times when working around water [HMP18]
Reduced Visibility	✓			✓		✓	If you find you are driving in limited visibility slow your driving speed and turn your fog lights on and watch out for vehicles that aren't using their lights. When working in limited visibility if you cease to be able to make out your surrounding environment stop work immediately. If working at night it is advisable to traverse the property in daylight first to map out an action plan outlining walking tracks, vehicle tracks, fence lines, stock positions, ponds, waterways, houses, and sheds as well as other significant items of interest. [HMP12]
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats. Staff are encouraged to make use of these. [HMP 17]

Site Information

Hilltop Site Name	Easting/Long		Northing/Lat	Comments
Moawhango River at Waioru	NZTM:	1838862	5631239	Visual Assessment, Chlorophyll a Sample, SmarTroll and Water Sample
Rangitikei at Pukeokahu	NZTM:	1861280	5609098	Visual Assessment, Chlorophyll a Sample
Rangitikei at Mangaweka	NZTM:	1840390	5589457	Visual Assessment, Chlorophyll a Sample
Porewa d/s Hunterville STP	NZTM:	1819456	5574797	Sample gloves, safety glasses, Visual Assessment, Chlorophyll a Sample
Porewa u/s Hunterville STP	NZTM:	1819595	5575167	Visual Assessment, Chlorophyll a Sample

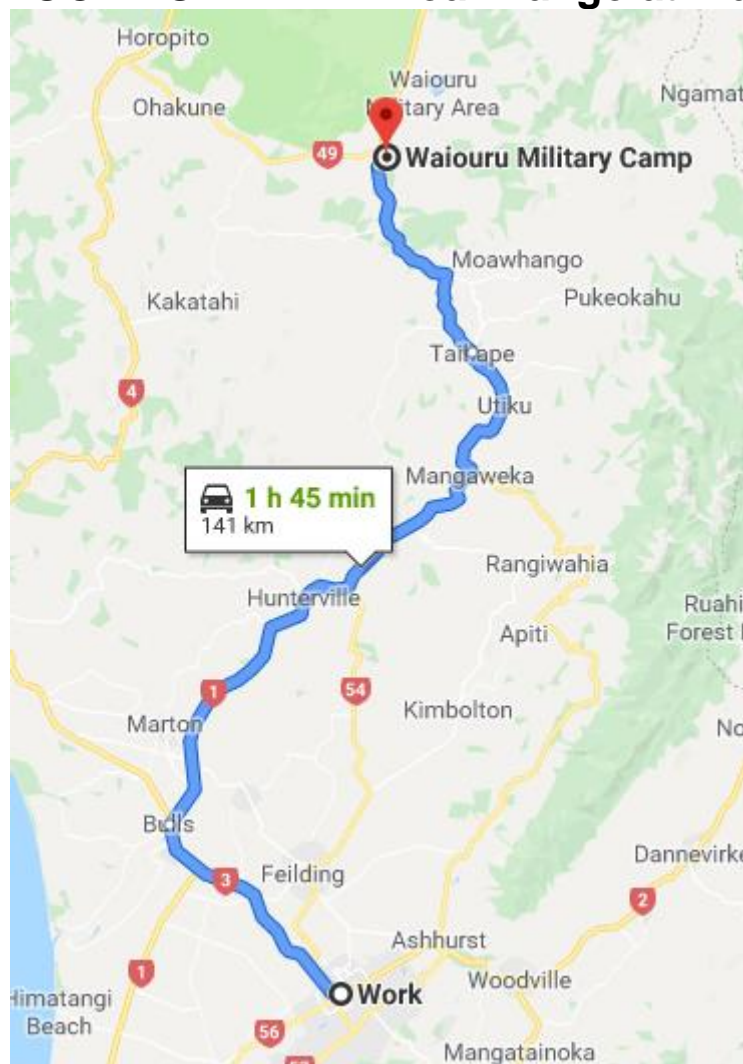


Equipment Required

Sample Bottles	ONE (1) & FIVE (5) sample bottle sets - refer to http://tgm.horizons.govt.nz/Hydrology/SOPs/cd_om_15.4_Appendix_4_ELS%20Bottle%20Guide.xlsx
	ONE (Water Quality) FIVE (Periphyton)
Equipment	<ul style="list-style-type: none"> • SmarTroll (calibrated) • iPad • Bathoscope / Viewer • Pottles (Approx 10) and sample stickers • Scrubbing brush, tooth brush and washer bottle, Yellow sample bottle lid and Ice cream container • Sampling pole • Chilly bins, ice-packs and bags • Field sampling books • Sampling numbers for Water Samples and Periphyton samples • Gloves for wastewater and alcohol gel • Personal Locator Beacon • 4WD Vehicle equipped with VHF Radio • Throw Bag • Shovel and map of Waiouru Training Area
Additional comments	<p>Moawhango at Waiouru –</p> <p>Be sure to take your Horizons ID and drivers license on this run. Before going on this run you will need to do blinds training course. This comprises of recognising potential explosive devices and what to do about them. If you haven't done it then you can organise for it to be done before going. It will take about half an hour.</p> <p>Before you can sample this site access will have to be organised to get onto army land. The person to contact is:</p> <p>REDACTED</p> <p>You will need to explain you are from Horizons regional council and ask for access to Zone 19 (which is where the old Imjin camp was located if asked). He will tell you if there are any army activities in that zone in which case you will be unable to get access and this sampling will have to be done at a later date. Be sure to ring him at least a day before the sampling.</p> <p>We must have a shovel, high vis and map of the training area on hand when entering the military training area as part of the entry requirements.</p>

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

SITE LOCATION MAP – Moawhango at Waiouru



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes	Communication	Remote Area	Line of Fire
Travel/vehicle movements	Difficult entry/exit	Potential for difficult rescue	

REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	HI VIZ	VHF RADIO	PERSONAL LOCATOR BEACON	THROW BAG	SHOVEL
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DIRECTIONS:

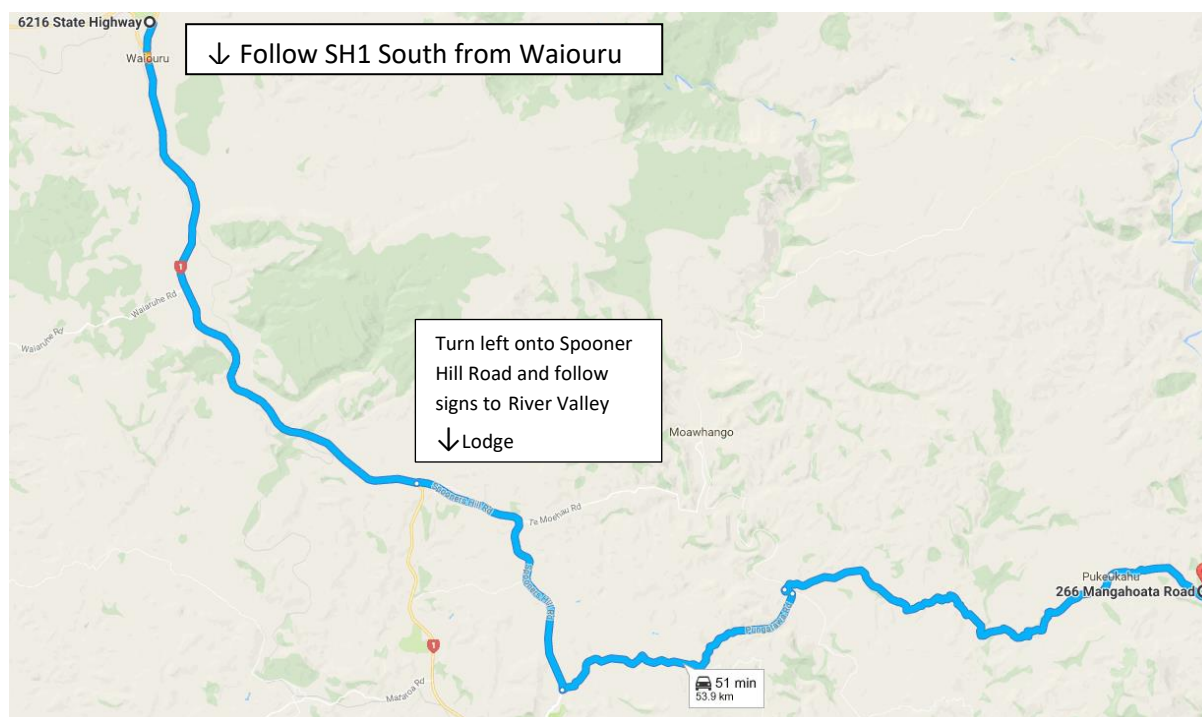
- From the Palmerston North office head north to Waiouru via SH1
- When you reach Waiouru continue on straight for about 1 kilometre until you reach the 100 km/hr signs. Turn right onto Ruapehu Road towards the Waiouru Military Camp Entrance.
- Drive up until you reach the booth with barrier arms. Explain to the gate staff that you are from Horizons Regional Council and here to sample the Moawhango Stream and that you are going in to Range Control. The staff from the booth will ask you to park up and sign in and will give you a visitor's pass.

- Drive on from the booth and continue on Ruapehu Road (this turns into Home Valley Road) inside the camp until you see the sign for Range Control on the left of the road (approximately 200m down the road from the booth). Turn right into the Range Control carpark and park here.
- Head into the Range Control building and explain what you are doing and that you need access to Zone 19. You will have to fill in a permit sheet as well as a log book that you sign in and sign out of on entering and leaving the training area. Allow yourself at least 3 hours for your expected time in the training area.
- From Range Control turn right onto the road you came from. Stay on this road which drives past the army campuses and out into the training area. You will come to a 40 km/hr sign and the road will turn to gravel. You will drive past a small confidence course and firing ranges.
- Travel along this road for approximately 7 kilometres. You will come to the top of a rise and the road will branch with one branch sweeping around to the left and the other dropping off to the right. Take the left hand branch. Approximately 100 meters up there is a small long drop like building on your right over-looking a large view of the valley below. If you drive past this building you are on the correct road.
- Stay on this road for other 5 or so kilometres. There shouldn't be and tracks coming off until you reach the bottom of the valley. You will see the river on your right. There will be a track off to your right that crosses the river. Turn in here.
- Park just before the ford across the river, sample upstream.
- Once you have sampled travel back the way you came. Go back to range control and sign out and give your visitor access card back at the booth when you leave.





SITE LOCATION MAP – Rangitikei at Pukeokahu



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes	Communication	Remote Area	Potential for difficult rescue
Travel/vehicle movements	Difficult entry/exit		

REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	HI VIZ	VHF RADIO	PERSONAL LOCATOR BEACON	THROW BAG	
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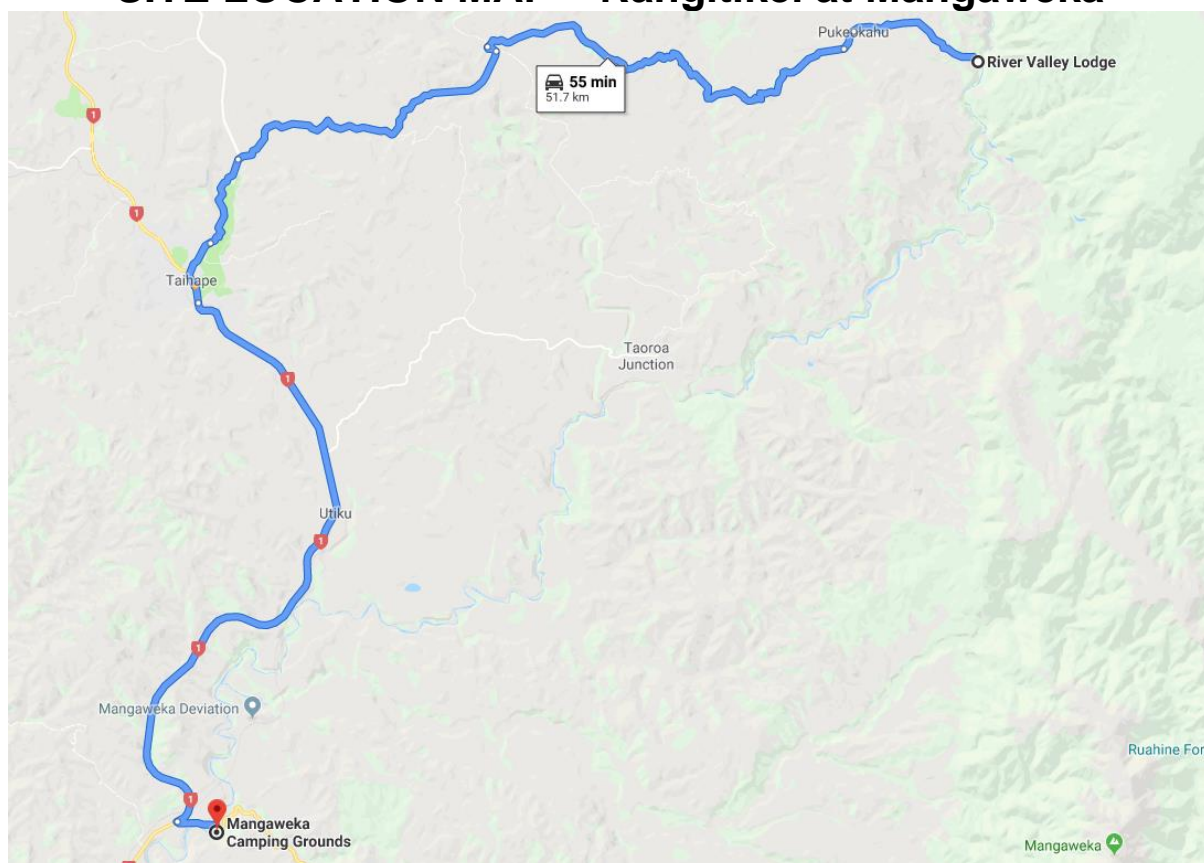
DIRECTIONS:

- From Waikaremu head south back down SH1 towards Taihape for 20 kilometres until you reach the turn off for River Valley Lodge down Spooners Hill Road. Turn left onto Spooners Hill Road and follow all the signs to River Valley Lodge. From here on every intersection has a River Valley Lodge sign so you can follow them the rest of the way.
- After approximately 9 kilometres turn left onto Pungatawa Road. There will be signage for River Valley lodge at this intersection also- follow this signage.
- Stay on Pungatawa Road for approximately 9 kilometres. You will come to an intersection with Moawhango Road. Turn left here and then take the next right which will lead you onto Otuare Road. These are both signposted for River Valley Lodge.
- At the end of Otuare Road you will lead into Pukeokahu Road. A short way on there is another road called Mangahoata Road coming off to the right. There is a set of stock sheds at the corner of these two roads. Take Mangahoata Road on the right and follow this road to the end. This will lead you to River Valley Lodge where you will do your sampling.

- Drive through the camp ground and down the steep hill (carefully as this can be slippery and is rutted. A low gear is a good idea). You will drive towards the front of the lodge. The track follows around to the left of the lodge. Follow this around the front of the lodge and you will come to an area with a round-a-bout in the middle with buildings all around. Park here somewhere out of the way. As you came around the building there would have been a clear area on your left next to the river. This is where you will sample.
- Take a Chlorophyll a sample from 10 rocks and do a 20-view visual assessment.



SITE LOCATION MAP – Rangitikei at Mangaweka



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes	Travel/vehicle movements	Difficult entry/exit	Potential for difficult rescue

REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	HI VIZ	VHF RADIO	PERSONAL LOCATOR BEACON	THROW BAG	
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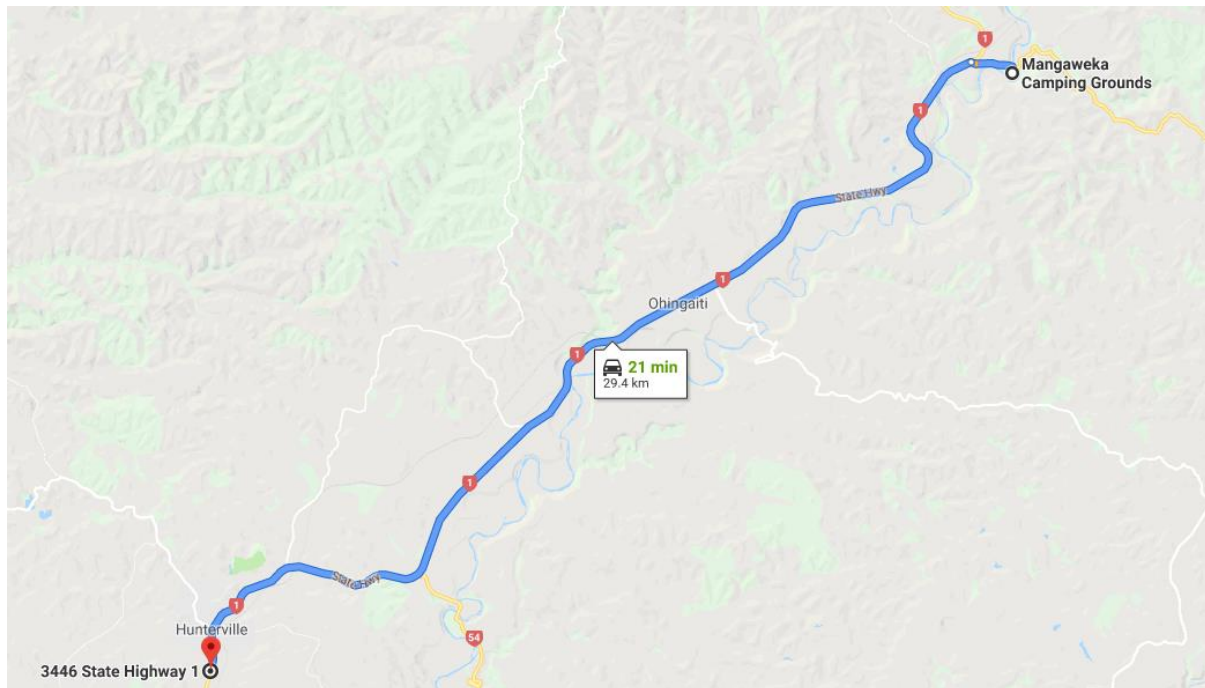
DIRECTIONS:

- From Pukeokahu travel back the way you came up Mangahoaata Road, then onto Pukeokahu Road, then Otuaerei Road, Moawhango Road and then Pungatawa Road.
- Follow Pungatawa Road right up until you reach the end and then turn left onto Spooners Hill Road, heading towards Taihape. You should reach Taihape from this intersection after about 5 minutes of driving.
- From Taihape travel south down SH1 to Mangaweka. Just before you reach the 70kmph signs coming into Mangaweka there is a road that comes off on the left hand side which is called Ruahine Road. Take this road.
- Drive down the hill for approximately 1 kilometre. You will come to a bridge spanning the Rangitikei River. Just before this on the right hand side you will see a track leading down into Rangitikei Riverside Campground. Turn in here.
- Drive down through the camp and you will see a track which leads down onto the gravel next to the river. Stop here and sample.
- Take a Chlorophyll a sample from 10 rocks and do a 20-view visual assessment of the periphyton.



Upper Rangitikei Periphyton

SITE LOCATION MAP – Porewa d/s Hunterville STP



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes	Travel/vehicle movements	Difficult entry/exit	Potential for difficult rescue
Stock/Farm Animals	Electrical- low/high voltage	Manual Handling	Machinery- mobile plant

REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	HI VIZ	VHF RADIO	PERSONAL LOCATOR BEACON	THROW BAG	SAMPLE GLOVES	SAFETY GLASSES / GOGGLES
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DIRECTIONS:

- From Rangitikei at Mangaweka, head back to SH1 and turn left, heading to Hunterville.
- Travel through Hunterville, past the 100 km signs at the end of the town until you see a gravel parking area (and piles of shingle) on the left. At the end of this area a small road takes you to the STP. Go through the gate and down to the plant. Park here.
- There is a gate on the right of the plant that leads into the paddock. There is stock in here sometimes so close the gate and be wary if there are bulls.
- Walk down past the ponds and around a corner until you get to the last 100m near the end of the paddock. Sample in a run here.
- Take a Chlorophyll a sample from 10 rocks and do a 20-view visual assessment.





Upper Rangitikei Periphyton

SITE LOCATION MAP – Porewa u/s Hunterville STP



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes	Travel/vehicle movements	Difficult entry/exit	Potential for difficult rescue
Stock/Farm Animals	Electrical- low/high voltage	Manual Handling	Machinery- mobile plant

REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	HI VIZ	VHF RADIO	PERSONAL LOCATOR BEACON	THROW BAG		
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DIRECTIONS:

- From the downstream Hunterville STP site, walk back to the sewage plant.
- In the northern corner of the sewage treatment plant, down by the sheds and tanks, there is a gate that leads into the paddock north of the sewage treatment plant. Go into this paddock and walk over a culvert that goes over a small creek.
- Sample the Porewa upstream of where the confluence of the creek.
- Take a Chlorophyll a sample from 10 rocks and do a 20-view visual assessment of the periphyton at the site.



Looking downstream towards the STP



Looking upstream

Return to the office

Upper Rangitikei Periphyton