

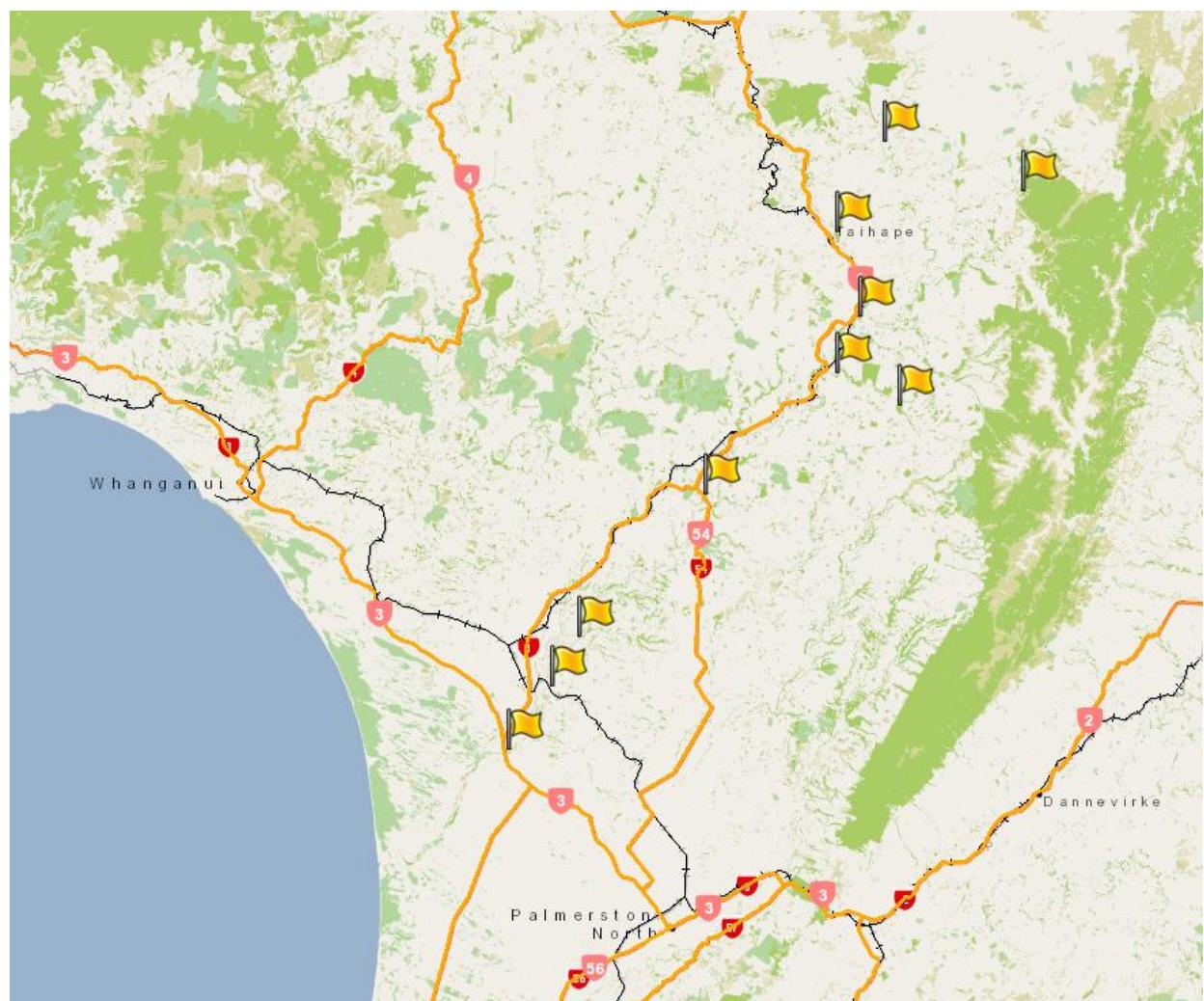
Version No:	8
Issue Date:	03/10/23
Portfolio:	Discrete Water Quality
horizons regional council	

Horizons Regional Council

Section No:
Appendix No:
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Hydrology Operations Manual

Contact Recreation Guide Run 5



Site Names and Coordinates

	Site Name	Northing (NZTM)	Easting (NZTM)
1	Hautapu at Papakai Park	5604853	1840400
2	Moawhango at Moawhango	5614536	1845663
3	Rangitikei at Pukeokahu	5609081	1861335
4	Rangitikei at the meeting of the waters	5595625	1843029
5	Rangitikei at Mangaweka	5589533	1840432
6	Mangawharariki at Ruahine Dress Circle	5585960	1847383
7	Rangitikei at Vinegar Hill	5576405	1825504
9	Rangitikei at Kakariki	5555715	1808402
10	Oroua at Awahuri Bridge	5538597	1814385

Version 8	Created: 03/10/23	Updated by: Izzie Hodgson
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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 checked="" 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 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 checked="" 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 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 & 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 FLOTATION DEVICE (PFD)
						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HI VIZ	SAFETY HARNESS	SUN BLOCK & HAND SANITISER	VHF RADIO	THROW BAG	PERSONAL LOCATOR BEACON	
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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	
Drowning	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff. Always carry a personal locator beacon. It is always preferable to have someone else with you at all times when working around water [HMP 18]
UV Radiation	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Horizons provide sunscreen and hats. Staff are encouraged to make use of these. [HMP 17]
Difficult Entry/Exit	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Entry and exit into waterways poses many risks and should be treated with caution. Sampling must 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. [HMP18]
Electrical-Low/High Voltage	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		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 advice on whether or not the fence is live and discuss alternative routes or options for avoiding the fence if possible.
Potential for Difficult Rescue	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	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]
Trip Hazards	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Prior to sampling, staff must check area is clear of items that pose a risk. Trip Hazards 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	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Sampling must 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]
Traffic Vehicle Movements							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].

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Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Stock/Farm Animals	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		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]
Communications-Means of							Cell phone coverage is not available at all sites. Staff must be capable of communicating via VHF radio in an equipped vehicle. [HMP 24]
Remote Area	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	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]
Temperature/Weather Extremes	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	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 to additional and appropriate clothing. Staff must have access to suitable PPE and spare clothing within their vehicle. [HMP 18]
Reduced Visibility	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	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 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]

EQUIPMENT REQUIRED

Sample Bottles	1 L Bottle	500 ml Bottle	100 ml bottle	50 ml tube	Red-top bacto bottle
Contact Recreation					x10 (one for temperature reference) 
Hilltop Sampler Numbers	<ul style="list-style-type: none"> • 9 sample numbers 				
Meters/Equipment	<ul style="list-style-type: none"> • Chilly Bin, Slicker pads • Camera • GPS + In-Reach Unit • Field Sampling Sheets • Bottle ID stickers • Vivid and pens • Thermometer 				

METHOD

- For all sites take one sample in a red lid sterile bacto bottle:
 - At the site dip the entire bottle below the surface of the water and open it under water without disturbing the surface. This is to avoid collection of surface bacteria in the sample.
 - Tip out excess water to create a small gap of air at the top of the bottle.
 - Wipe the bottle off with a towel, attach the hilltop generated number and place this in the chilly bin.
 - Fill in field notes.
 - At lake sites there's an additional one litre bottle, adopt the same approach using the large one litre bottles. Label the bottle with the name of lake, the date, time and temperature.

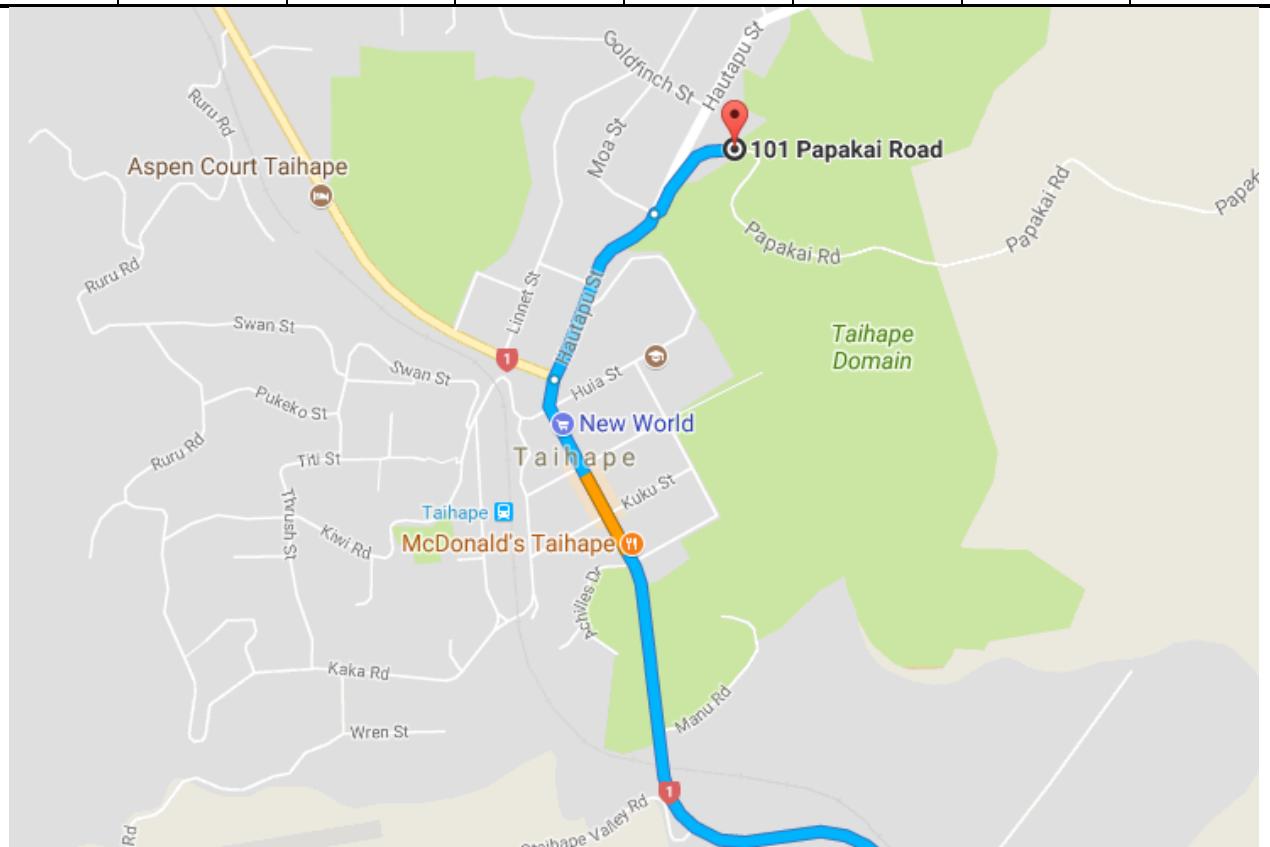
Hautapu at Papakai Park (1.5 hour from previous site)

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements
Weather/Temperature Extremes			

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	PERSONAL LOCATOR BEACON	HI-VIS	VHF RADIO	SAMPLE POLE	



- From Regional House drive towards Taihape through Bulls following SH1
- In Bulls take the right turn signposted to Taupo on SH1
- After the main drag of Taihape as SH1 turns left continue straight on – this road should be Hautapu Street
- Follow Hautapu St down the hill and take Papakai Road on the right (3rd right). (Opposite Moa St)
- At the bottom of the hill take the opening on the right before the bridge, park out of the way and sample here downstream of the bridge

Field Site Location Guide – Contact Recreation Run 5



Moawhango at Moawhango (20 min from previous site)

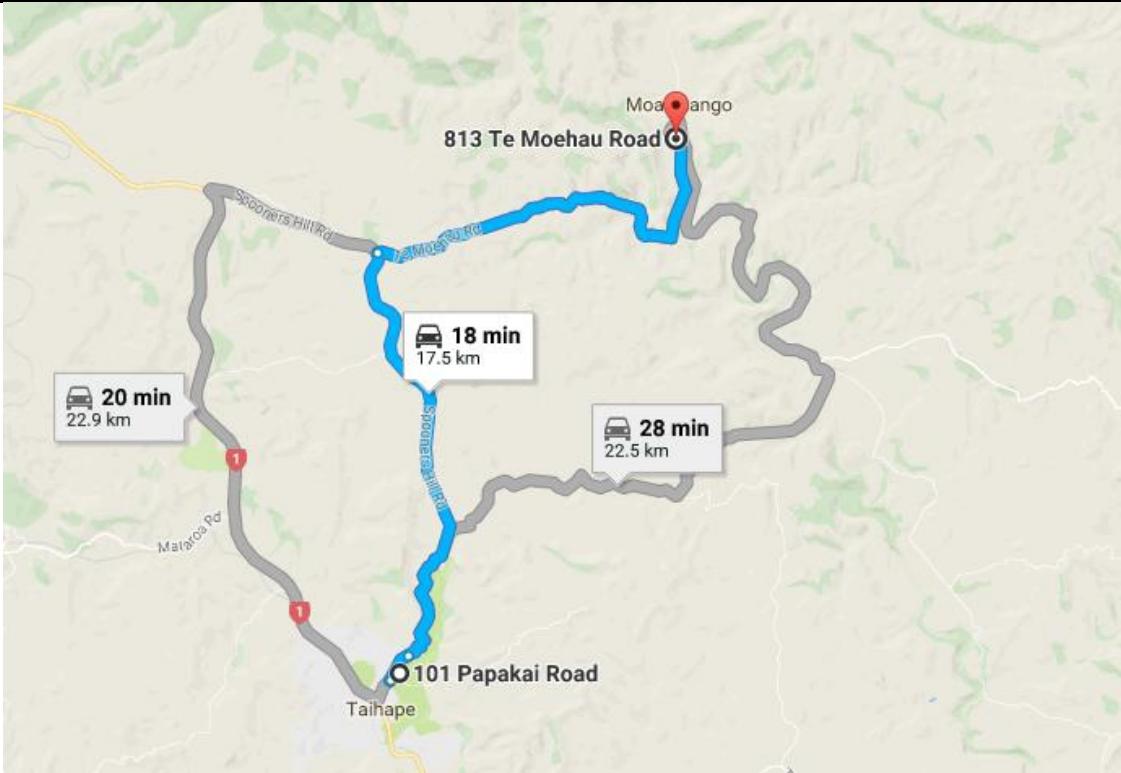
This site requires a cliff hazard photo to be taken. Refer to other side for reference photos

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements
Weather/Temperature Extremes			

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	PERSONAL LOCATOR BEACON	HI-VIS	VHF RADIO	SAMPLE POLE	



- Drive back up Papakai Road, to the junction with Hautapu St.
- Turn right onto Hauptpu St – please take care as this is a sharp turn.
- Drive along this road and continue as it becomes Spooners Hill Rd.
- Follow the road for 8.6km - The road will veer to the left and there will be a sign to Napier down Te Moehau Road on the right. Take this turn.
- Travel along this road for 8 km.
- Just before you reach a one way bridge there will be a farm gate on the right hand side of the road by some pine trees. Park down here on the other side of the gate from the road. Follow the track to the river. Sample downstream of the bridge as seen below.

Field Site Location Guide – Contact Recreation Run 5



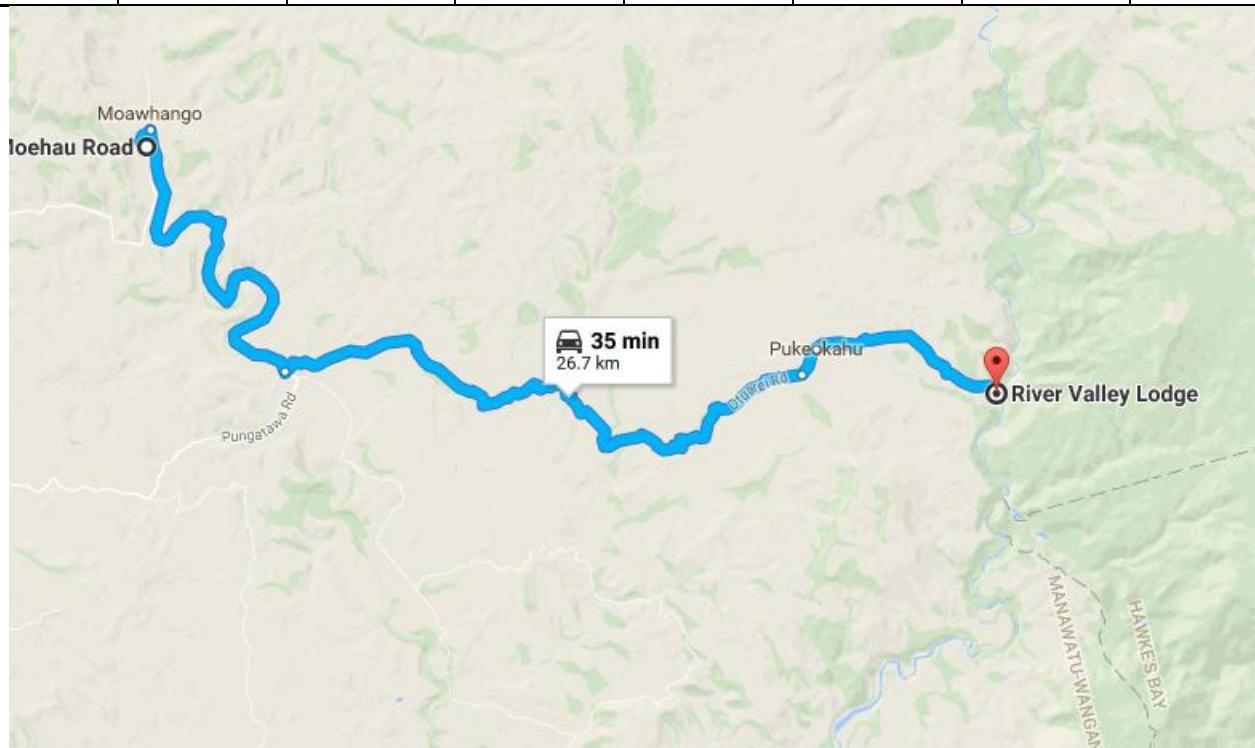
Rangitīkei at Pukeokahu (40 minutes from previous site)

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements
Weather/Temperature Extremes			

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	PERSONAL LOCATOR BEACON	HI-VIS	VHF RADIO	SAMPLE POLE	



- Continue on Te Moehau Rd from the swimspot and cross the bridge. After the bridge make a right hand turn onto Moawhango Valley Rd which is a gravel road. Drive down this road for about 13 minutes (9km).
- At the next major intersection turn left onto Otuarei Rd. Follow this road (roughly 13 km) and it eventually turns into Pukeokahu Road (the junction around 12km in has a road sign that looks like Pukeokahu Rd is a right turn down – follow Pukeokahu around to the left, not the right). Drive on Pukeokahu road for a few minutes and take the first right down onto Mangahoata Rd (this is a forked entrance). There is a set of stock sheds at the corner of these two roads. Follow Mangahoata 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). Use first gear. You will drive towards the front of the lodge. The track follows around to the left of the lodge. Follow this around 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.

Field Site Location Guide – Contact Recreation Run 5



Rangitīkei at the meeting of the waters (1hour from previous site)

AKA Rangitikei at Toetoe Bridge

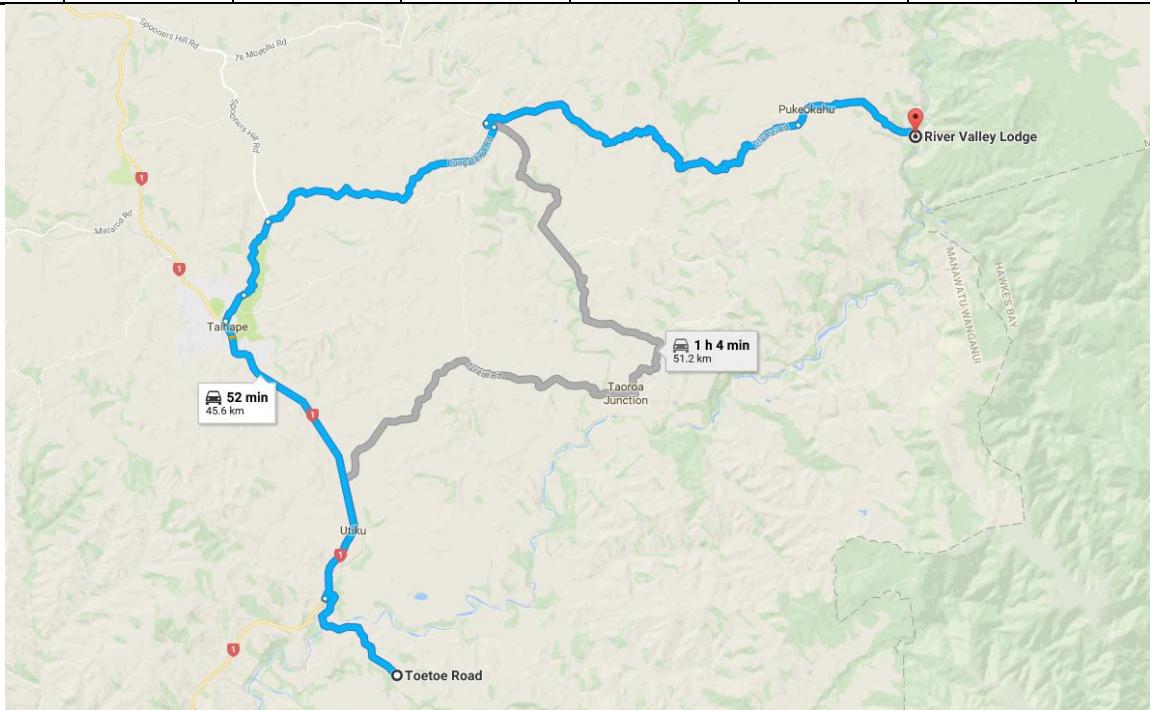
This site requires a cliff hazard photo to be taken. Refer to other side for reference photos

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements
Weather/Temperature Extremes			

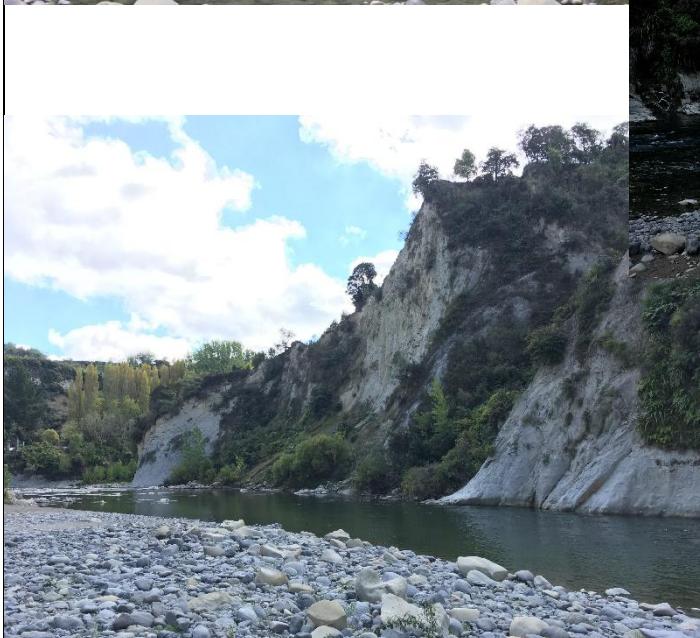
REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	HI-VIS	VHF RADIO	SAMPLE POLE



- Head back to Taihape by going back to onto Pukeokahu Rd and following Otuarei Rd and turning left onto Moawhango Valley Rd and straight onto Pungatawa Rd. Follow Pungatawa Rd until the road ends at the intersection with Spooner Hill Rd. Turn left onto Spooner Hill Rd. This road will take you into Taihape and onto SH1 southbound.
- Continue onto State Highway 1 heading towards Palmerston North.
- Drive for 9.5km then turn left onto Toetoe Road. There is a brown sign with Kawhatau Outdoor Education Centre on it. After 750m you come up to a bridge.
- Cross the bridge and immediately turn left onto a gravel car park. At the end there is a gravel track. When the track splits up park the car there and head down the path to the left leading down to the river. There is a sandy beach where you can take the samples.

Field Site Location Guide – Contact Recreation Run 5



Rangitīkei at Mangaweka (10 minutes from previous site)

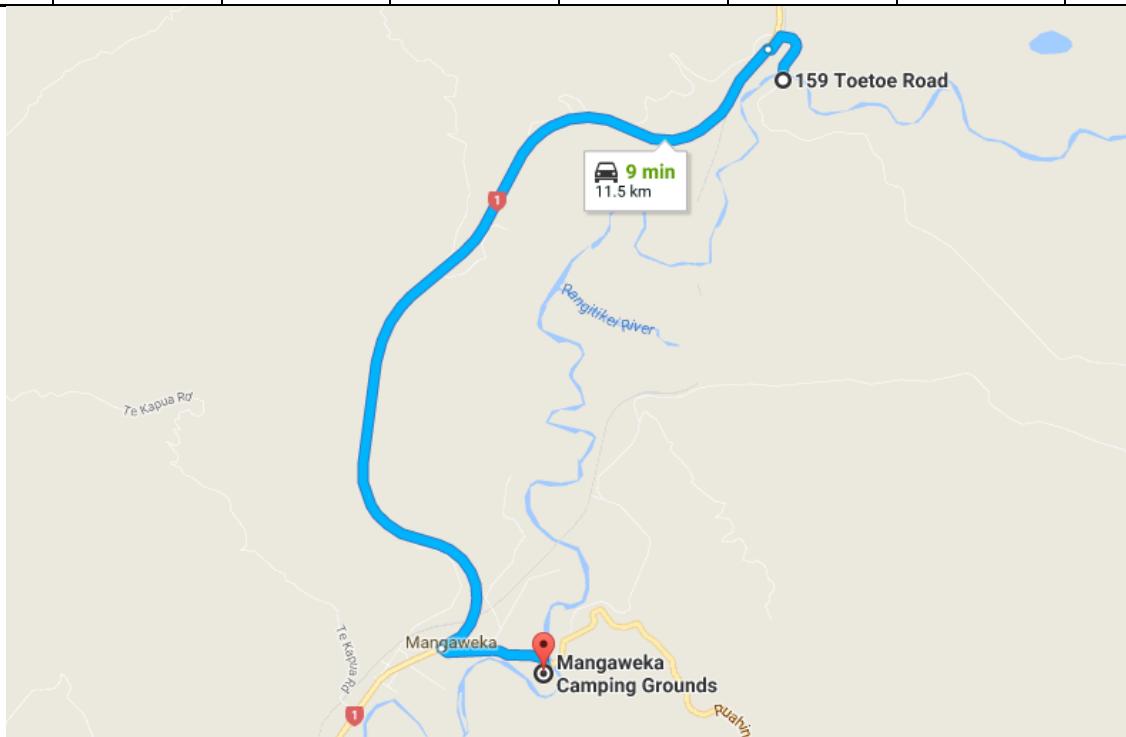
This site requires a cliff hazard photo to be taken. Refer to other side for reference photos

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements
Weather/Temperature Extremes			

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	PERSONAL LOCATOR BEACON	HI-VIS	VHF RADIO	SAMPLE POLE



- Head back out to State Highway 1 and turn left. Drive for 9.5km.
- 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. There is a blue campground sign, a green sign towards Rangiwahia and a brown sign with Manawatu Scenic Route opposite Ruahine Road.
- Drive down the hill for approximately 1 kilometre. You will come to a bridge spanning the Rangitīkei River. Just before this on the right hand side you will see a track leading down into Mangaweka Camping Grounds. Turn in here.
- Drive down through the camp and you will see a track which leads down onto the gravel next to the river. The track splits at a water tank, turn left here and drive to the end of the track. Park on the grassy area. Sample the river straight out from here.

Field Site Location Guide – Contact Recreation Run 5



Mangawharariki at Ruahine Dress Circle (20 minutes from previous site)

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards				
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements				
Weather/Temperature Extremes							
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	PERSONAL LOCATOR BEACON	HI-VIS	VHF RADIO	SAMPLE POLE	



- Travel back out of the campsite - turn right at the campsite and continue up Ruahine Rd across the one-way bridge
- Continue up the road for 11km until on the left is Kelpie Rd- turn down this gravel road. The road is sign posted with an attraction yellow sign
- Turn left at the first intersection down Lagoon road- Again sign posted
- Drive down this road down into the reserve. Once you cross the first bridge take the pathway on the left down to the swim spot. You can either park here off the road or drive down to the parking area at the bottom.
- At the picnic table take the right hand path to the sample spot show below. Sample downstream of the waterfall. Be careful of slippery banks!

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Rangitīkei at Vinegar Hill (35 minutes from previous site)

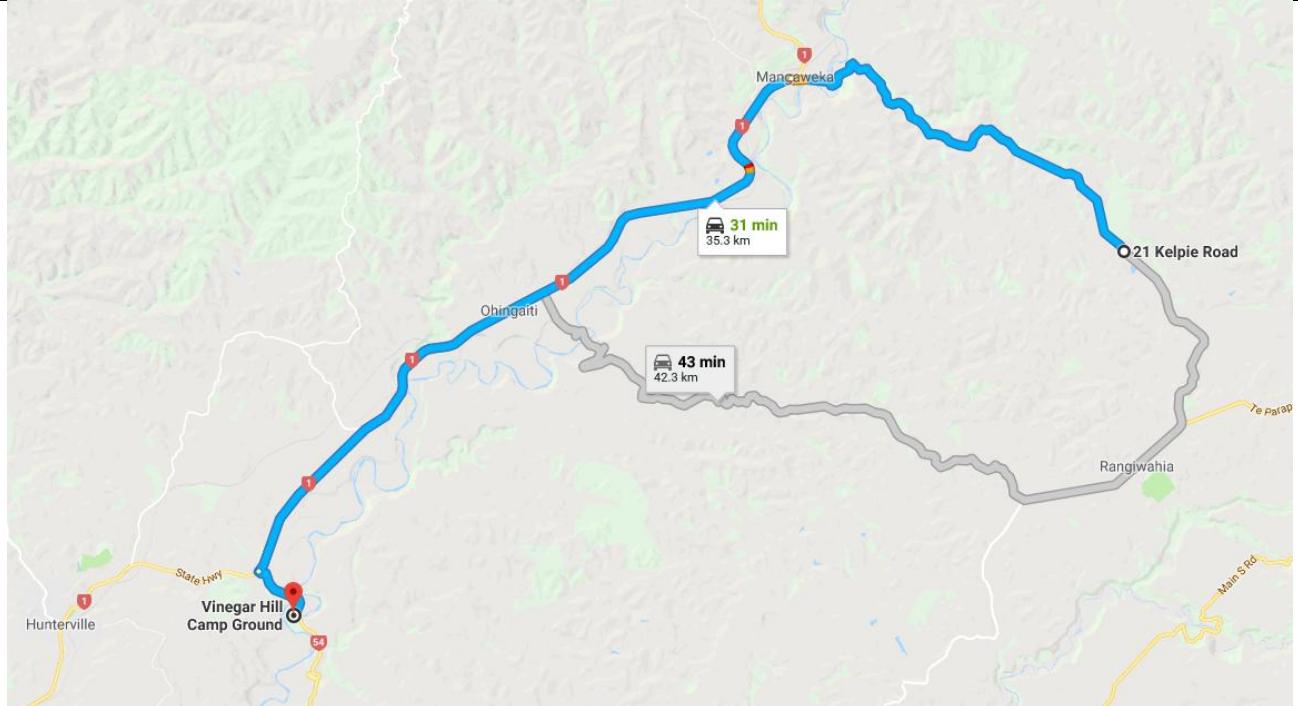
This site requires a cliff hazard photo to be taken. Refer to other side for reference photos

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements
Weather/Temperature Extremes			

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	PERSONAL LOCATOR BEACON	HI-VIS	VHF RADIO	SAMPLE POLE



- Head back towards Ruahine Road and turn right back onto Ruahine Rd and continue back until you reach SH1
- At SH1 turn left towards Bulls. Drive for 21km then turn left onto State Highway 54 towards Feilding (Vinegar Hill Road, it is sign posted to Feilding and there is a turning bay).
- Drive for 1.7km to the bridge over the Rangitīkei River.
- Immediately after crossing the bridge turn right; there is a blue campground sign.
- Follow the track through the bush and turn right when you come up to the solar panel.
- Drive to the end of the track and park in front of the river access track.



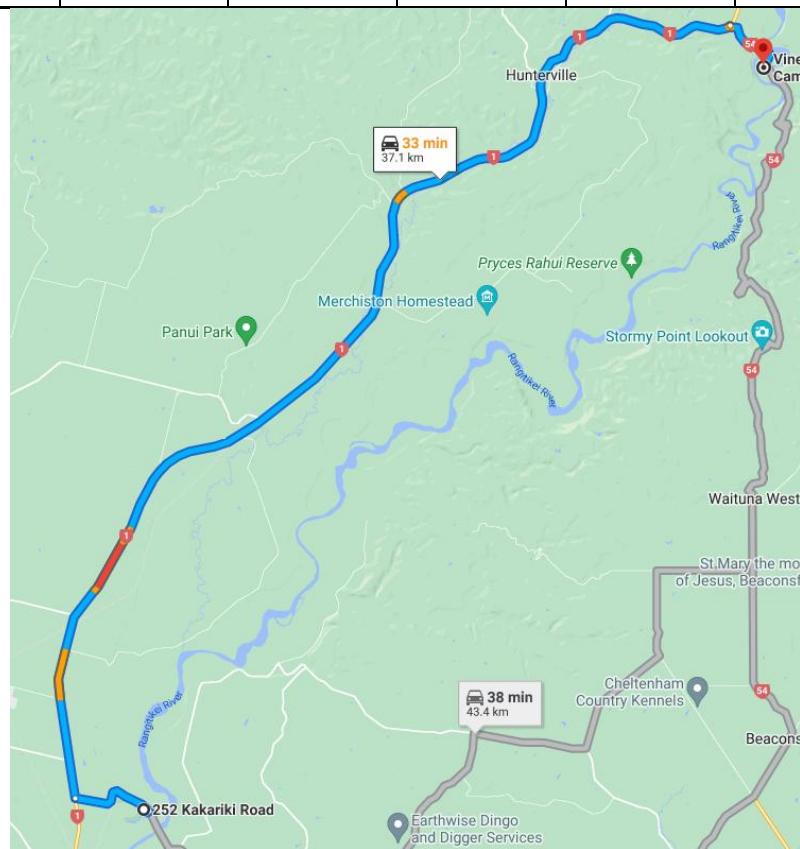
Rangitīkei at Kakariki (15 minutes from previous site)

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements
Weather/Temperature Extremes			

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	PERSONAL LOCATOR BEACON	HI-VIS	VHF RADIO	SAMPLE POLE	



- Head back to SH1 the same way you came, turn left onto State Highway 1
- Turn left onto Kakariki Road. There is a green sign for Feilding and a brown sign for Rangitīkei river access
- Continue on Kakariki Rd for two minutes, until you approach a bridge (with a red rail bridge beside).
- Just before crossing the Bridge there is a gravel track to your right.
- Follow the gravel track down to the river and sample upstream of the bridge. Don't drive on the river – park before you get down to the river. Be careful as there is heavy machinery often working in the area. Park in the gravel area away from the truck pathways.

Field Site Location Guide – Contact Recreation Run 5



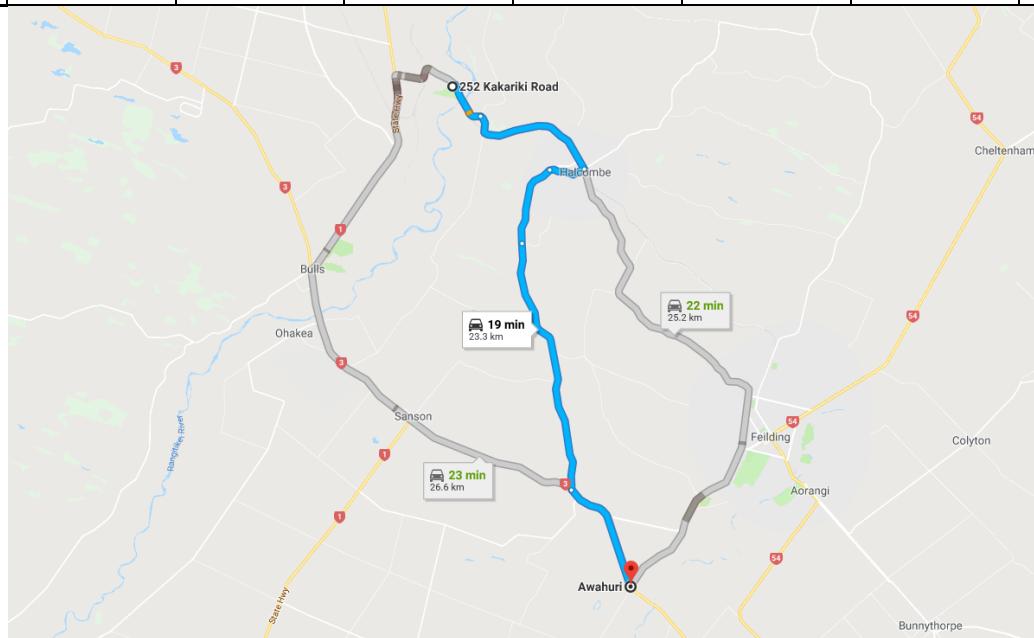
Ōroua at Awahuri Bridge (20 minutes from previous site)

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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Remote Area	Traffic / Vehicle Movements
Weather/Temperature Extremes			

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):

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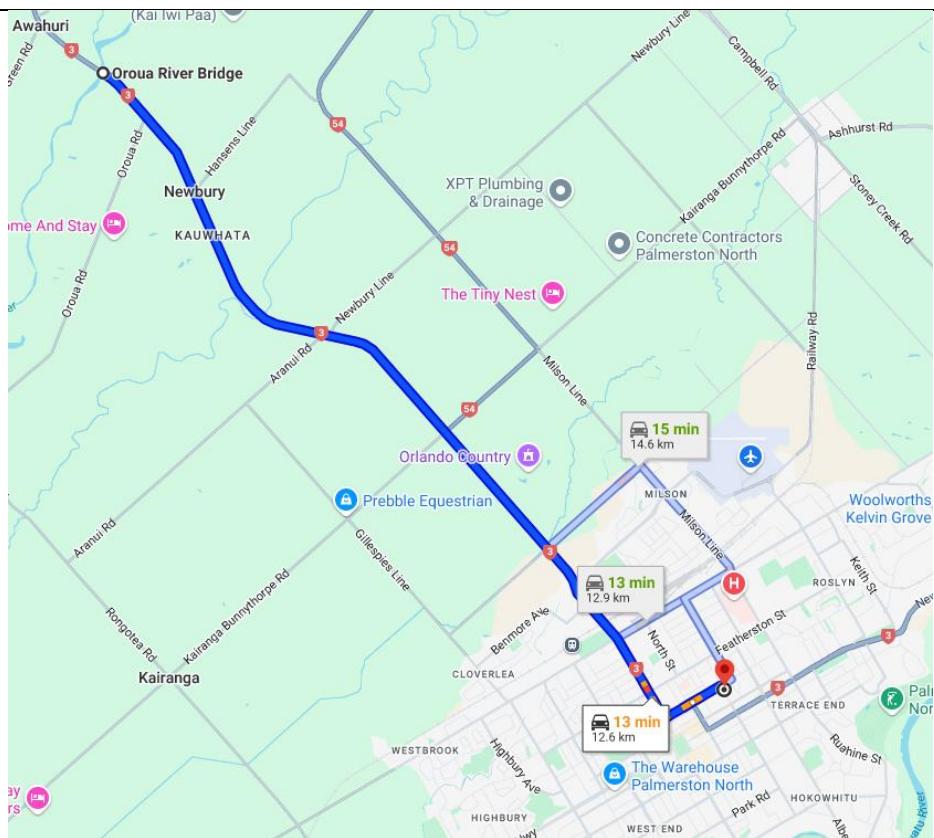


- Turn right and drive over the bridge towards Halcombe
- Drive half way through Halcombe and turn right on to Mount Biggs Rd
- Continue on Mount Biggs road right to the end, at this intersection turn left onto SH3
- Just before the bridge as you are leaving Awahuri pull over to the left
- Here there will be a gravel drive which leads to the river. Park on the other side of the barrier on the river bed. A key should be used to open the barrier. If you do not have the key please park way off the road and walk down.
- Sample upstream of the bridge as shown below

Field Site Location Guide – Contact Recreation Run 5



Finishing up (13 mins to HRC)



Going to HRC

1. Follow SH3 into Palmerston North.
2. Travel though Palmerston North following Rangitikei Line and turn left onto Grey Street.
3. Drive straight through the second set of lights then turn right onto Victoria Avenue.
4. Soon after, turn left into HRC.