

Version No: 1.0 Issue Date: 24/05/2021 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: XX Page: 1 of 18
	Hydrology Operations Manual	

Version 1.0 24/05/2021

Invertebrate Monitoring Run Guide

OROUA

STATE OF ENVIRONMENT (Annual 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 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 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 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.

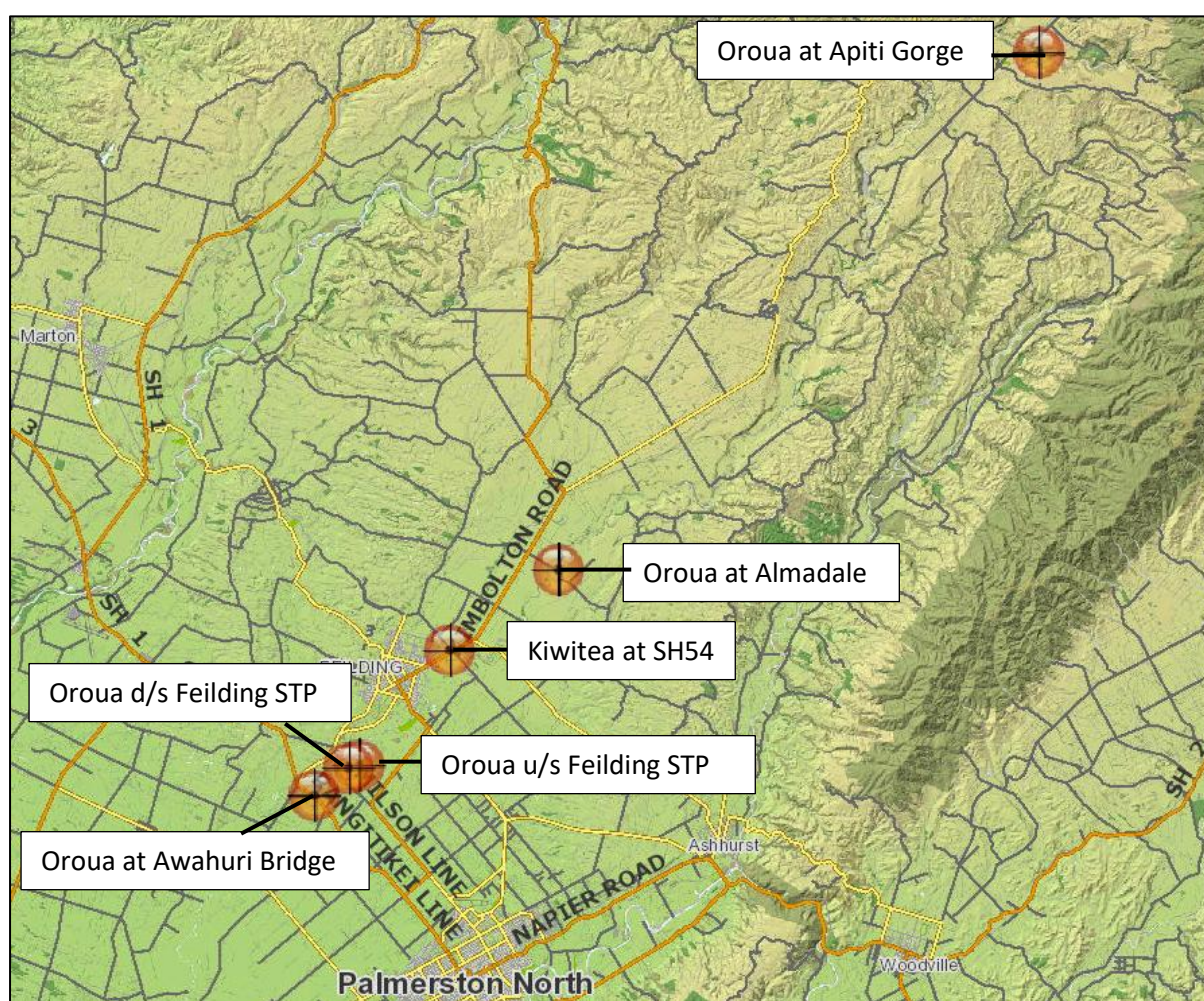
SAMPLING GLOVES	EAR PROTECTION	HARD HAT	SAFETY GLASSES / GOGGLES	WORK BOOTS / WADERS	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<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 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	
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]
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats. Staff are encouraged to make use of these. [HMP 17]
Difficult Entry/Exit	✓			✓	✓		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	✓			✓	✓		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.
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]
Trip Hazards	✓			✓	✓		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	✓			✓	✓		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]
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]

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
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].
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]
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	✓			✓		✓	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	✓			✓		✓	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	✓			✓		✓	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]

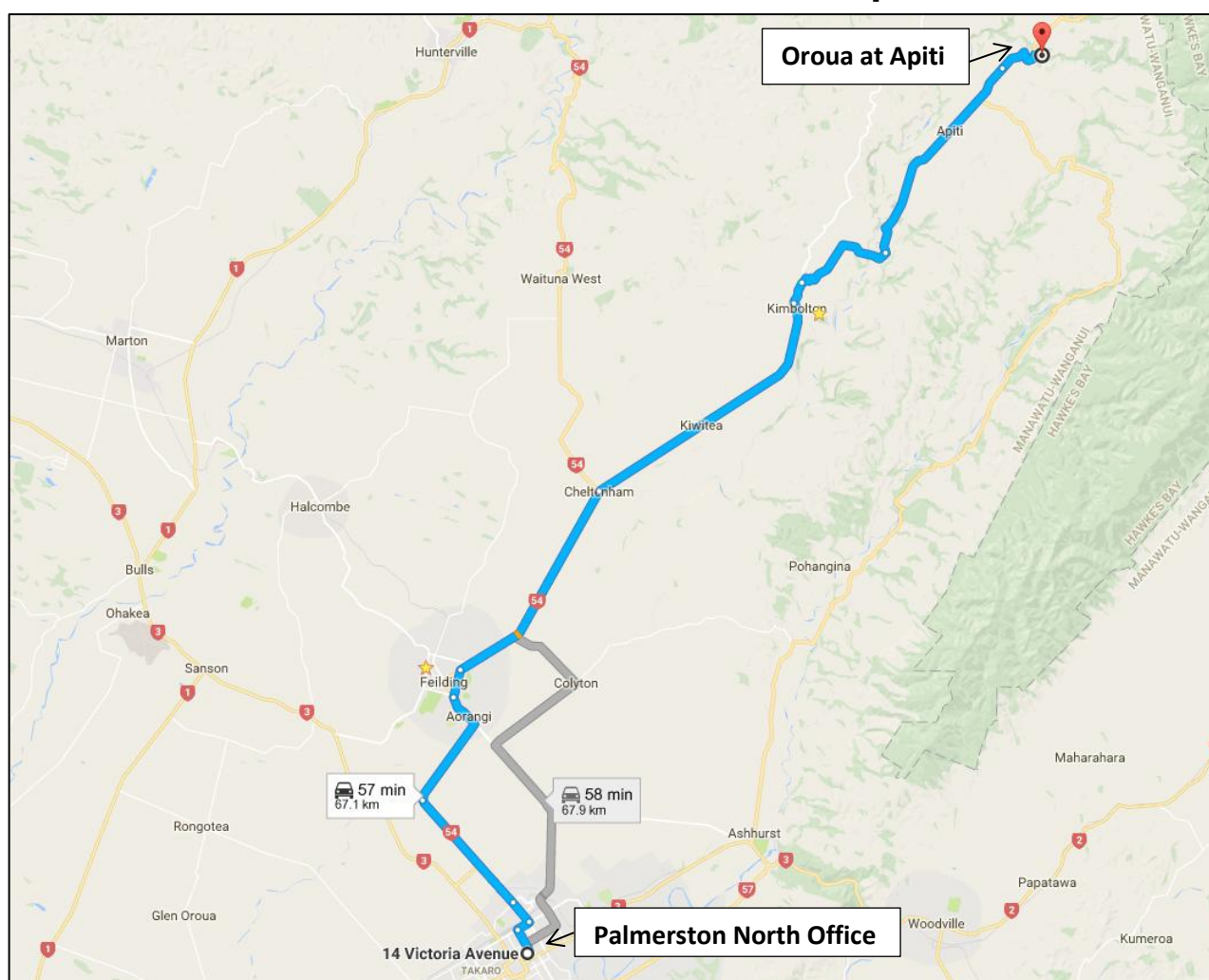
Site Information

Hilltop Site Name	Easting/Long (NZTM)	Northing/Lat (NZTM)
Oroua at Apiti Gorge + NEMS	1849982	5575012
Oroua at Almadale	1826381	5549635
Kiwitea at SH54	1821044	5545674
Oroua u/s Feilding STP+ NEMS	1816594	5540022
Oroua d/s Feilding STP	1816085	5539898
Oroua at Awahuri Bridge	1814388	5538558



Equipment	<ul style="list-style-type: none"> • Camera and GPS • Kick net • Invertebrate Pottles and Propan-2-ol • White plastic tray • Metal ruler • Gravelometer • Sampling Worksheet and Pencil • Bathoscope / Viewer • Scrubbing brush, tooth brush, washer bottle, yellow sample bottle lid and ice cream container • Pottles (Approx 10), chilly bins and ice-packs • Personal Locator Beacon • 4WD Vehicle equipped with VHF Radio • Throw Bag
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SITE LOCATION MAP – Oroua at Apiti



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	Weather/Temperature Extremes	Traffic / Vehicle Movements
Engulfment	Communication- means of	Remote Area	Reduced Visibility

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	THROW BAG	VHF RADIO	HI-VIS	
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DIRECTIONS:

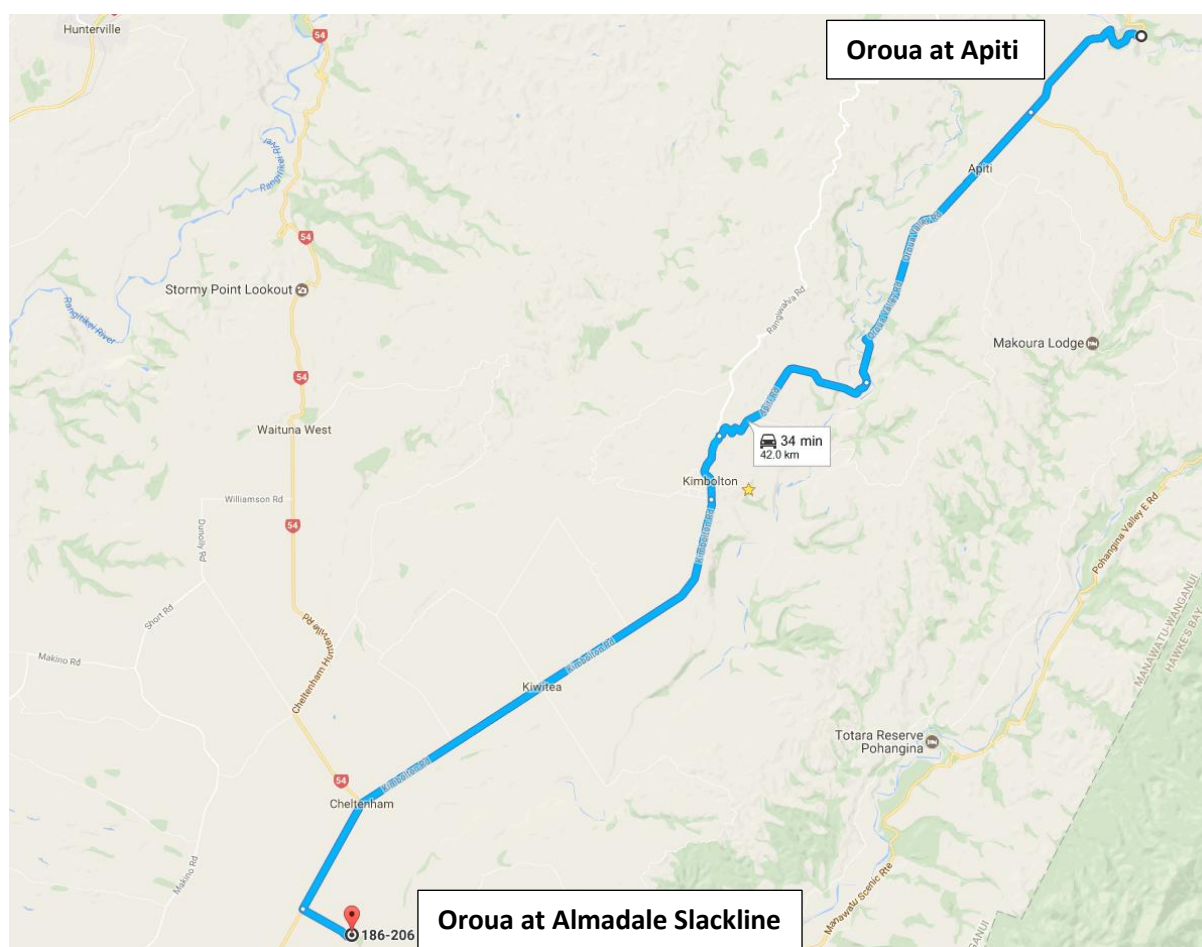
- From the Palmerston North office travel to Feilding and then head north east out of Feilding along State highway 54 (Kimbolton Road).
- Continue on this road for approximately 25 kilometres and you will come to Kimbolton. Continue on through Kimbolton and travel a further 1.5 kilometres until you get to the intersection by the lookout to Apiti- turn right here onto Apiti Road.

- Stay on Apiti Road which will eventually turn into Oroua-Valley Road and drive through Apiti. The road name will change from Oroua-Valley Road to Main South Road after you drive through Apiti. Continue on Main South Road for approximately 7 kilometres.
- You will head down into the Apiti Gorge. At the bottom of this there will be the bridge across the Oroua River. Just before you reach the bridge, on the left hand side of the road there is a track which leads down beside the river. Take this track.
- Drive to the end of this track and sample here, approximately 50 metres downstream of the bridge. Be aware that there is a small tributary that comes into the river on the true right hand side of the river. Sampling must be done upstream of this if at all possible.
- Find a suitable riffle to sample.



Oroua at Apiti Gorge Sample Point.

SITE LOCATION MAP – Oroua at Almadale



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	Weather/Temperature Extremes	Traffic / Vehicle Movements
Engulfment	Communication- means of	Remote Area	Reduced Visibility

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	THROW BAG	VHF RADIO	HI-VIS	
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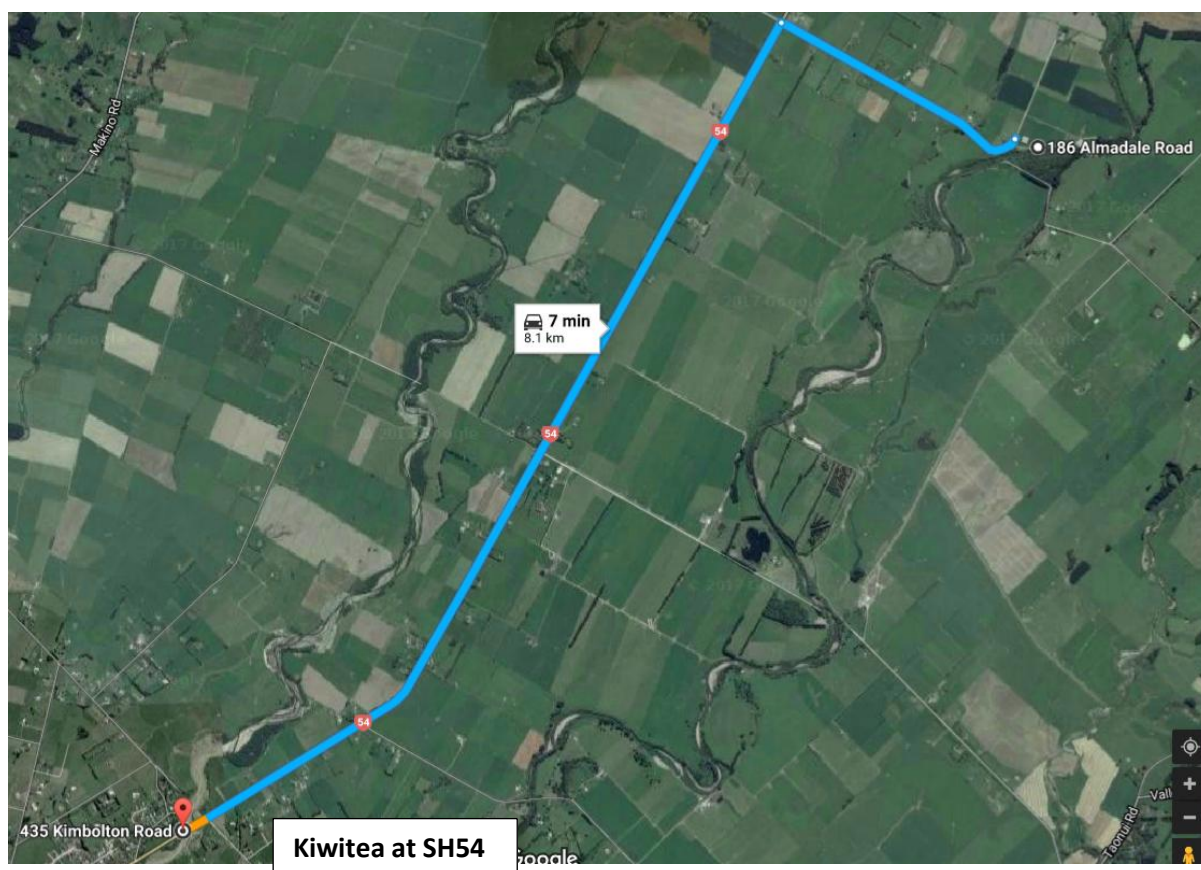
DIRECTIONS:

- From the Oroua at Apiti site travel back the way you came towards Feilding.
- Drive through Cheltenham and the second road on the left should be Almadale Road. Take this road.
- This road stays straight for approximately 1 kilometre, and then veers around to the left. At the same stage as it turns to the left another arm comes off the road to the right and there is a sign that says Almadale Reserve. Take this right hand turn into Almadale reserve.
- Drive into the reserve along the track until you come to the green building on the right of the track. Drive just past here, park up and find a suitable riffle to sample.



Oroua at Almadale Sample Point.

SITE LOCATION MAP – Kiwitea at SH54



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	Weather/Temperature Extremes	Traffic / Vehicle Movements
Engulfment	Communication- means of	Remote Area	Reduced Visibility

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):

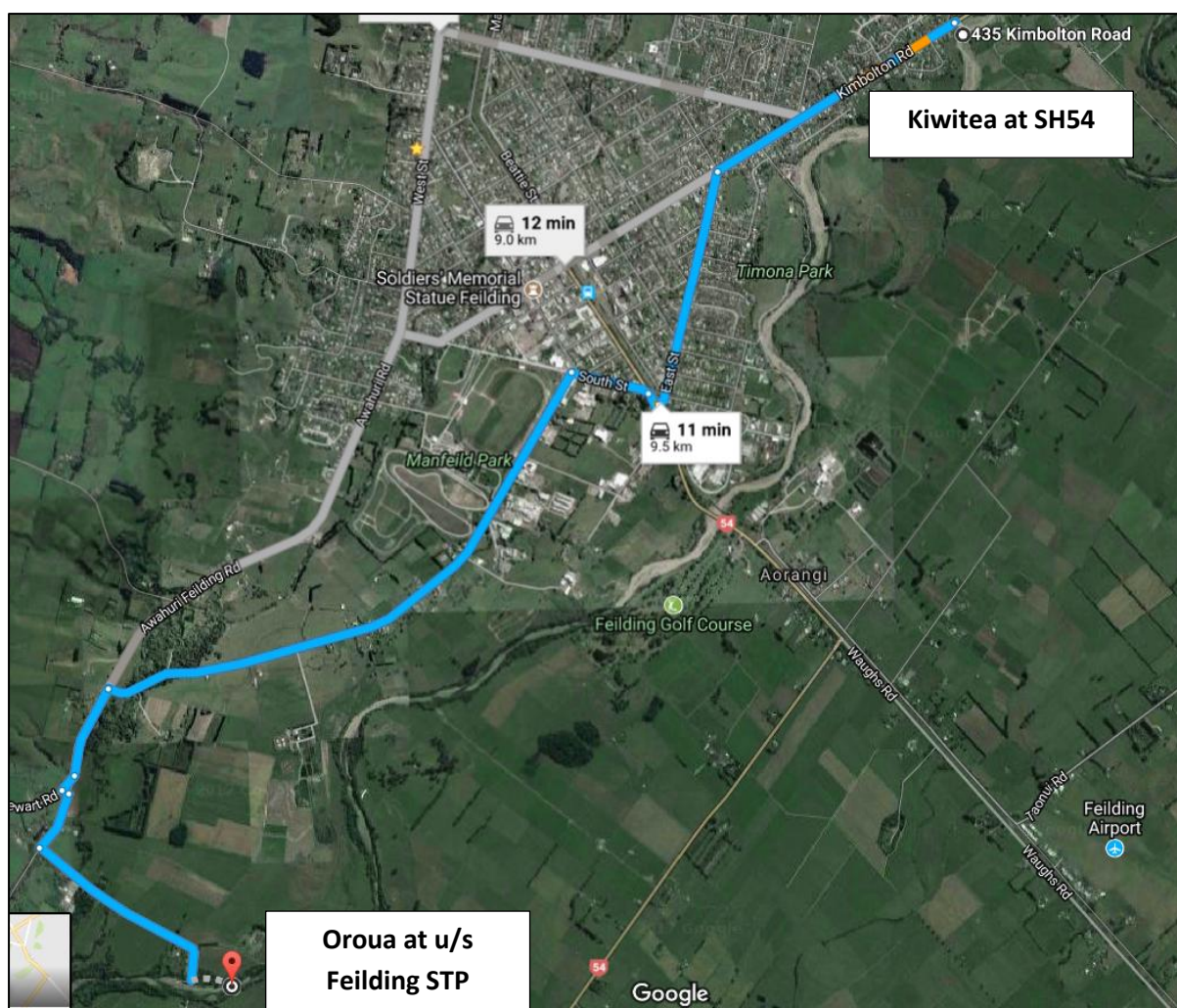
WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	
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DIRECTIONS:

- From the Oroua at Almadale site head back up Almadale Rd the way you came and turn left onto State Highway 54.
- Follow State Highway 54 for about 6.4km, you will come to a bridge that goes over the Kiwitea Stream just as you drive into Feilding. Immediately after the bridge turn left into the grassy reserve and park here.
- Walk down to the Kiwitea Stream and find a suitable riffle to sample just upstream of the bridge.



SITE LOCATION MAP – Oroua at u/s Feilding 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
Difficult entry/exit	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements
Engulfment	Communication- means of	Remote Area	Reduced Visibility

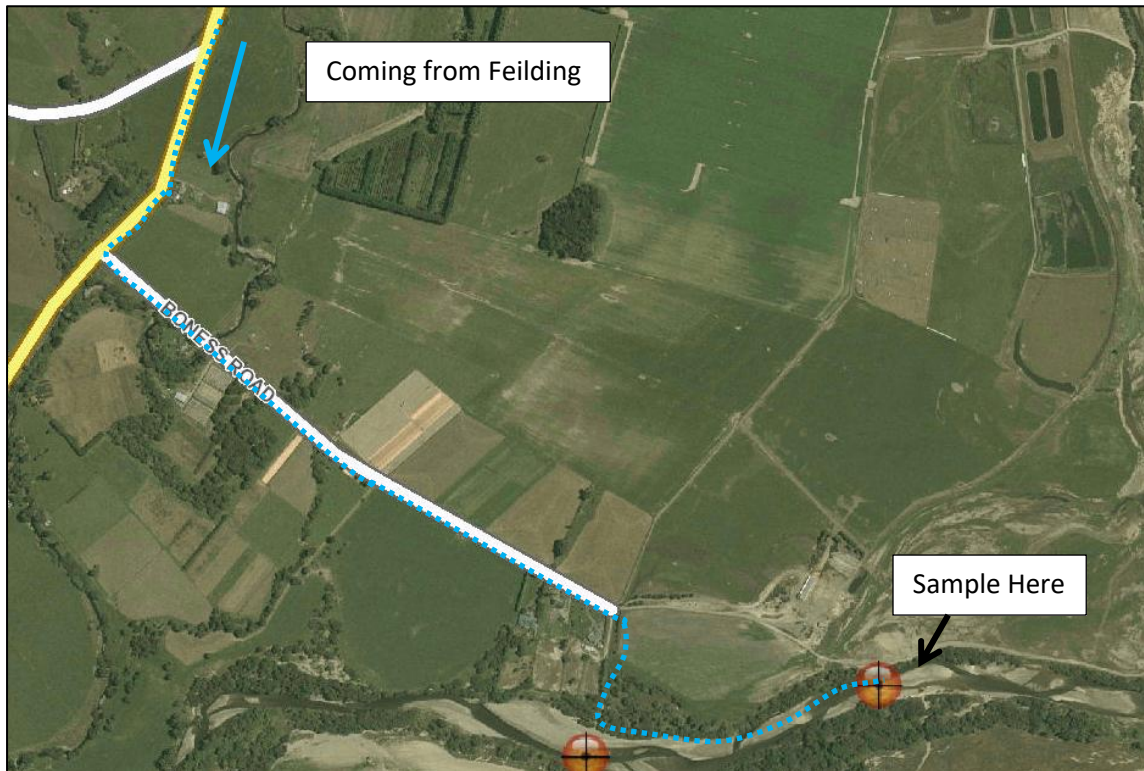
REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

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

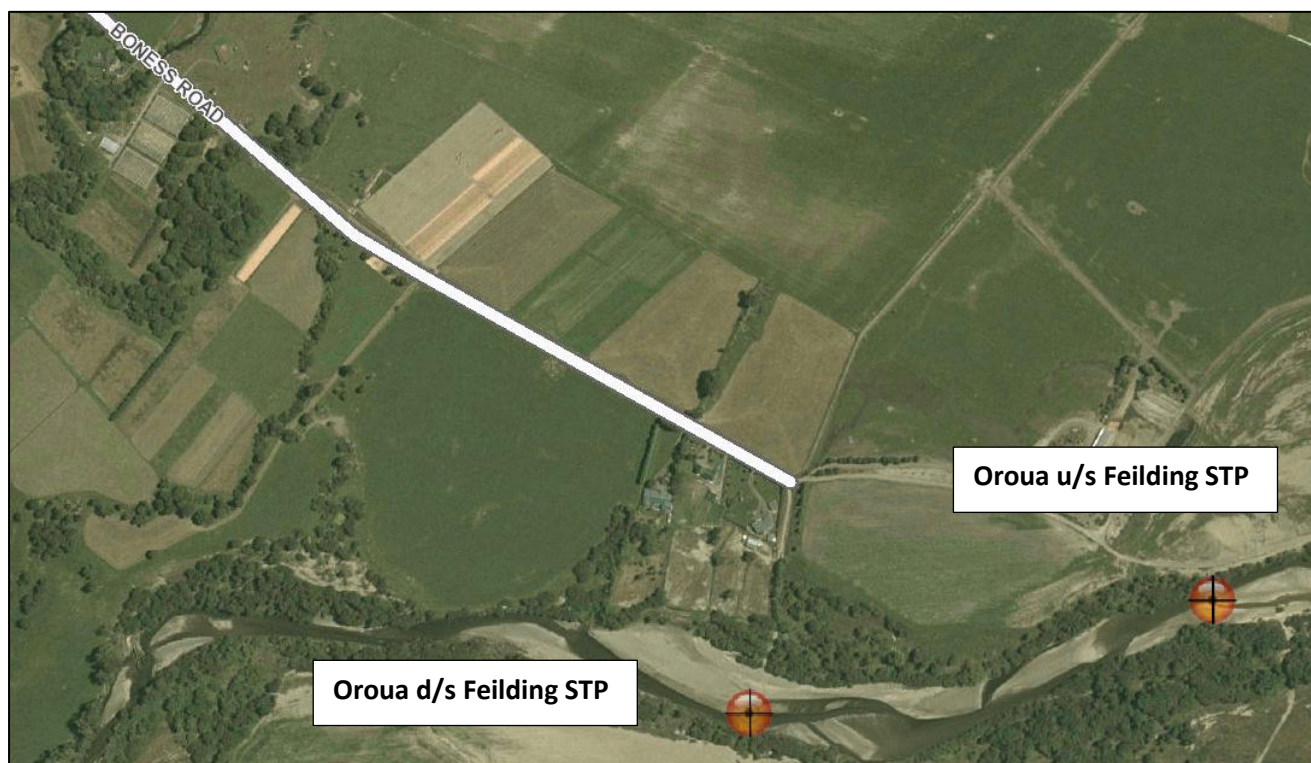
- From the Kiwitea at SH54 site continue down Kimbolton Road until you get to the intersection with South Street (the last roundabout at the end of Kimbolton Road). Turn right here onto South Street.
- Follow South Street around to the left as it turns into Awahuri Road. Stay on this road for approximately 4 kilometres until you reach Boness Road on your left. Turn here.

- Drive down Boness Road until the road becomes gravelled. You will come to a split in the road where can go left or sharply to the right. Take the right hand turn. This will take you down to the river edge.
- Drive down onto the gravel beach next to the river if you can. This site changes regularly. Drive upstream along the beach for as far as you can then park up.
- Walk upstream, either in the river or on the bank. On the true right side of the river you will see a small tributary coming out. This is Feilding STP- there is also a sign here.
- Walk approximately 100 metres upstream of the STP discharge and find a suitable riffle to sample.



Oroua upstream Feilding STP sample point.

SITE LOCATION MAP – Oroua at d/s Feilding 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
Difficult entry/exit	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements
Engulfment	Communication- means of	Remote Area	Reduced Visibility

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	THROW BAG	VHF RADIO	HI-VIS	SAMPLING GLOVES
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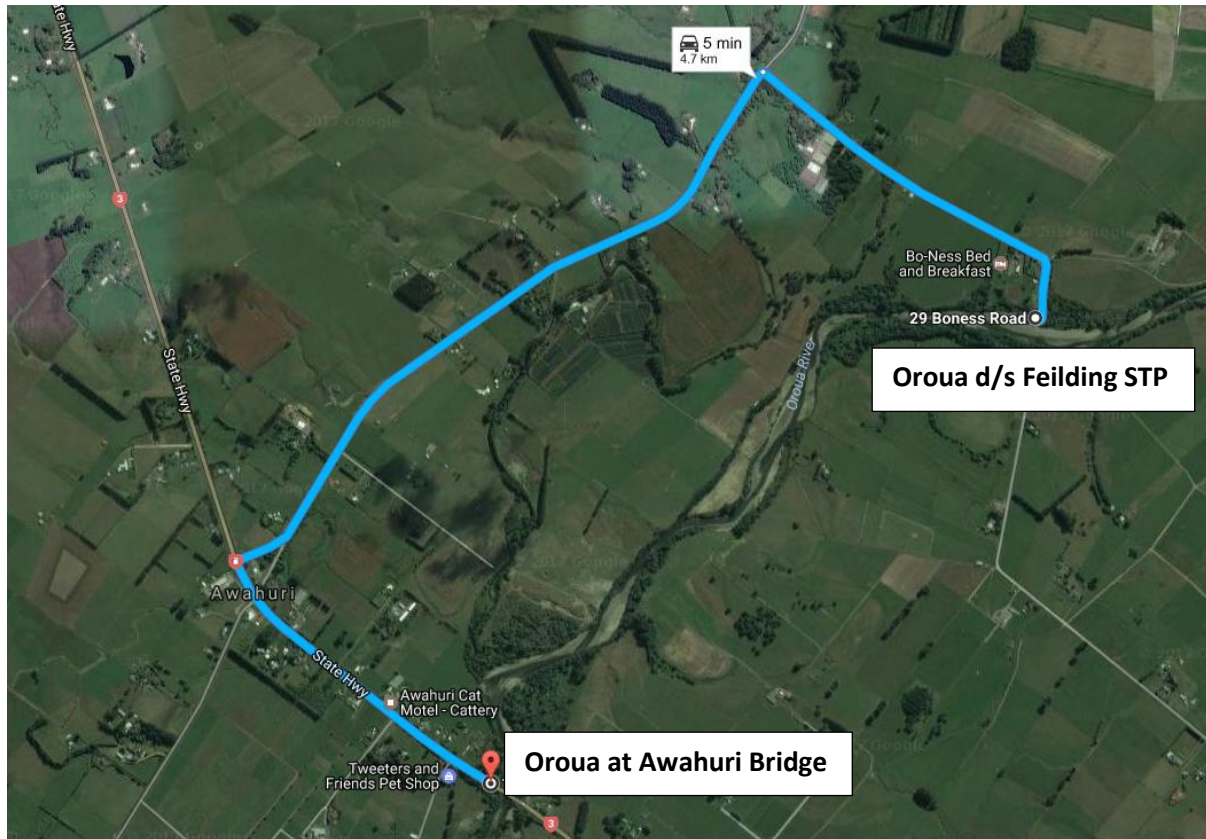
DIRECTIONS:

- From the upstream Feilding STP site head back to the car and drive it downstream on the gravel beach. On the true left (far side) of the river you can see where vehicles can get access to the river as there is a large gap in the trees. Continue down another 50 to 100 metres from here.
- Find a suitable riffle to sample.



Oroua downstream Feilding STP sample point.

SITE LOCATION MAP – Oroua at Awahuri Bridge



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	Weather/Temperature Extremes	Traffic / Vehicle Movements
Engulfment	Communication- means of	Reduced Visibility	

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	THROW BAG	VHF RADIO	HI-VIS	
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DIRECTIONS:

- From the downstream Feilding STP site drive back up Boness Road the way you came to the end.
- Turn left onto Awahuri Road and follow this to the end.
- At the end of Awahuri Road turn left onto State Highway 3 and follow this for about 1km. Just before you reach the bridge that crosses the Oroua River there is a track that leads off to the left down to the river. Take this track.
- Follow the track down to the river and park up here.
- Find a suitable riffle to sample.



Oroua at Awahuri Bridge sample point.